

Royal Free Hospital – Pharmacy Autoclave

# Noise Survey

Report 206/1437/R1

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Report 206/1437/R1

Royal Free Hospital

The Richard Stephens Partnership Limited

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## Noise Survey

### Table of Contents

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1	Introduction	3
2	Site Description	3
3	Noise Survey	3
3.1	Methodology	3
3.2	Results	4
4	Plant Noise Limits	5
4.1	Local Authority Criteria	5
4.2	Noise Emission Limits	6
5	Conclusions	6

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### Attachments

#### Glossary of Acoustic Terms

##### **206/1427/SP1**

Site plan illustrating the measurement and assessment positions.

##### **206/1427/TH01**

Time history graph illustrating the unattended results.

 End of Section



## Noise Survey

### 1 Introduction

- 1.1 It is proposed to install new mechanical services at Royal Free Hospital to serve the Pharmacy Autoclave.
- 1.2 RSK Acoustics have been instructed to undertake a noise survey at the site to quantify the existing background noise levels representative of those at the nearest residential receivers.
- 1.3 This report details the methodology used to conduct the noise survey and sets plant noise limits in line with Local Authority criteria.

### 2 Site Description

- 2.1 The site is located at the Royal Free Hospital, Pond Street, London NW3 2QG. The site and its surrounds can be seen on the attached site plan 206/1427/SP1.
- 2.2 Pond Street runs to the north of the site. Rosslyn Hill runs to the west of the site and joins Haverstock Hill to the southwest. Both Rosslyn Hill and Haverstock Hill form part of the A502. Pond Street meets Fleet Road and Rosslyn Hill to the northeast and northwest respectively. These three roads see frequent traffic and are main roads in the Camden area.
- 2.3 Residential property is located across from the site on Pond Street.
- 2.4 The site is within the jurisdiction of Camden Council.

### 3 Noise Survey

#### 3.1 Methodology

- 3.1.1 An unattended noise survey was undertaken at the site between 1500 hours on Monday 10<sup>th</sup> October and 1500 hours on Tuesday 11<sup>th</sup> October 2022.
- 3.1.2 Measurements of noise levels were undertaken from a single measurement position indicated in the attached site plan 206/1427/SP1 and described below:
  - MP1: Measurement position to the north of the site approximately 7 m from the kerb edge of Pond Street and 1.5 m above street level.
- 3.1.3 Measurements of  $L_{Aeq}$ ,  $L_{A90}$ , and  $L_{Amax}$  were recorded over consecutive 15-minute periods (see Glossary of Acoustic Terms for an explanation of the noise units used) for the duration of the survey using the equipment listed within table T1.



## Noise Survey

Item	Manufacturer	Type
Sound Level Analyser	Rion	NL-52
Acoustic Calibrator	Rion	NC-74
Weatherproof windshield	Rion	WS-15

T1 Equipment used during unattended noise survey.

- 3.1.4 The microphone was enclosed within a weatherproof windshield and the sound level meter was calibrated before and after the survey to confirm an acceptable level of accuracy.
- 3.1.5 The weather conditions when setting up and collecting the equipment were overcast, dry and cool with a light breeze. Publicly available weather data suggests that weather conditions throughout the survey were suitable for noise measurements.

### 3.2 Results

- 3.2.1 The results of the noise survey are presented in the attached time history graph 206/1427/TH01.
- 3.2.2 The representative background noise levels derived following guidance in BS 4142:2014+A1:2019<sup>1</sup> are set out in table T2 below.

Location	Representative Background Noise Level, $L_{A90}$ dB	
	Daytime (0700-2300 only)	Night time (24-hour)
MP1: Pond Street	55	52

T2 Representative measured background noise levels,  $L_{A90}$ .

<sup>1</sup> British Standard BS4142:2014 - Methods for rating and assessing industrial and commercial sound



## Noise Survey

### 4 Plant Noise Limits

#### 4.1 Local Authority Criteria

##### 4.1.1 Policy A4 of the London Borough of Camden's *Local Plan 2017* relates specifically to noise:

*'We will only grant permission for noise generating development, including any plant and machinery, if it can be operated without causing harm to amenity.'*

*Planning conditions will be imposed to require that plant and equipment which may be a source of noise is kept working efficiently and within the required noise limits and time restrictions.*

*Conditions may also be imposed to ensure that attenuation measures are kept in place and are effective throughout the life of the development.'*

##### 4.1.2 With regard to noise from new mechanical services plant, Appendix 3 of the Local Plan sets out the following:

*'A relevant standard or guidance document should be referenced when determining values for LOAEL and SOAEL for non-anonymous noise. Where appropriate and within the scope of the document it is expected that British Standard 4142:2014 'Methods for rating and assessing industrial and commercial sound' (BS 4142) will be used. For such cases a 'Rating Level' of 10 dB below background (15 dB if tonal components are present) should be considered as the design criterion).'*



## Noise Survey

### 4.2 Noise Emission Limits

- 4.2.1 Based on the results of the background noise survey set out within table T2 in addition to the guidance set out above, we recommend that the following plant emission limits are to apply at the nearest noise sensitive premises, illustrated in T3.

Location	Noise Emission Limit, $L_{A,T,r}$ dB	
	<i>(for plant with no distinguishing feature)</i>	
	Daytime (0700-2300 only)	Night time (24-hour)
MP1: Pond Street	45	42

T3 Plant noise emission limits at the nearest residential properties.

- 4.2.2 These limits are to apply to all plant items running simultaneously in the representative time periods, when running at design duty and are to apply at 1 m from the outside of nearby residential windows. Any plant with a tonal component or other distinctive feature out of character with the existing environment would be subject to a further penalty.

## 5 Conclusions

- 5.1 It is proposed to install new mechanical services at Royal Free Hospital to serve the Pharmacy Autoclave.
- 5.2 This report has provided details of the survey conducted at the site and has set noise emission limits for proposed plant items in line with Local Authority requirements.

 End of Section



## Noise Survey

# Glossary of Acoustic Terms

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### $L_{Aeq}$ :

The notional steady sound level (in dB) which over a stated period of time, would have the same A-weighted acoustic energy as the A-weighted fluctuating noise measurement over that period. Values are sometimes written using the alternative expression dB(A)  $L_{eq}$ .

### $L_{Amax}$ :

The maximum A-weighted sound pressure level recorded over the period stated.  $L_{Amax}$  is sometimes used in assessing environmental noise when occasional loud noises occur, which may have little effect on the  $L_{Aeq}$  noise level. Unless described otherwise,  $L_{Amax}$  is measured using the “fast” sound level meter response.

### $L_{A10}$ & $L_{A90}$ :

If non-steady noise is to be described, it is necessary to know both its level and degree of fluctuation. The  $L_{An}$  indices are used for this purpose. The term refers to the A-weighted level (in dB) exceeded for n% of the time specified.  $L_{A10}$  is the level exceeded for 10% of the time and as such gives an indication of the upper limit of fluctuating noise. Similarly  $L_{A90}$  gives an indication of the lower levels of fluctuating noise. It is often used to define the background noise.

$L_{A10}$  is commonly used to describe traffic noise. Values of dB  $L_{An}$  are sometimes written using the alternative expression dB(A)  $L_n$ .

### $L_{AX}$ , $L_{AE}$ or SEL

The single event noise exposure level which, when maintained for 1 second, contains the same quantity of sound energy as the actual time varying level of one noise event.  $L_{AX}$  values for contributing noise sources can be considered as individual building blocks in the construction of a calculated value of  $L_{Aeq}$  for the total noise. The  $L_{AX}$  term can sometimes be referred to as Exposure Level ( $L_{AE}$ ) or Single Event Level (SEL).


■ End of Section





Figure 206/1437/SP1

Title:  
Site plan illustrating the measurement position.

Key:  
 Measurement Position



Project:  
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Date:	Revision:
November 2022	-

Scale:	Image Source:
Not to scale	-





Figure 206/1437/TH01

