Thomas Neal's Centre London

Environmental Noise Survey and Plant Noise Assessment Report

23266/PNA2

31 March 2016

For:

SPPM
6 Kingly Street
London
W1B 5PF

Hann Tucker Associates
Consultants in Acoustics Noise & Vibration

Head Office: Duke House, 1-2 Duke Street, Woking, Surrey, GU21 5BA (t) +44 (0) 1483 770 595
Manchester Office: First Floor, 346 Deansgate, Manchester, M3 4LY (t) +44 (0) 161 832 7041
(w) hanntucker.co.uk (e) enquiries@hanntucker.co.uk

Hann Tucker Associates

Environmental Noise Survey and Plant Noise Assessment Report 23266/PNA2

Document Control

Rev	Date	Comment	Prepared by
0	31/03/2016	-	 Gareth Evans Associate BSc(Hons), MIOA

Hann Tucker Associates

Environmental Noise Survey and Plant Noise Assessment Report 23266/PNA2

Contents

Attachments

1.0 Introduction

New kitchen extract plant is to be installed at Thomas Neal's Centre, London.

Hann Tucker Associates have therefore been commissioned to undertake a detailed environmental noise survey of the site and to assess the likely impact of the proposed plant in line with the planning requirements of the Local Authority.

This report presents the survey methodology and findings.

2.0 Objectives

To establish, by means of detailed 7 day fully automated environmental noise monitoring, the existing A-weighted (dBA) L_{90}, L_{eq} and L_{max} environmental noise levels at a selected accessible position at the site, thought to be representative of the nearest affected property.

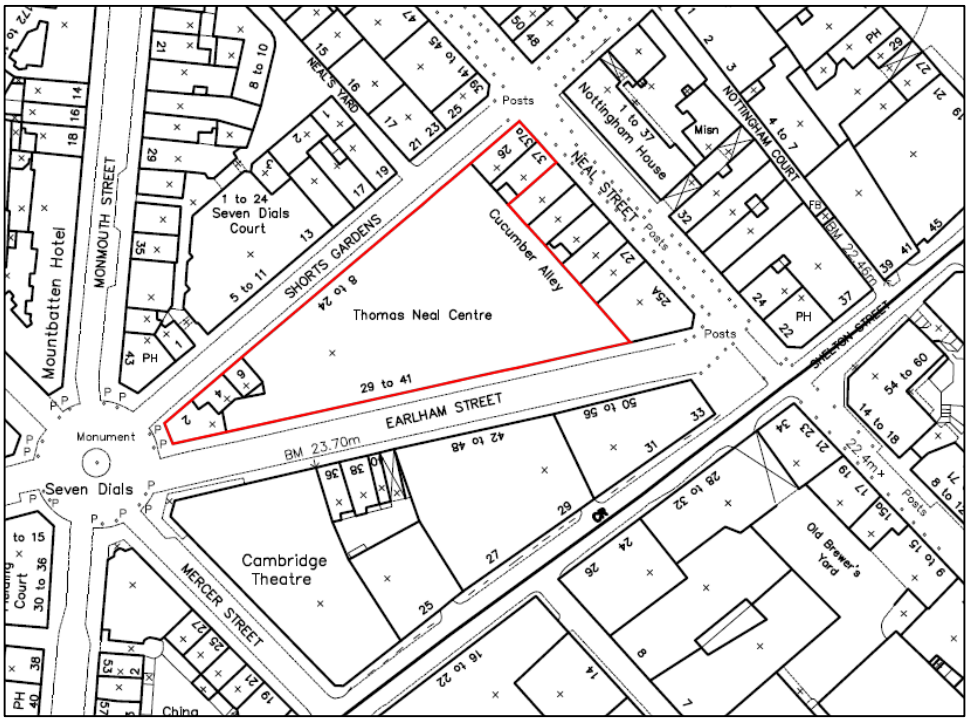
Based on the results of the noise survey, and in conjunction with the Local Authority, to recommend suitable plant noise emission criteria.

To advise on limiting noise levels for the proposed such that the requirements of the Local Authority can be achieved.

3.0 Site Description

3.1 Location

The site is located at the Thomas Neal's Centre and falls within the London Borough of Camden. See Location Map below.



Location Map (Rolfe Judd)

3.2 Description

Thomas Neal's Centre is located to the east of Seven Dials. The site is made up largely of retail units across basement, ground and first floor levels. The upper floors are of mixed use including some residential dwellings.

The site is bound to the north by Shorts Gardens, to the south by Earlham Street and to the west by Neal Street. The site is built around a central atrium.

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 Gareth Evans BSc (Hons).

5.1 Procedure

Fully automated environmental noise monitoring was undertaken from approximately 15.30 hours on Friday 29 April 2016 until 15.30 hours on Friday 6 May 2016.

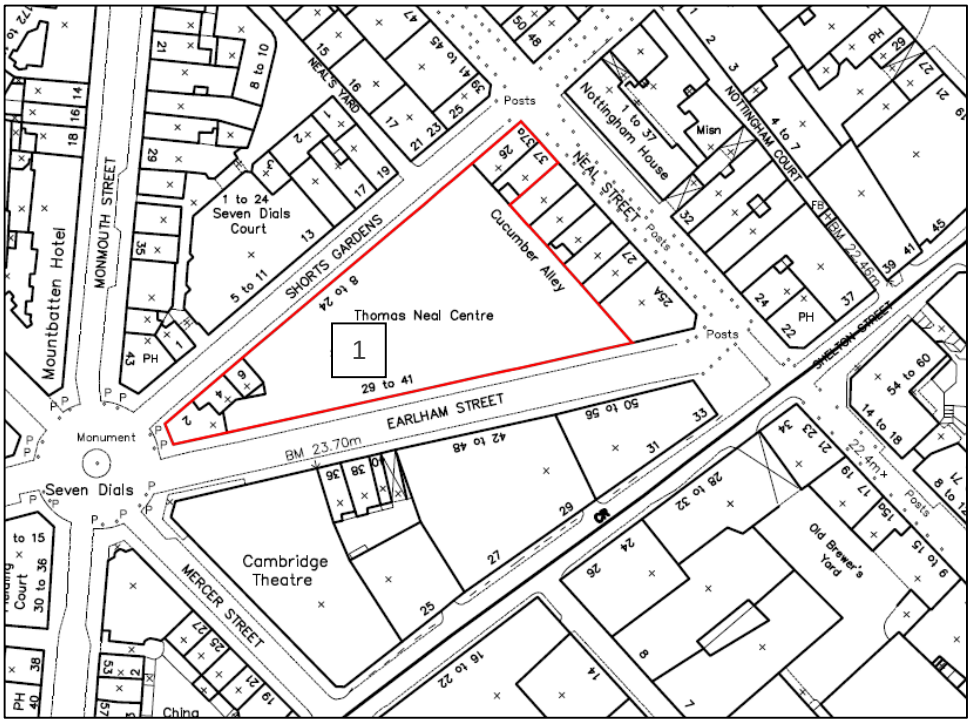
Due to the nature of the survey, i.e. unmanned, it is not possible to accurately comment on the weather conditions throughout the entire survey period. However at the beginning and end of the survey period the wind conditions were calm. The sky was generally clear. We understand that generally throughout the survey period the weather conditions were similar to this. 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 noise level measurements were undertaken at position 1No. position on-site. The sound level meter was located on the atrium roof to the south of the central light-well within the Thomas Neal's Centre.

The position was selected in order to assess the lowest noise levels at the development site for subsequent use in setting plant noise emission criteria and is shown on the plan below.



Plan Showing Unmanned Measurement Position (Rolfe Judd)

5.3 Instrumentation

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

Description	Manufacturer	Type	Serial Number	Calibration
Position 1 Type 1 Data Logging Sound Level Meter	Larson Davis	824	3838	LD calibration on 30/10/2014
Position 1 Type 1 ½" Condenser Microphone	Larson Davis	377B02	LW132146	LD calibration on 30/10/2014
Type 1 Calibrator	Larson Davis	CAL200	3082	LD calibration on 09/04/2015

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 0.1dB).

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 Larson Davis windshield.

6.0 Results

The results have been plotted on Time History Graph 23266/TH1 enclosed, presenting the 15 minute A-weighted (dBA) L_{90}, L_{eq} and L_{max} levels at the measurement position throughout the duration of the surveys.

The following table presents the lowest measured L_{A90} background noise levels during the survey:

Position	Lowest Measured L_{A90} Background Noise Level (dB re 2 x 10^{-5} Pa)		
	Daytime (07:00 – 23:00) Hours	Night-Time (23:00 – 07:00) Hours	24 Hours
1	42dBA	41dBA	41dBA

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 nearby construction work and distant road traffic noise.

8.0 Plant Noise Emission Criteria

The site falls within Camden Borough Council's jurisdiction. We understand Camden Council's requirements with regards to plant noise emissions to be as follows:

"Noise levels at a point 1 metre external to sensitive façades shall be at least 5dB(A) less than the existing background measurement (L_{A90}), expressed in dB(A) when all plant/equipment are in operation. Where it is anticipated that any plant/equipment will have a noise that has a distinguishable, discrete continuous note (whine, hiss, screech, hum) and/or if there are distinct impulses (bangs, clicks, clatters, thumps) special attention should be given to reducing the noise levels from that piece of plant/equipment at any sensitive façade to at least 10dB(A) below the L_{A90}, expressed in dB(A)."

Based on the above requirements, and the results of the environmental noise survey, the following future plant noise emission criteria should be achieved at 1 metre from the nearest noise sensitive façade based on the minimum measured L_{A90} noise level.

Plant Noise Emission Criteria (dB re 2 x 10^{-5} Pa)		
Daytime (07:00 – 23:00) Hours	**Night-Time (23:00 – 07:00) Hours**	**24 Hours**
37dBA	36dBA	36dBA

These criteria are subject to approval by Camden Borough Council.

9.0 Plant Noise Assessment

9.1 Internal Fan

As we understand the preferred option is to install the plant within the ground floor unit and duct up the east façade of the central light well within the Thomas Neal's Centre to discharge above roof level. From our on-site observations, we believe the nearest noise sensitive windows to

be approximately 5 metres away from the proposed fan exhaust grille. Based on this, noise levels from the proposed plant should not exceed 47dBA at 1 metre from the grille.

Noise breakout from the duct should not exceed 33dBA at 1 metre from the duct.

9.2 Roof Mounted Fan

If the fan were mounted on the roof and ducted to the ground floor unit, the fan should be suitably enclosed so as not to exceed 52dBA at 1 metre assuming that the fan is set back at least 2 metres from the roof edge.

Noise breakout from the duct should not exceed 33dBA at 1 metre from the duct.

10.0 Conclusions

A detailed 7 day 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 in conjunction with the Local Authority.

Limiting noise levels have been specified for the proposed plant such that the requirements of the Local Authority should be achieved 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.

$L_{90,T}$ — L_{90} 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).

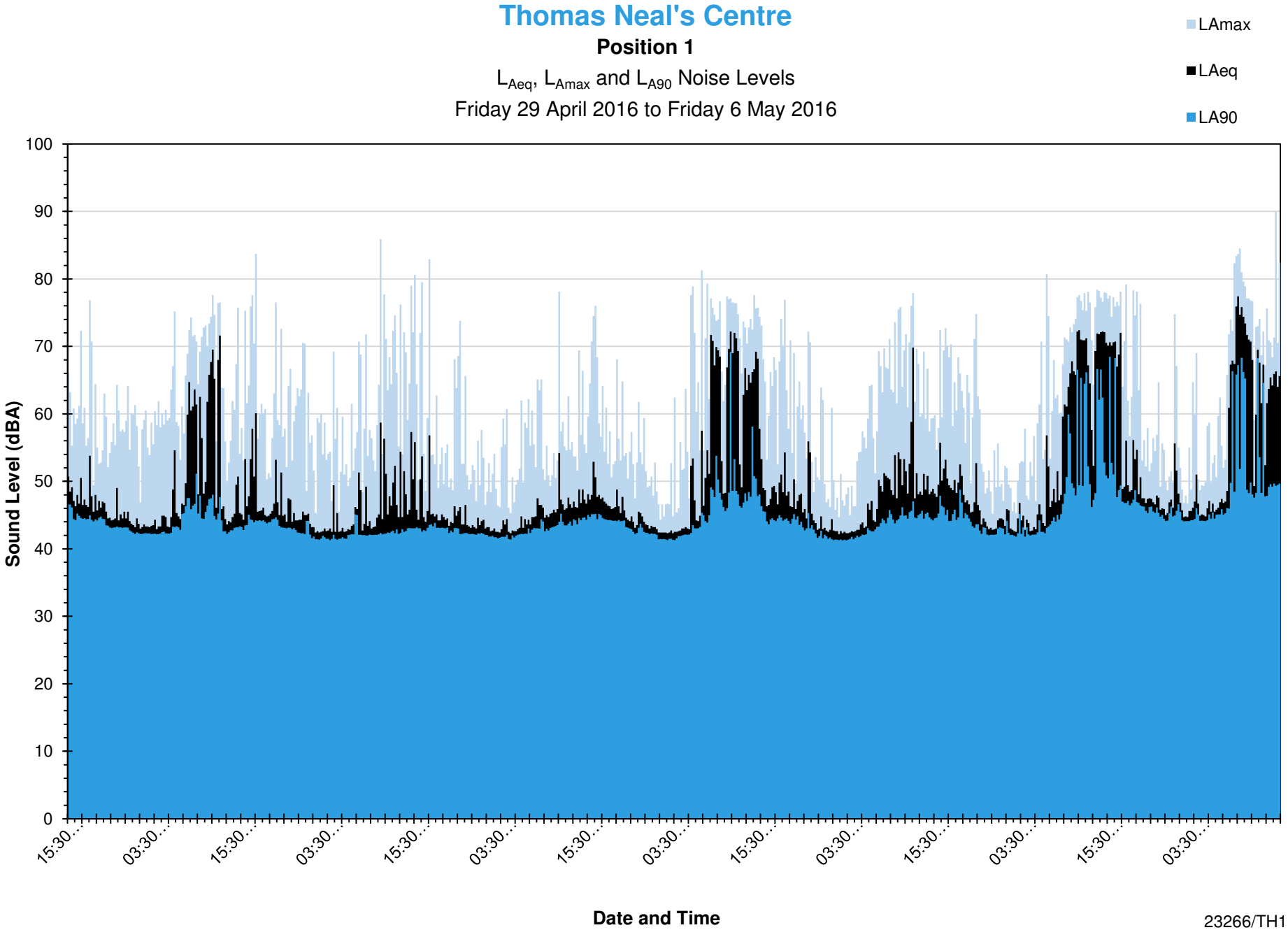
Sound Power Level (SWL or L_w) is the total amount of sound energy inherent in a particular sound source, independent of its environment. It is a logarithmic measure of the sound power in comparison to a specified reference level (usually 10^{-12} W).

Thomas Neal's Centre

Position 1

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

Friday 29 April 2016 to Friday 6 May 2016



23266/TH1