Viacom Extension London

ENVIRONMENTAL NOISE SURVEY
REPORT 21141/PNA1

For :

Viacom Camden Lock Ltd
17-29 Hawley Crescent
London
NW1 8TT

5 March 2015

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REPORT 21141/PNA1

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1.0 INTRODUCTION

An extension is proposed at the Viacom offices, at 17-29 Hawley Crecent and this is to include a number of building services plant items on the roof. Hann Tucker Associates have therefore undertaken an Environmental Noise Survey to determine the background noise levels and to assess the impact of this building services plant with regards to the Local Authority plant noise emission criteria.

This report presents the survey methodology and findings.

2.0 OBJECTIVES

To establish, by means of detailed 72 hour daytime and night-time fully automated environmental noise monitoring, the existing A-weighted (dBA) L_{90}, L_{eq} and L_{max} environmental noise levels at selected accessible first floor level position.

To measure L_{eq}, L_{90} and L_{max} octave band spectra noise levels for typical daytime and night-time periods at the measurement position in order to obtain a more detailed description of the noise climate.

To assess the noise emissions from the proposed plant, based upon any data/information with which we are provided, and comment upon the acceptability.

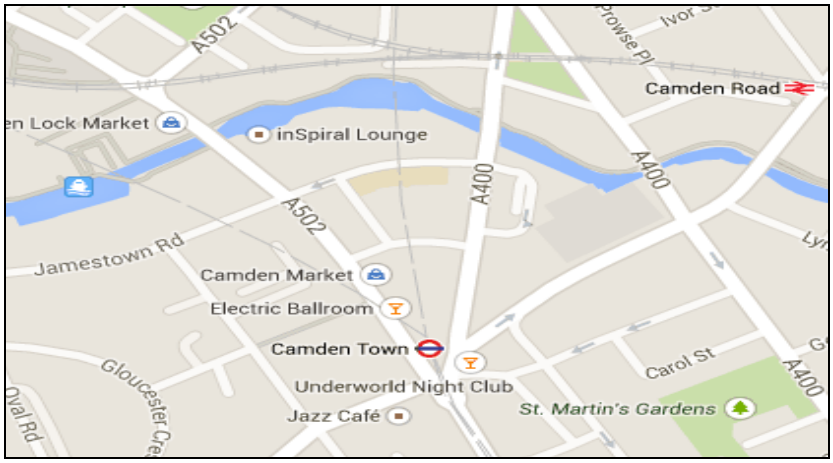
To present our results in a report to support the planning application as far as reasonably possible, advising on noise control measures if required to satisfy the requirements of the Local Authority.

These objectives are as set out in Part 1.0 and 2.0 of our letter dated 13 February 2015 with written instructions received on 18 February 2015.

3.0 SITE DESCRIPTION

3.1 Location

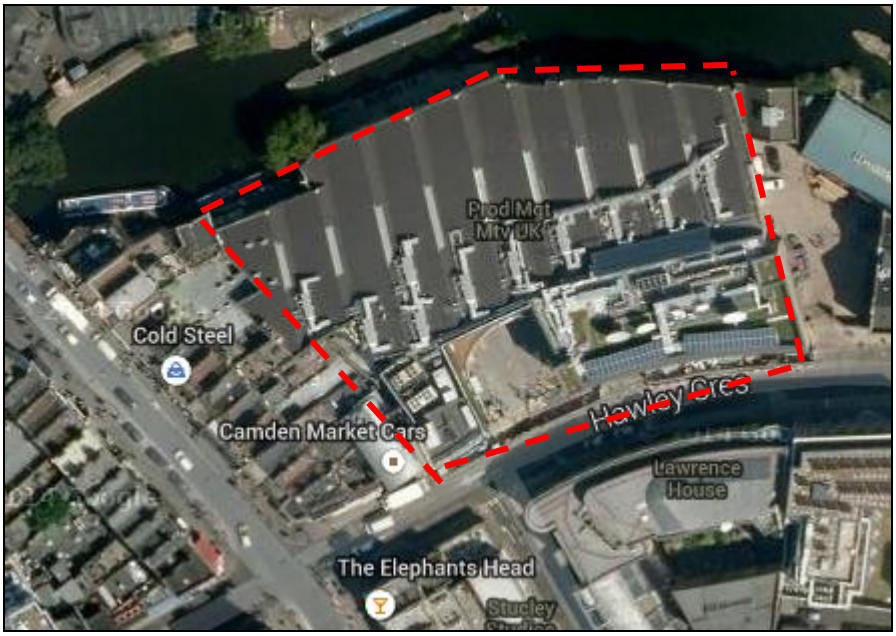
The site is located at 17-29 Hawley Crescent, London NW1 8TT and is situated in the London Borough of Camden. (See Location Map below).



Location Map (Map Data ©2014 Google)

3.2 Description

The site is an existing compound bound by Hawley Crescent to the south, mixed use residential and commercial properties to the east and west and Regent's Canal to the north. It is proposed to infill the existing courtyard at the south of site 4 levels of office space and a reconfigured service space with new items of building services plant on the roof. See Site Plan below.



Site Plan (Map Data ©2014 Google)

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 Tony Trup BMus(Hons), AMIOA.

5.1 Procedure

Fully automated environmental noise monitoring was undertaken from approximately 14:30 hours on 20 February 2015 to 9:30 hours on 23 February 2015.

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 and the sky was generally overcast. 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 1. The microphone was attached to a railing at first floor level in the courtyard, approximately 1m from the building façade.

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

Site Plan (Map Data ©2014 Google)

5.3 Instrumentation

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

Description	Manufacturer	Type	Serial Number	Latest Verification
Type 1 Data Logging Sound Level Meter	Larson Davis	824	3841	LD calibration on 03/11/2014
Type 1 ½" Condenser Microphone	Larson Davis	377A02	101926	LD calibration on 03/11/2014
Type 1 Calibrator	Larson Davis	CAL200	3082	LD calibration on 18/03/2014

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 21141/TH1, (Appendix D), presenting the 15 minute A-weighted (dBA) L_{90}, L_{eq} and L_{max} levels at each measurement position throughout the duration of the survey.

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

Lowest measured L_{A90} background noise level (dB re 2.0 x 10^{-5} Pa)	
Daytime (07:00-23:00)	**Night-Time (23:00 – 07:00)**
52dB	52dB

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 source was noted to be road traffic in the surrounding area.

8.0 PLANT NOISE EMISSION CRITERIA

The site is located within the London Borough of Camden (LBC). LBC's requirements, as detailed within the Camden Development Policies 2010-2015 document, with regards to plant noise emission are therefore as follows:

> "Noise levels at a point 1 metre external to sensitive facades 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)."

Therefore, we would propose the following noise levels to be achieved with all proposed plant in operation at 1m from the nearest noise sensitive window:

Proposed plant noise emission criteria at 1m from the nearest noise sensitive window (A-weighted Sound Pressure Level)
24 Hours
47dB

This criterion is subject to approval by LBC.

9.0 PLANT NOISE ASSESSMENT

9.1 Building Services Plant

We understand that the following plant is to be installed on the 5 floor roof as part of the project:

Plant Description	Manufacturer/ Reference	Location	Qty
Air Handling Unit	Matthews and Yates/ AHU 1	Roof	1
External Condensers	Daikin/ REY14T		2
External Condensers	Daikin/ REYQ18T		2

We understand that the above plant could operate continuously.

9.2 Plant Noise Emissions

We understand the above building services plant has the following noise levels:

9.2.1 Air Handling Unit

Please see Appendix B for AHU noise data.

9.2.2 External Condensers

Plant Description	Sound Pressure Level (dB re $2x10^{-5}$ Pa) at 1m
Daikin/ REY14T	61dBA
Daikin/ REYQ18T	65dBA

9.3 Plant Noise Impact Assessment

In our plant noise impact assessments we have assumed that the plant is located in an arrangement such that the noise levels of all items are cumulative. This is considered as the worst case acoustically and is unlikely to occur as some of the plant is likely to be shielded by others when installed, therefore the cumulative effect should be lessened.

Our assessment is to the nearest noise sensitive neighbouring windows. These windows are part of the residential dwellings within Lawrence House on Hawley Crescent and are located approximately 25m away at second floor level. There is therefore a significant distance loss and barrier effect to be considered in the assessment.

9.3.1 Air Handling Unit

The air handling unit has an intake and an exhaust air path ducted to atmosphere. The manufacturers have confirmed the in duct sound power levels for each of these ducts and these are detailed within the attached Plant Noise Schedule 21141/PNS1 in Appendix B. We have selected attenuators for these units in order to limit the noise radiated into the atmosphere and these are detailed within the attached Attenuator Schedule 21141/AS1 in Appendix C.

The following table presents our calculations relating to the proposed building services plant installation affecting the nearest noise sensitive neighbouring windows on Hawley Crescent.

	Calculation
Combined AHU Inlet/Outlet Sound Pressure Level at 1m (59dBA and 61dBA respectively)	63dBA
Distance Loss 25/1m	-26dB
Barrier Loss from Roof Edge	-10dB
Calculated Noise Level at Window	**27dBA**

From the above table it can be seen that this plant should comfortably achieve the 24 hour requirements of the Local Authority outlined in Section 8.0.

9.3.2 External Condensers

The following table presents our calculations relating to the proposed building services plant installation affecting the nearest noise sensitive neighbouring windows on Hawley Crescent.

	Calculation
Total Combined Condensers Sound Pressure Levels at 1m	70dBA
Distance Loss 23/1m	-22dB
Barrier Effect from Roof Edge	-10dB
Calculated Noise Level at Window	**38dBA**

Our calculations therefore indicate that the plant achieves the 24 hour requirements of the Local Authority outlined in Section 8.0.

9.3.3 Cumulative Noise Level from All Plant

From the results within Sections 9.3.1 and 9.3.2 above the cumulative noise level at the receiver from all plant operating can be calculated as follows:

	Calculation
Air Handling Unit Sound Pressure Level at Receiver(From 9.3.1)	27dBA
Condensers Sound Pressure Level at Receiver (From 9.3.2)	38dBA
Cumulative Noise Level at Window	**38dBA**

Our calculations therefore indicate that the proposed plant comfortably achieves the 24 hour requirements of the Local Authority outlined in Section 8.0.

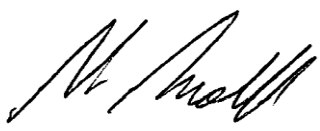
10.0 CONCLUSIONS

A detailed 72 hour daytime and night-time fully automated environmental noise survey has been undertaken in order to establish the current prevailing first floor level environmental noise climate around the site.

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

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

The assessment indicates that the noise levels from the building services plant proposed comfortably meets the requirements of the Local Authority at the nearest noise sensitive windows and we can see no acoustic reason why this scheme should not be granted planning permission.



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Appendix A

The acoustic terms used in this report are as follows:

dB : Decibel - Used as a measurement of sound pressure level. It is the logarithmic ratio of the noise being assessed to a standard reference level.

dBA : The human ear is more susceptible to mid-frequency noise than the high and low frequencies. To take account of this when measuring noise, the 'A' weighting scale is used so that the measured noise corresponds roughly to the overall level of noise that is discerned by the average human. It is also possible to calculate the 'A' weighted noise level by applying certain corrections to an un-weighted spectrum. The measured or calculated 'A' weighted noise level is known as the dBA level.

Because of being a logarithmic scale noise 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_{10} & L_{90}: If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time, hence L_{10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the average minimum level and is often used to describe the background noise.

It is common practice to use the L_{10} index to describe traffic noise, as being a high average, it takes into account the increased annoyance that results from the non-steady nature of traffic noise.

L_{eq} : The concept of L_{eq} (equivalent continuous sound level) has up to recently been primarily used in assessing noise in industry but seems now to be finding use in defining many other types of noise, such as aircraft noise, environmental noise and construction noise.

L_{eq} is defined as a notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the actual, fluctuating sound measured over that period (e.g. 1 hour).

The use of digital technology in sound level meters now makes the measurement of L_{eq} very straightforward.

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.

Appendix B

PLANT NOISE SCHEDULE

VIACOM EXTENSION, LONDON

Hann Tucker Associates

Woking (Head Office)
Tel: 01483 770595

Manchester(Northern Office)
Tel: 0161 832 7041

REF: HT: 21141/PNS1

Revision: draft	Date: 4 March 2015	Comments: Draft

Plant Description	Location	Plant Type	Duty		Data: mfr/empir. Lw/Lp		Sound Level (dB) at Octave Band Centre Frequency (Hz)							
			m^3/s	Pa			63	125	250	500	1k	2k	4k	8k
AHU01	Roof	Air Handling Unit	2.0	200	Mfr Lw	Intake	63	75	74	71	72	68	66	66
AHU01	Roof	Air Handling Unit	2.0	200	Mfr Lw	Exhaust	67	79	78	80	80	73	71	70

Appendix C

ATTENUATOR SCHEDULE

VIACOM EXTENSION, LONDON

Hann Tucker Associates

Woking (Head Office)
Tel: 01483 770595

Manchester(Northern Office)
Tel: 0161 832 7041

REF: HT: 21141/AS1

Revision: 0	Date: 4 March 2015	Comments: Draft													
Attenuator Ref.	Description	No. Off	Dimensions (mm)			Vol. m^3/s	Max PD Pa	Minimum Insertion Loss (dB) at Octave Band Centre Frequency (Hz)							
			W	H	L			63	125	250	500	1k	2k	4k	8k
AT1	AHU01 Intake	1	1000	300	600	2.0	40	2	4	8	12	13	13	9	8
AT2	AHU01 Exhaust	1	1000	300	900	2.0	40	2	5	11	17	20	19	12	10

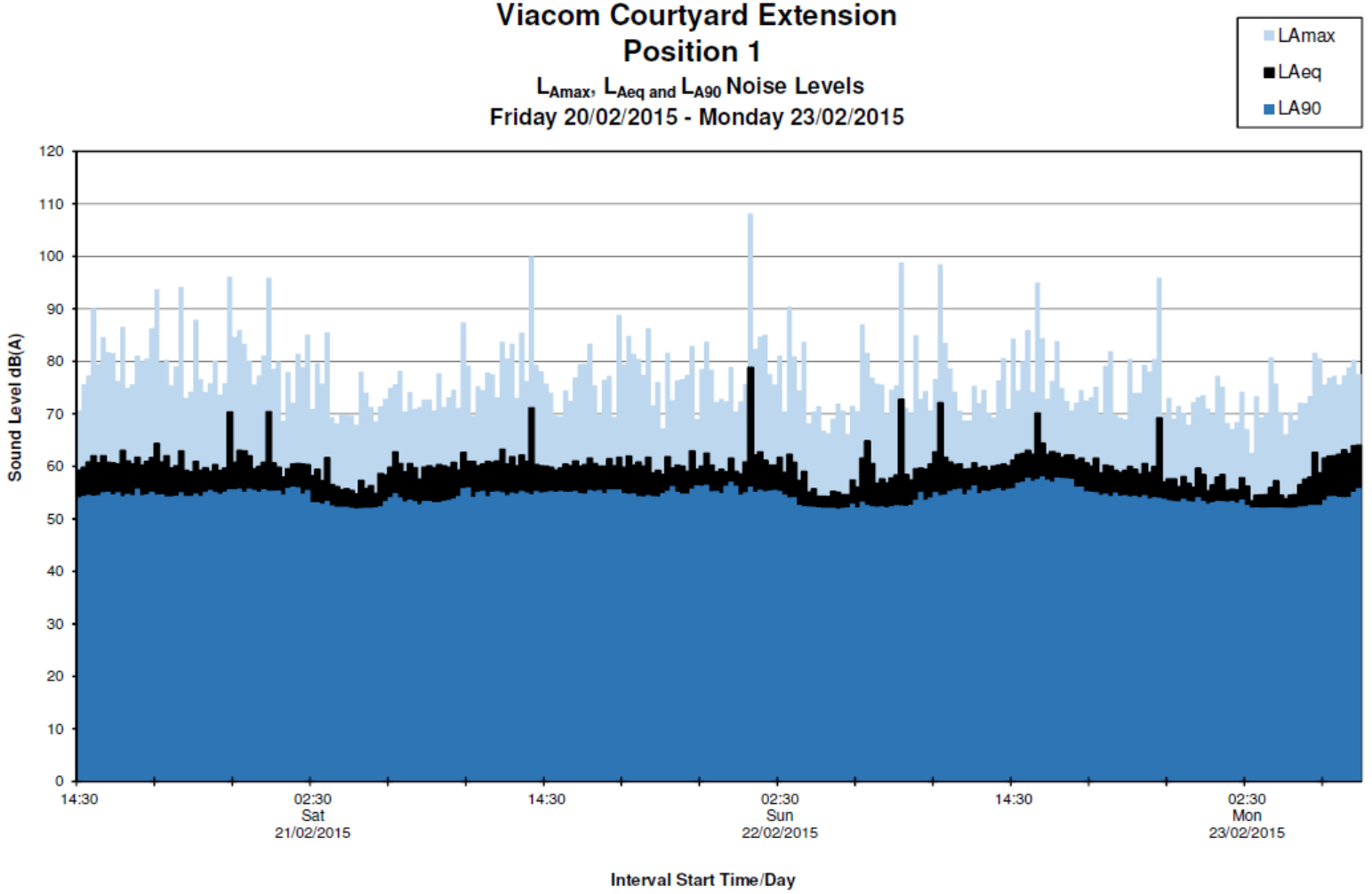
All attenuators must comply with Hann Tucker Associates General Specification for Acoustic and Vibration Isolation Materials and Products (copy available upon request if not supplied)

Appendix D

Viacom Courtyard Extension
Position 1

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

Friday 20/02/2015 - Monday 23/02/2015



Hann Tucker Associates

Time History Graph 21141/TH1