



Architectural & Environmental Acousticians
Noise & Vibration Engineers

NOISE IMPACT ASSESSMENT

NORTHUMBERLAND HOUSE,
303-306 HIGH HOLBORN

AREA SQUARED LTD

RP01-17511

NOISE IMPACT ASSESSMENT

PROJECT: 20 PROCTER STREET, LONDON

CLIENT: AREA SQUARED LTD

CLIENT ADDRESS: 5TH FLOOR, COUNTING HOUSE
53 TOOLEY STREET
LONDON
SE1 2QN

COMPANY ADDRESS: CASS ALLEN ASSOCIATES
BEDFORD I-LAB
PRIORY BUSINESS PARK
BEDFORD
MK44 3RZ

DOCUMENT CONTROL:

REVISION	ISSUE DATE	REPORT BY	CHECKED BY	NOTES
0	27 July 2017	Alex Young, MSc AMIOA, Acoustics Consultant	Tim Ives, PhD BEng CEng MIOA, Senior Acoustics Consultant	Initial issue
1	09 October 2017	Alex Young, MSc AMIOA, Acoustics Consultant	-	Minor Revision

This report has been prepared by Cass Allen Associates Ltd with all reasonable skill, care and diligence, and taking account of the resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid at the time of collection. This report is for the exclusive use of the client named above; no warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from Cass Allen Associates. Cass Allen Associates disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of work.

TABLE OF CONTENTS

1. INTRODUCTION
2. PROJECT DESCRIPTION
3. PLANNING POLICY
4. PLANT NOISE IMPACT ASSESSMENT
5. CONCLUSIONS

APPENDIX 1 SURVEY RESULTS

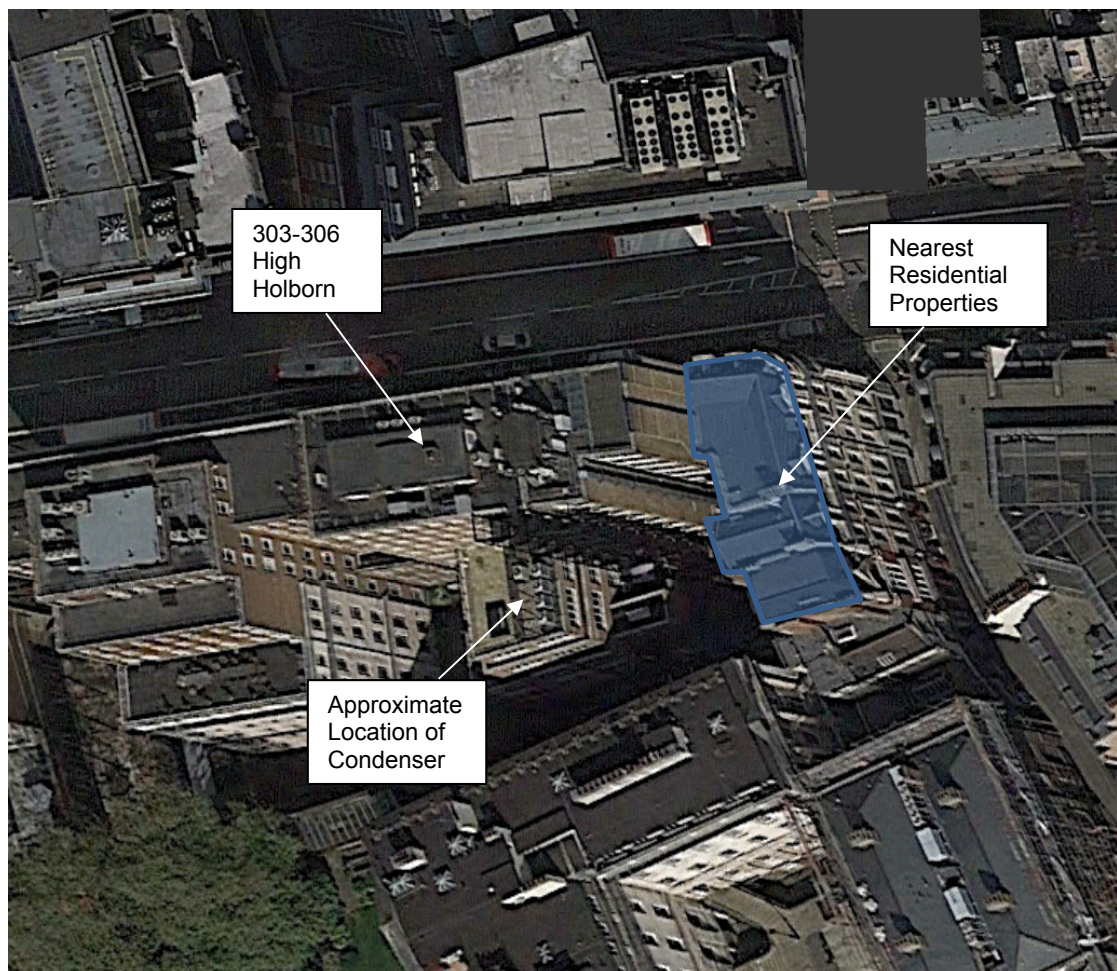
1. INTRODUCTION

- 1.1 Cass Allen Associates has been instructed by Area Squared Ltd to assess the potential noise impact of a new condenser unit proposed to be installed to the rear of Northumberland House at 303-306 High Holborn, London WC1A 1NU.
- 1.2 The assessment has been carried out in accordance with relevant local and national planning guidance.
- 1.3 The aim of the assessment was to assess the potential impact of noise emissions from the unit at the positions of existing sensitive receptors in the area.
- 1.4 This report contains technical terminology; a glossary of terms can be found at www.cassallen.co.uk/glossary.

2. PROJECT DESCRIPTION

- 2.1 The proposal is to install a new condenser unit on a fourth floor roof terrace to the rear of Northumberland House, a commercial/office building at 303-306 High Holborn in London. The fourth floor roof terrace is currently used as a plant area and already contains five existing condensers.
- 2.2 The majority of the surrounding buildings are offices or house commercial premises and as such are not considered to be noise sensitive. The nearest noise sensitive receptors to the proposed location of the new condenser is understood to be residential units on the upper floors of the buildings on Chancery Lane, which are approximately 20 metres to the east.
- 2.3 An annotated aerial photo of the site is shown in Figure 1 below.

Figure 1 **Annotated Aerial Photo**



3. PLANNING POLICY

National Policy

- 3.1 Outline guidance for the assessment of noise affecting new developments is given in the National Planning Policy Framework (NPPF). Section 109 of the NPPF states:

The planning system should contribute to and enhance the natural and local environment by...preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by, unacceptable levels of...noise pollution.

and in section 123:

Planning policies and decisions should aim to:

- *avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;*
- *mitigate and reduce... other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;*
- *recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established;*
- *and identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.*

Local policy

- 3.2 Camden Council's Policy A4 given in the Camden Local Plan (June 2017) states:

The Council will seek to ensure that noise and vibration is controlled and managed.

Development should have regard to Camden's Noise and Vibration Thresholds (Appendix 3). We will not grant planning permission for:

- a. development likely to generate unacceptable noise and vibration impacts; or*
- b. development sensitive to noise in locations which experience high levels of noise, unless appropriate attenuation measures can be provided and will not harm the continued operation of existing uses.*

We will only grant permission for noise generating development, including any plant and machinery, if it can be operated without causing harm to amenity. We will also seek to minimise the impact on local amenity from deliveries and from the demolition and construction phases of development.

- 3.3 To address the requirements of the national and local policies, noise emissions from the proposed condenser unit at the position of existing sensitive receptors in the area have been assessed.

4. PLANT NOISE IMPACT ASSESSMENT

Design criteria – Mechanical plant noise

- 4.1 BS4142:2014 – *Methods for rating and assessing industrial and commercial sound* (BS4142) can be used to assess the impact of noise from external industrial and/or commercial noise sources on nearby sensitive receptors.
- 4.2 The BS4142 assessment methodology can be summarised as follows:
1. Measure the existing background noise levels (LA90,T dB) at the locations of nearby noise sensitive receptors during the quietest periods when the noise source(s) under investigation will operate;
 2. Predict or measure the noise emissions (LAeq,T dB) from the noise source(s) under investigation at the location(s) of the nearby sensitive receptors, including corrections for any distinguishable acoustic features (e.g. tones, whines, screeches, hisses etc.);
 3. Subtract the measured background noise levels (item 1 above) with the measured or predicted rating noise levels (item 2 above) at each sensitive receptor. BS4142 states that:
 - a) *Typically, the greater this difference, the greater the magnitude of the impact.*
 - b) *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.*
 - c) *A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.*
 - d) *The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.*
- NOTE Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact.*
- 4.3 It is understood from guidance given in the Appendix 3 of the Camden Local Plan (2017) that Camden Council consider a criterion of '10 dB below background' to be appropriate for any noise which does not have distinctive acoustic characteristics. It is also understood that a criteria of '15 dB below background' should be adopted for any mechanical plant which generates either tonal or impulsive noise.
- 4.4 In this case, the new plant item proposed is a small condenser unit which is not expected to generate tonal or impulsive noise. Therefore, a criterion of '10 dB below background' has been adopted.

- 4.5 Background noise levels (LA90) at the site were measured as part of the site noise survey outlined in Appendix 1. Noise levels were logged on the fourth floor roof terrace of the site in the vicinity of the proposed location of the new condenser unit.
- 4.6 Noise levels at this location are considered representative of noise levels at the nearby noise sensitive receptors. However, it was noted during the survey that the existing condensers in the area would turn on and off intermittently and that noise generated by these units, when operating, were affecting the noise measurements being taken.
- 4.6.1 To address this, the lowest observed background noise levels measured during the survey have been used to develop the BS4142 noise limits, as opposed to 'representative' background noise levels that should be used as per the BS4142 guidance (representative background noise levels are normally interpreted as being the most frequently observed). This ensures that the background noise levels used were unaffected by noise generated by the existing condensers and also that a robust representation of background noise levels at the noise sensitive receptor positions were obtained. During the survey it was seen that the existing condensers were inactive for sufficient periods to allow background noise levels resulting from other noise sources to be quantified.
- 4.7 Based on the results of the noise survey, limits for plant noise emissions from the new condenser at the location of the nearest noise sensitive receptor have been developed in accordance with the BS4142 assessment methodology. These limits are shown in Table 1 below.

Table 1 BS4142 Noise Limits - Free-field Levels

Location	Period	
	Day-time/Evening (0700-2300hrs)	Night-time (2300-0700hrs)
1 metre from the façade of the nearest residential property on Chancery Lane	38 dB	35 dB

Proposed mechanical plant design

- 4.8 Details of the proposed new condenser have been provided by Area Squared. The unit will be a Mitsubishi Electric MUZ-FB50VAH which generates a sound pressure level of 47 dBA at 1 metre when operating in cooling mode and 50 dBA at 1 metre when operating in heating mode.
- 4.9 During the survey it was noted that the existing condensers on the fourth floor roof terrace are Mitsubishi PURY-P300YLM-A1 units. These units are closer to the nearest noise sensitive receptor position than the proposed unit and generate a sound pressure level of 63 dB at 1 metre. Given that these existing units are individually 13 dB louder than the proposed condenser unit, this means that noise emissions from the proposed unit will generally be inaudible whenever the existing units operate i.e. the noise from the existing units will 'mask' noise from the proposed unit.
- 4.10 The nearest noise sensitive location to the proposed location of the new condenser are the residential units on Chancery Lane to the east at a distance of approximately 20 metres from the location of the proposed condenser.

- 4.11 Noise emissions from the proposed condenser at the nearest receptor position were calculated based on the manufacturer noise data and compared to the BS4142 criteria. The results of these calculations are given in Table 2 below.

Table 2 Predicted Plant Noise Emissions from New Building - Free-field Levels

Location	Predicted Plant Noise Levels (LAeq)	BS4142 Criteria (LAeq)	
		Day-time/Evening (0700-2300hrs)	Night-time (2300-0700hrs)
1 metre from the façade of the nearest residential property on Chancery Lane	24 dBA	38 dB	35 dB

- 4.12 It can be seen from Table 2 that the predicted plant noise level at the nearest receptor position is significantly lower than the day and night-time BS4142 noise criteria. It was also seen that noise emissions from the proposed condenser unit are significantly lower than noise emissions from the existing condenser units.
- 4.13 The proposed new condenser is therefore considered to be acceptable with regards to noise.

5. CONCLUSIONS

- 5.1 Cass Allen Associates was instructed by Area Squared Ltd to assess the potential noise impact of a proposed new condenser unit at Northumberland House, 303-306 High Holborn in London.
- 5.2 The assessment was carried out in accordance with relevant local and national planning guidance.
- 5.3 Appropriate limits for noise from mechanical plant have been calculated based on measured noise levels at the site and guidance given in BS4142.
- 5.4 Noise emissions from the proposed condenser were calculated at the location of the nearest noise sensitive receptor based on manufacturer data and have been shown to be significantly lower than the BS4142 criteria.
- 5.5 Furthermore, noise emissions from the proposed condenser are significantly lower than noise emissions from existing condenser units already installed at the site.
- 5.6 It is therefore our view that proposed condenser unit can be considered acceptable in terms of noise.

Appendix 1 Survey Results

Survey Summary:

The survey comprised long term noise logging at the site. Noise levels were dictated by ambient road traffic noise and noise from the existing condenser units.

Survey Period:

26/07/2017 to 27/07/2017

Survey Objectives:

- To identify noise sources that contribute to ambient noise levels at the site;
- To measure noise and vibration levels around the site over a typical day and night-time period.

Equipment Used (Appendix 1, Table 1):

Type	Manufacturer	Model	Serial Number
Sound level meter ¹	Brüel & Kjær	2260	2217601
Calibrator	Brüel & Kjær	4231	2115551

Note 1: All sound level meters were calibrated before and after measurement periods and no significant drift in calibration was found to have occurred. The results of the measurements are therefore considered to be representative.

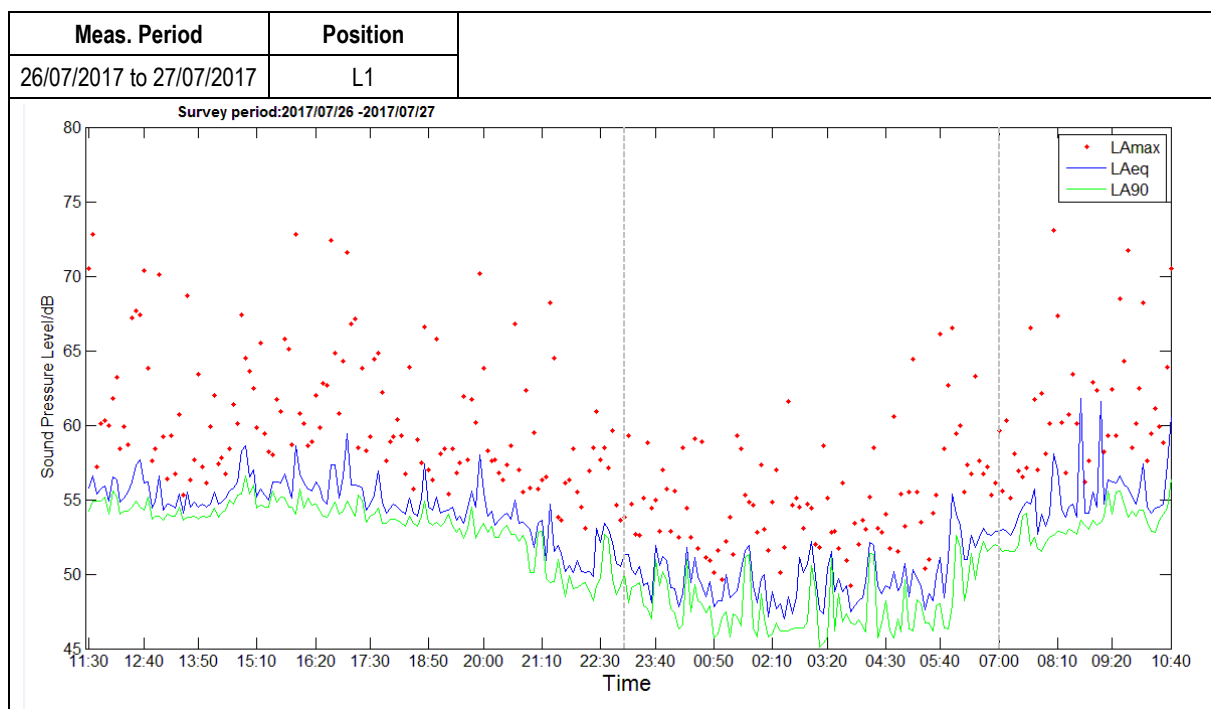
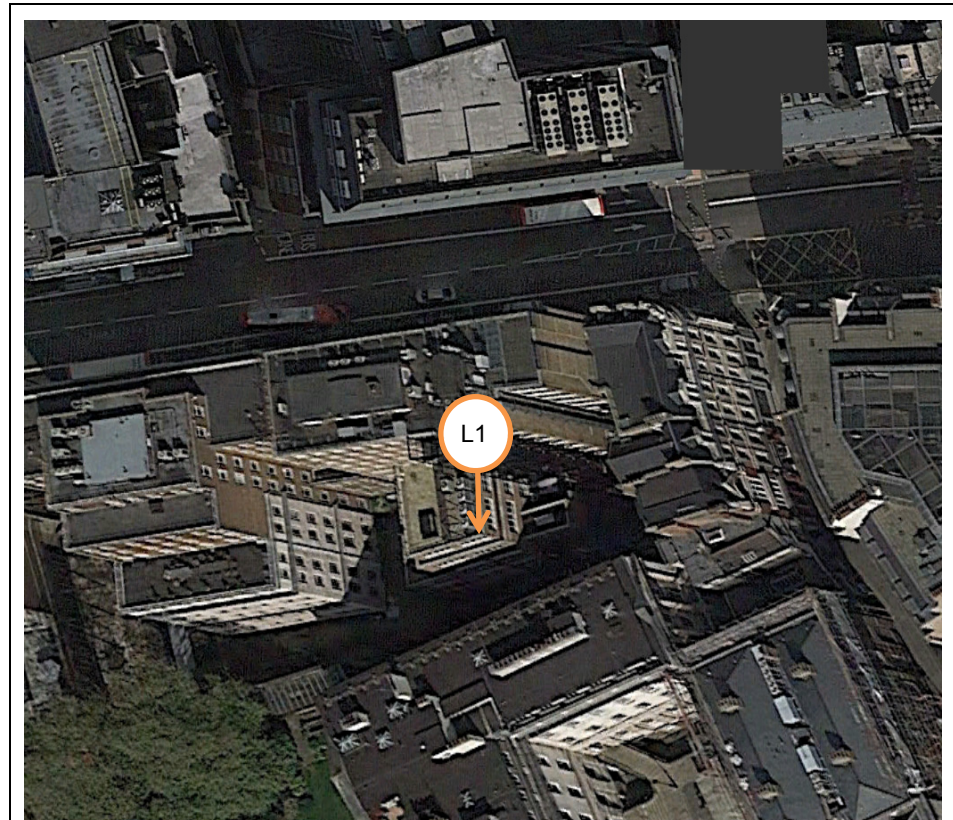
Weather Conditions:

The observed weather conditions were acceptable for acoustic measurement throughout the attended survey periods (low-medium wind speeds and no rain)

Measurement Positions (Appendix 1, Table 2):

Position (refer plan below)	Description
L1	Noise logging position. 1.5m above roof level.

Site Plan showing Measurement Positions (Appendix 1, Figure 2):





www.cassallen.co.uk