

**48 Neal Street
London**

**Environmental Noise Survey and
Plant Noise Assessment Report**

24544/PNA Rev4

19 October 2017

For:

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Document Control

Rev	Date	Comment	Prepared by	Authorised by
0	11/07/2017	-	Ryan Fernandez Technical Assistant	Gareth Evans Associate BSc(Hons), MIOA
1	03/08/2017	Revised to address comments made by the planning consultant.	Ryan Fernandez Technical Assistant	Gareth Evans Associate BSc(Hons), MIOA
2	11/09/2017	Revised to address alternative plant layout.	Ryan Fernandez Technical Assistant	Gareth Evans Associate BSc(Hons), MIOA
3	13/09/2017	Revised to address alternative plant layout.	Ryan Fernandez Technical Assistant	Gareth Evans Associate BSc(Hons), MIOA
			Prepared and Authorised by	
4	19/10/2017	Amended in accordance with Camden revised Local Plan		
			John Gibbs Director MIOA, MSEE, CEnv	

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Appendix A – Acoustic Terminology



1.0 Introduction

48 Neal Street is being refurbished. Part of this refurbishment includes new building services plant being installed. As such, Hann Tucker Associates have been commissioned to carry out a noise survey and plant noise assessment to determine the acceptability of noise from the proposed plant in line with the planning requirements of the Local Authority.

2.0 Objectives

To establish the existing noise climate by means of a 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.

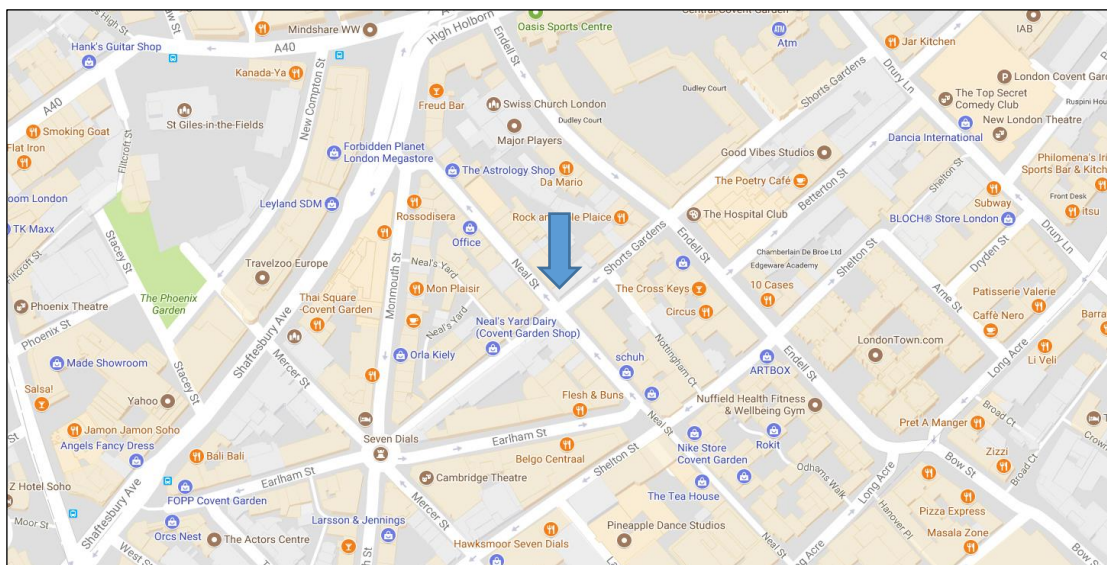
To present our results in a report to assist planning as far as reasonably possible.

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 48 Neal Street. The site falls within the London Borough of Camden. The location is shown in the Location Map below.



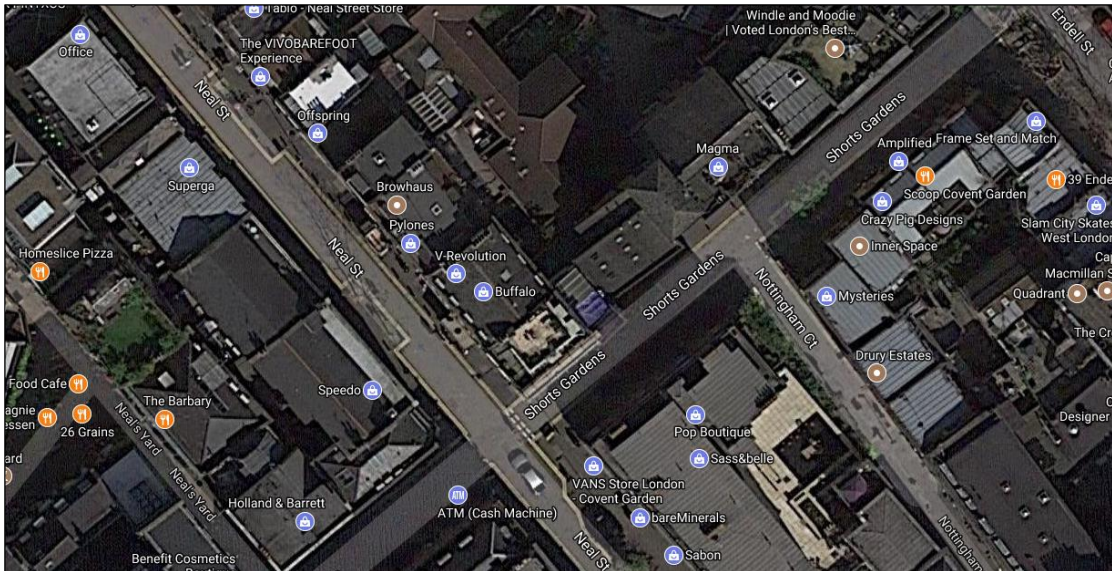
Location Map (Map data ©2017 Google)



3.2 Description

The site is located on the corner of Neal Street and Shorts Gardens. It is surrounded by ground floor retail units with mostly residential units occupying the upper floors of neighbouring properties.

The site is shown in the Site Plan below.



Site Plan (Imagery© 2017 The Geolnformation Group, Map data© 2017 Google)

4.0 Acoustic Terminology

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

5.0 Survey Methodology

The survey was undertaken by Ryan Fernandez.

5.1 Procedure

Fully automated environmental noise monitoring was undertaken from approximately 13:00 hours on Thursday 29 June to 13:00 hours on Friday 30 June 2017.

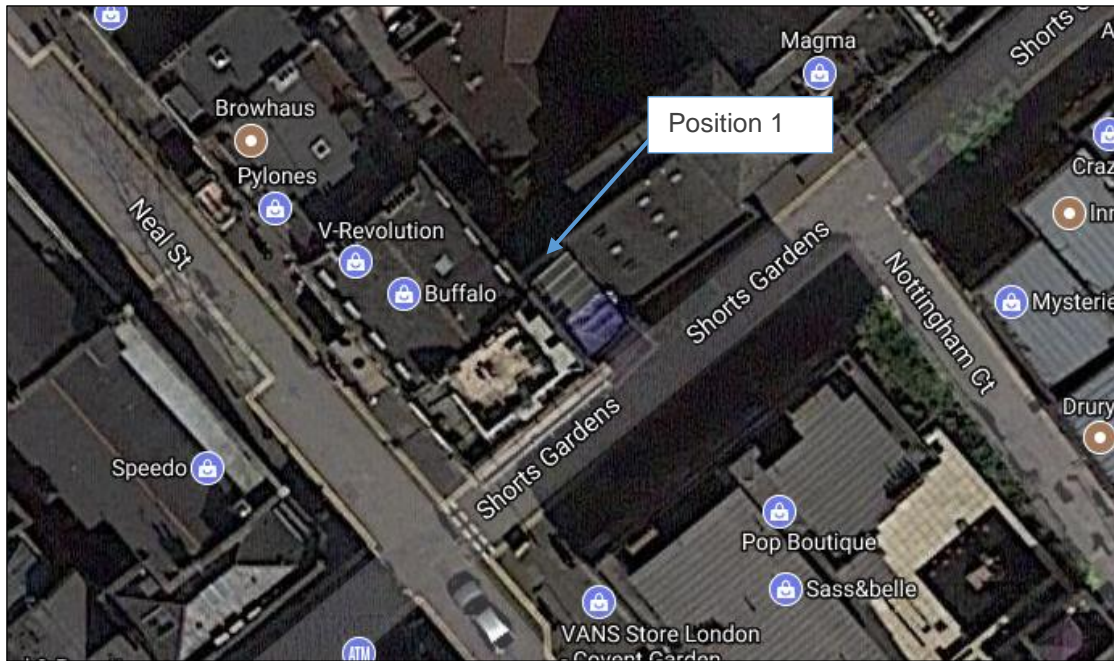
During the periods we were on site the wind conditions were calm and from approximately a southerly direction. The sky was generally clear. We understand that generally throughout the survey period the weather conditions were similar. These conditions are considered suitable for obtaining representative measurement results.



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

5.2 Measurement Position

The microphone was attached to the scaffolding by a pole and positioned to the rear of the site at third floor level overlooking the proposed plant area. The location of the measurement position is shown on the plan below.



Plan Showing Measurement Positions (Imagery© 2017 The GeoInformation Group, Map data© 2017 Google)

5.3 Instrumentation

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

Description	Manufacturer	Type	Serial Number	Calibration
Type 1 Data Logging Sound Level Meter	Larson Davis	824	3444	Calibration on 11/07/2016
Type 1 ½" Condenser Microphone	PCB	377B02	122885	Calibration on 11/07/2016
Type 1 Calibrator	Larson Davis	CAL200	3082	LD calibration on 03/07/2017



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

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 windshield.

6.0 Results

The results have been plotted on Time History Graphs 24544/TH1 enclosed, presenting the 15 minute A-weighted (dBA) L_{90} and L_{eq} noise levels at the measurement position throughout the duration of the survey.

The lowest L_{A90} (15 min) measurements recorded during the survey are presented in the table below:

Position	Lowest Measured $L_{A90(15min)}$ Background Noise Level (dB re 2×10^{-5} Pa)		
	Daytime (07:00 – 23:00) Hours	Night-time (23:00 – 07:00) Hours	24 Hours
1	47	45	45

7.0 Discussion of Noise Climate

During the periods we were on site the dominant noise sources were noted to be construction noise from the site as well as noise from pedestrians in the surrounding streets.

8.0 Plant Noise Emission Criteria

The site falls within the London Borough of Camden. We understand the London Borough of Camden's advice relating to noise emissions from air conditioning plant is as follows:

“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 4241) will be used. For such cases a ‘Rating Level’ of 10dB below background (15dB if tonal components are present) should be considered as the design criterion.”



In order to meet the above advice, noise emissions from the proposed plant should not exceed a level of 5dB below the lowest measured $L_{A90(15min)}$. Therefore, based on the results of the noise survey and the advice above, we recommend the following plant noise emission levels to be achieved with all plant running simultaneously at 1m external to the nearest noise sensitive façade.

A-Weighted Plant Noise Emission Criteria (dB re 2×10^{-5} Pa)		
Daytime (07:00 – 23:00 hours)	Night-time (23:00 – 07:00 hours)	24 Hours
37	35	35

It should be noted that the above criteria are subject to final approval by the London Borough of Camden.

9.0 Plant Noise Impact Assessment

We understand that the proposed plant will comprise 1No. 5MS9OE Daikin condenser in an Environ acoustic enclosure located on the third floor roof area.

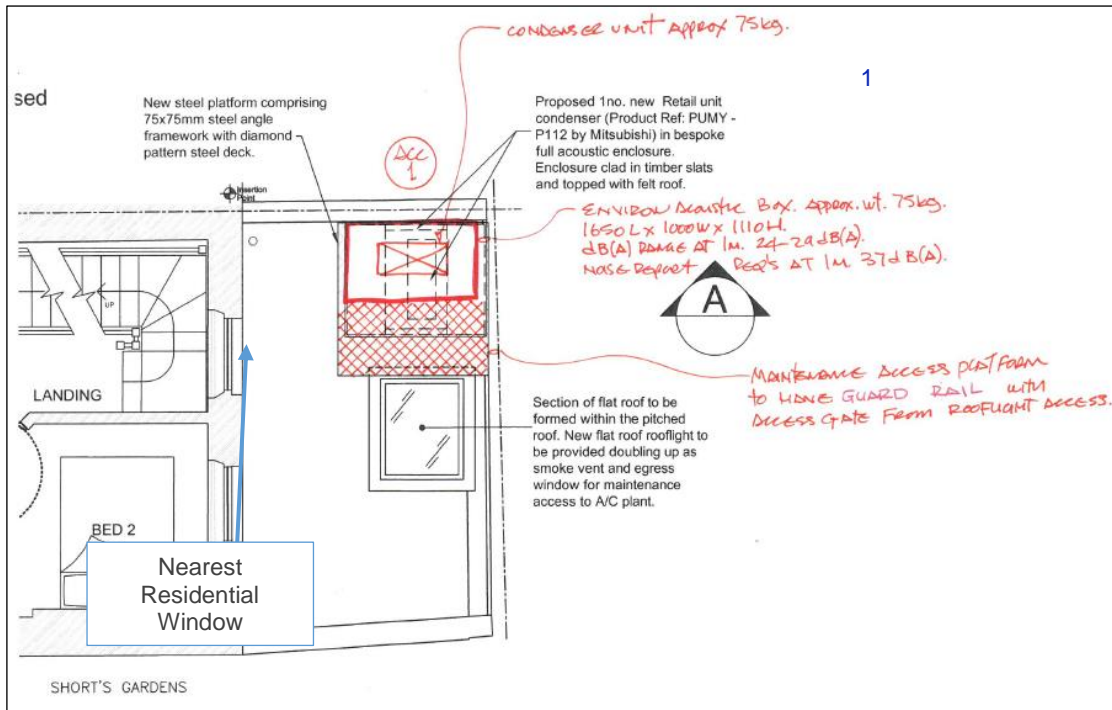
We understand the noise data for the equipment to be as follows:

Plant Description	A-weighted Limiting Sound Pressure Level at 1m from the enclosure (dB re 2×10^{-5} Pa)
5MS9OE in acoustic enclosure	29

9.1 Location of Plant

The proposed plant is to be installed on the third floor roof area to the rear of the site. The nearest noise sensitive windows will directly overlook the plant at a distance of approximately 2m.

See below site plan showing the location of the proposed plant and the nearest noise sensitive window.



Plan showing location of proposed plant (Courtesy of Fresson & Tee).

There are also roof lights on the adjacent property at a distance of approximately 3m away from the proposed plant, however as they are located further away than the windows at 48 Neal Street. An assessment to the windows at 48 Neal Street should be considered more onerous. Compliance with the plant noise criteria at 48 Neal Street should therefore ensure compliance at the adjacent property also.

9.2 Plant Noise Impact Assessment

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

The following table summarises our predictions of atmospheric noise emissions from the enclosed plant to the nearest noise sensitive window.

	Sound Pressure Level (dBA)	
	Daytime (07:00 – 23:00 hours)	Night-time (23:00 – 07:00 hours)
Enclosed condenser at 1m (single unit)	29	29
Distance Correction (2m)	0	0
Façade Reflection	+3	+3
Calculated Noise Level at Receptor	32	32



Our calculations indicate that the proposed plant, in conjunction with the propose mitigation measures, should be capable of achieving the requirements of the Local Authority outlined in Section 8.0.

10.0 Conclusions

An environmental noise survey has been undertaken in order to establish the currently prevailing noise levels.

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

An assessment has been carried out to determine the plant noise emissions at the nearest noise sensitive window.

The assessment indicates that the proposed plant, in conjunction with the proposed mitigation measures, should be capable of achieving the proposed environmental noise criteria at the nearest noise sensitive residential window.

Appendix A

The acoustic terms used in this report are defined as follows:

dB Decibel - Used as a measurement of sound level. Decibels are not an absolute unit of measurement but an expression of ratio between two quantities expressed in logarithmic form. The relationships between Decibel levels do not work in the same way that non-logarithmic (linear) numbers work (e.g. 30dB + 30dB = 33dB, not 60dB).

dBA The human ear is more susceptible to mid-frequency noise than the high and low frequencies. The 'A'-weighting scale approximates this response and allows sound levels to be expressed as an overall single figure value in dBA. The _A subscript is applied to an acoustical parameter to indicate the stated noise level is A-weighted

It should be noted that 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.

L_{90,T} L₉₀ is the noise level exceeded for 90% of the period *T* (i.e. the quietest 10% of the measurement) and is often used to describe the background noise level.

L_{eq,T} L_{eq,T} is the equivalent continuous sound pressure level. It is an average of the total sound energy measured over a specified time period, *T*.

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.

Sound Pressure Level (L_p) is the sound pressure relative to a standard reference pressure of 2×10^{-5} Pa. This level varies for a given source according to a number of factors (including but not limited to: distance from the source; positioning; screening and meteorological effects).

Sound Power Level (SWL or L_w) is the total amount of sound energy inherent in a particular sound source, independent of its environment. It is a logarithmic measure of the sound power in comparison to a specified reference level (usually 10^{-12} W).

48 Neal Street

Position 1

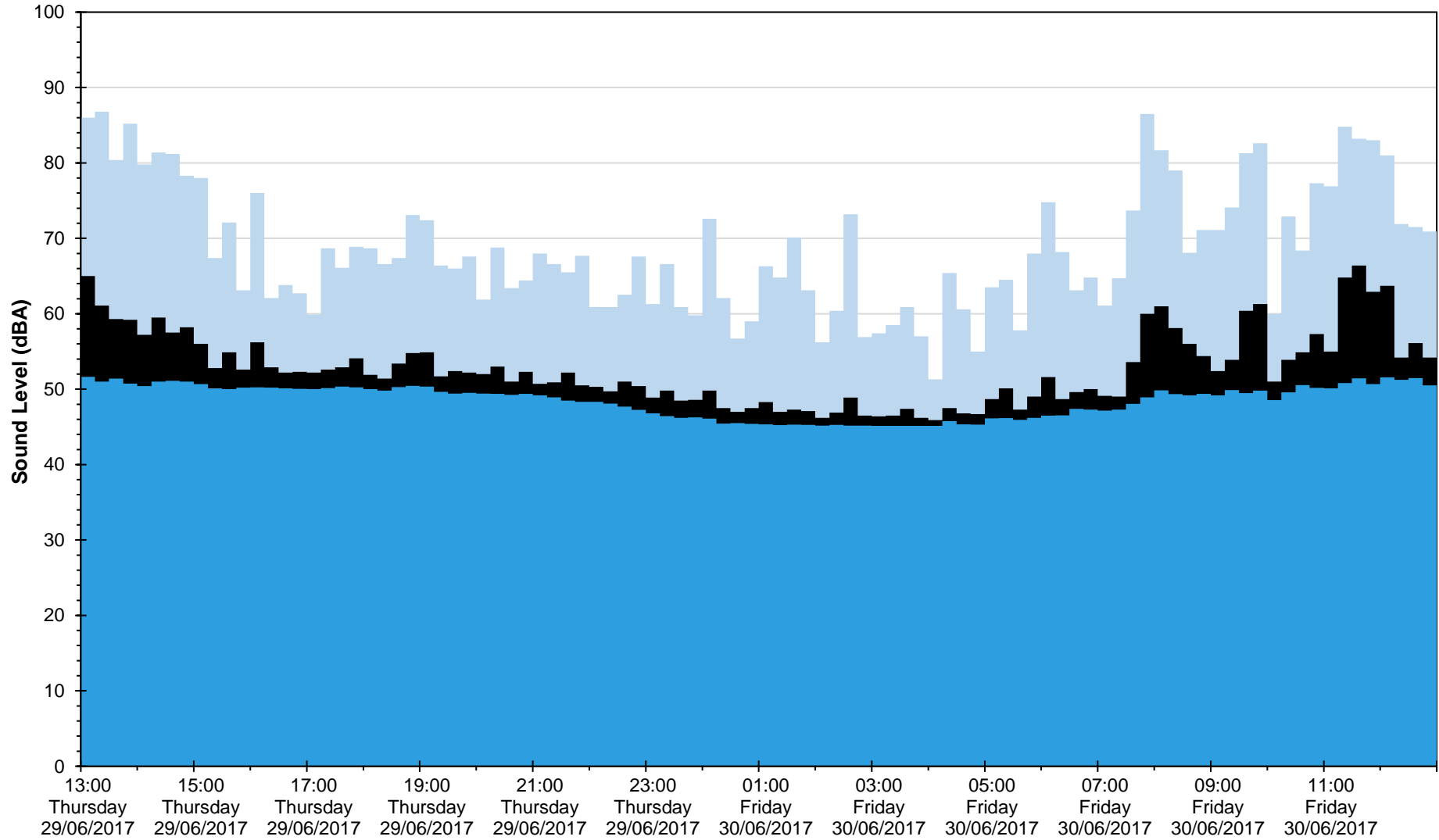
L_{Aeq} , L_{Amax} and L_{A90} Noise Levels

Thursday 29 June 2017 to Friday 30 June 2017

■ L_{Amax}

■ L_{Aeq}

■ L_{A90}



Date and Time

24544/TH1.1