



Architectural & Environmental Acousticians  
Noise & Vibration Engineers

NOISE IMPACT ASSESSMENT

20 PROCTER STREET,  
LONDON

AREA SQUARED LTD

RP01-17463

# NOISE IMPACT ASSESSMENT

**PROJECT:** 20 PROCTER STREET, LONDON

**CLIENT:** AREA SQUARED LTD

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**DOCUMENT CONTROL:**

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## 1. INTRODUCTION

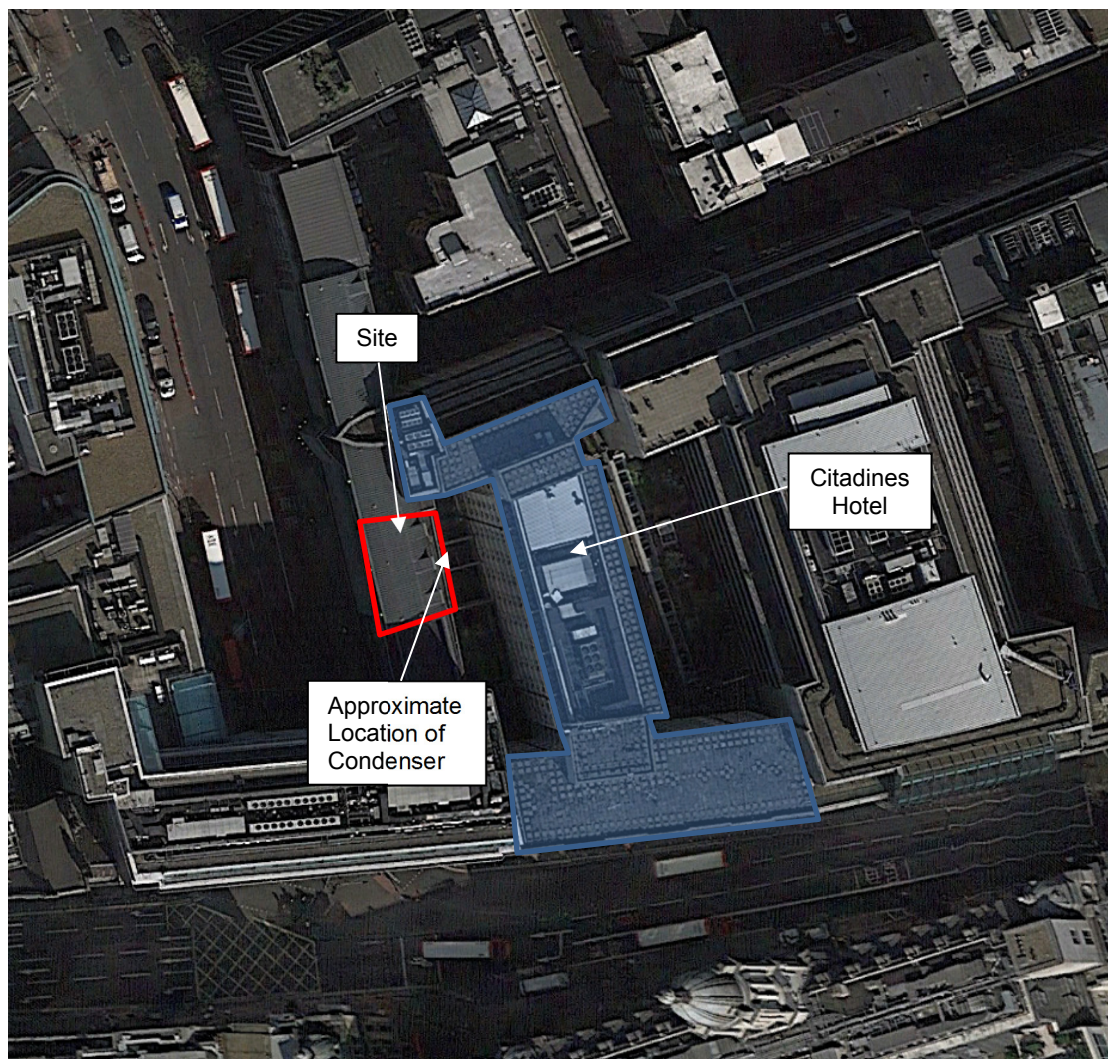
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- 1.1 Cass Allen Associates has been instructed by Area Squared Ltd to assess the potential noise impact of a new condenser unit proposed to be installed on the eastern façade of 20 Procter Street, London.
- 1.2 The assessment has been carried out 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](http://www.cassallen.co.uk/glossary).

## 2. PROJECT DESCRIPTION

- 2.1 The site currently contains an existing commercial premise and is located in a commercial area of the London Borough of Camden. The site is bounded to the west by Procter Street, to the north and south by other connected commercial premises and to the east by Citadines Holborn – Covent Garden Hotel.
- 2.2 The proposal is to install a condenser on the eastern façade of the existing building within a courtyard/ramp area which provides access to the basement carpark of the Citadines Hotel.
- 2.3 The Citadines Hotel to the east is the nearest noise sensitive receptor to the proposed location of the condenser. All other nearby buildings are commercial in nature and are not considered to be noise sensitive. The distance between the location of the proposed condenser and the nearest window on the Citadines Hotel façade is approximately 10 metres.
- 2.4 An annotated aerial photo of the site is shown in Figure 1 below.

**Figure 1**     **Annotated Aerial Photo**



### 3. PLANNING POLICY

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#### 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

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### 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 for this assessment.
- 4.5 Background noise levels (LA90) at the site were measured as part of the site noise survey outlined in Appendix 1.



- 4.6 The noise survey consisted of attended noise measurements during the daytime. Noise levels in the courtyard/ramp area where the condenser is proposed to be located were dictated by noise emissions from existing mechanical plant in the immediate vicinity.
- 4.7 The dominant noise emissions in the courtyard/ramp area were from a grille serving a kitchen extract system for a nearby restaurant. It is understood from discussions with the manager of the restaurant that the kitchen extract system serves that this noise source operates most days for the majority of the daytime period. Consequently, daytime background noise levels in this area will be dictated by noise emissions from this source.
- 4.8 Due to security and access restrictions, background noise levels during the night time could not be quantified. It has therefore been conservatively estimated that night time background noise levels will be 10 dB below daytime background noise levels. This assumption is supported by archive survey data from comparable locations in London, both of which indicate that the difference between daytime and night time background noise levels is likely to be less than 10 dB. Therefore our assumption of a 10dB difference is conservative.
- 4.9 To ensure that the calculated night time background noise levels are representative and not affected by the existing plant items in the courtyard/ramp area which may not operate during the night time, background noise levels measured on Eagle Street to the north were used to calculate background noise levels as these measurements were unaffected by existing plant noise emissions. Eagle Street is a quiet no-through road and is considered representative of the background noise levels in the area. A further 5 dB was then subtracted from this noise level to account for the acoustic screening provided by the buildings which surround the courtyard/ramp area i.e. background noise levels within the courtyard ramp area are taken to be 15 dB below the daytime background noise level measured on Eagle Street.
- 4.10 Based on the above, limits for plant noise emissions from the new condenser at the nearest noise sensitive section of the hotel façade 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 nearest façade of the Citadines Hotel	48 dB LAeq,T	28 dB LAeq,T

#### **Proposed mechanical plant design**

- 4.11 Details of the proposed new condenser have been provided by Area Squared; the company responsible for the refurbishment of the commercial unit. 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.
- 4.12 It is understood that the unit will be used to extract excess heat from a server/coms room and as such the cooling sound pressure level has been used in this assessment.



- 4.13 The nearest noise sensitive section of the hotel façade is approximately 10 metres from the location of the proposed condenser. 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 nearest façade of the Citadines Hotel	28 dBA	48 dBA	28 dB LAeq,T

- 4.14 It can be seen from Table 2 that the predicted plant noise level at the nearest receptor position is lower than the day and night-time BS4142 noise criteria.
- 4.15 The proposed details for the new condenser are therefore considered to be acceptable with regards to noise.

## 5. CONCLUSIONS

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- 5.1 Cass Allen Associates was instructed by Area Squared Ltd to assess the potential noise impact of a proposed new condenser unit at 20 Procter Street in London.
- 5.2 The assessment was carried out in accordance with relevant local and national planning guidance.
- 5.3 A noise survey was carried out at the site. Noise levels to the rear of the site are dictated by noise emissions from existing plant items. Noise levels in the vicinity of the site are dictated by road traffic.
- 5.4 Appropriate limits for noise from mechanical plant have been calculated based on measured noise levels at the site and guidance given in BS4142.
- 5.5 Noise emissions from the proposed condenser were calculated at the location of the nearest noise sensitive receptor were calculated based on manufacturer data and seen to be lower than the BS4142 criteria.
- 5.6 It is therefore our view that proposed condenser unit can be considered acceptable in terms of noise levels.

## Appendix 1 Survey Results

### Survey Summary:

The survey comprised short-term operator attended noise measurements at the site and surrounding areas. Noise levels at the site were generally dictated by various plant items, whereas noise levels in the surrounding areas were generally dictated by road traffic and the occasional aircraft overhead.

### Survey Period:

13/07/2017

### 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 <sup>1</sup>	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.

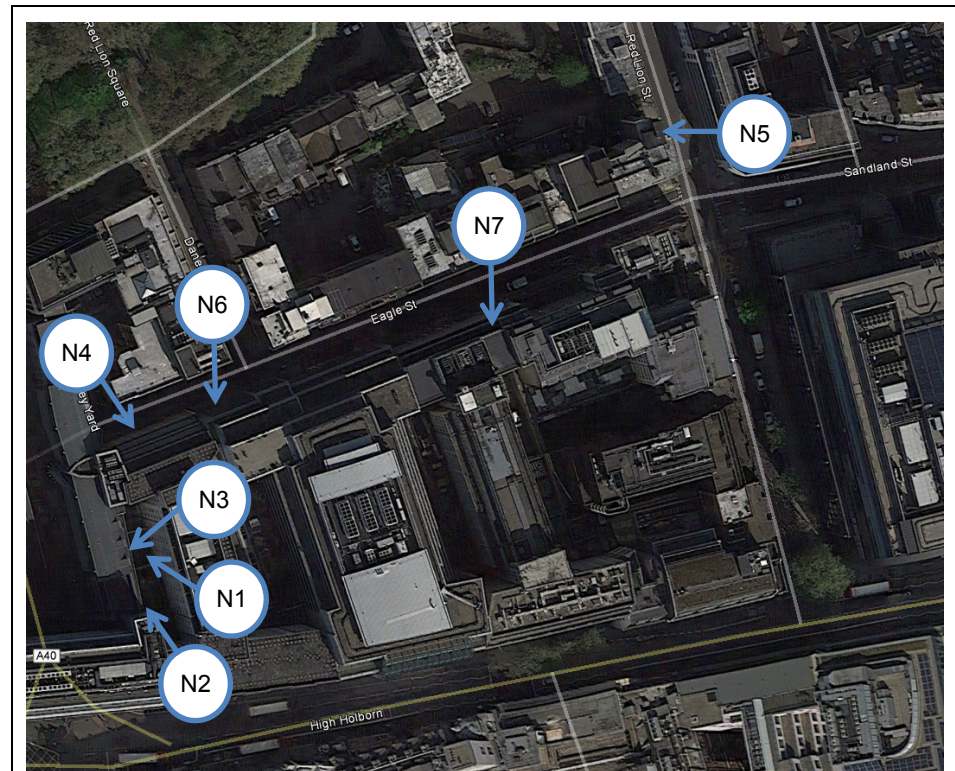
### Weather Conditions:

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
N1	Attended noise monitoring position. 1.5m above ground. Direct line of sight to dominant noise source of kitchen extract vent
N2	Attended noise monitoring position. 1.5m above ground. Direct line of sight to condensers
N3	Attended noise monitoring position. 1.5m above ground. Direct line of sight to inverter
N4	Attended noise monitoring position. 1.5m above ground. Direct line of sight to Eagle Street
N5	Attended noise monitoring position. 1.5m above ground. Direct line of sight to Red Lion Street
N6	Attended noise monitoring position. 1.5m above ground. Direct line of sight to Eagle Street
N7	Attended noise monitoring position. 1.5m above ground. Direct line of sight to Eagle Street

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



**Attended Noise Monitoring Results (Appendix 1, Table 3):**

Date	Position	Time	Meas. Length	LAeq, dB	LAmix, dB	LA90, dB	Observations
13.07.17	N1	12:22	5 mins	59	63	58	Noise dictated by kitchen extract vent
13.07.17	N2	12:28	5 mins	66	69	66	Noise dictated by compressors
13.07.17	N1	12:34	1 min	60	66	59	Noise dictated by kitchen extract vent, measurement taken whilst other plant items in the area were not in operation
13.07.17	N1	12:36	1 min	69	80	60	Same as above with aircraft movement overhead
13.07.17	N3	12:37	1 min	60	64	59	Noise dictated by kitchen extract vent, even when close to inverter
13.07.17	N4	12:46	5 mins	60	75	53	Noise dictated by construction noise on Eagle and Dane Street, and road traffic noise on surrounding roads
13.07.17	N5	12:58	15 mins	63	82	55	Noise dictated by road traffic on Red Lion Street
13.07.17	N6	13:16	15 mins	60	76	56	Noise dictated by road traffic on surrounding road network
13.07.17	N7	13:39	15 mins	54	75	51	Noise dictated by road traffic on surrounding road network



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