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11 MANSION GARDENS, LONDON

PLANNING COMPLIANCE REVIEW

Report 16969.PCR.01

For:

Charles Couzens

Ecos Maclean Ltd

8A Chamberlain Street, Primrose Hill

London

NW1 8XB

Site Address	Report Date	Revision History
11 Mansion Gardens, London, NW3 7NG	19/02/2018	-

CONTENTS

List of Attachments

1.0 INTRODUCTION

KP Acoustics Ltd, 1 Galena Road, London, W6 0LT, has been commissioned by Ecos Maclean Ltd, 8A Chamberlain Street, Primrose Hill, London, NW1 8XB, to undertake an environmental noise survey at 11 Mansion Gardens, London NW3 7NG.

The background noise levels measured will be used to determine daytime and night-time noise emission criteria for the installation of plant units, in agreement with the planning requirements of London Borough of Camden.

This report presents the overall methodology and results from the environmental survey followed by calculations to demonstrate the feasibility of the plant installation to satisfy the emissions criterion at the closest noise-sensitive receivers and outline mitigation measures as appropriate.

2.0 ENVIRONMENTAL NOISE SURVEY AND EQUIPMENT

2.1 Procedure

Automated noise monitoring was undertaken on the site as shown in Site Plan 16969.SP1. The choice of the position was based both on accessibility and on collecting representative noise data in relation to the nearest noise sensitive receivers relative to the plants installation location. The duration of the survey was between 13:20 on 8th February and 13:35 on 9th February 2018.

Initial inspection of the site revealed that the background noise profile at the monitoring location was dominated by road traffic noise from West Heath Road.

There was light rain during the course of the survey with wind speeds within acceptable tolerances and therefore suitable for the measurement of environmental noise. The measurement procedure generally complied with ISO 1996-2:2007 Acoustics “Description, measurement and assessment of environmental noise - Part 2: Determination of environmental noise levels”.

2.2 Equipment

The equipment calibration was verified before and after use and no abnormalities were observed.

The equipment used was as follows.

- 1 No. Svantek 957 Class 1 Sound Level Meter
- B&K Type 4231 Class 1 Calibrator

3.0 RESULTS

The results from the continuous noise monitoring are shown as a time history of L_{Aeq}, L_{Amax}, L_{A10} and L_{A90} averaged over 5 minute sample periods in 16969.TH1.

Minimum background noise levels are shown in Table 3.1.

	Minimum background noise level $L_{A90:\ 5min}$ dB(A).
Daytime (07:00-23:00)	36 dB(A)
Night-time (23:00-07:00)	34dB(A)

Table 3.1: Minimum measured background noise levels

4.0 NOISE CRITERIA

The criterion of London Borough of Camden for noise emissions of new plant in this instance is as follows:

"The Council considers that for new developments involving noisy plant/equipment or other uses, design measures should be taken to ensure that noise levels predicted at a point 1 metre external to sensitive facades are at least 5dB(A) less than the existing background measurement (LA90) when the equipment is in operation. Where it is anticipated that equipment will have a noise that has a distinguishable, discrete continuous note (whine, hiss, screech, hum) and/or if there are distinct impulses in the noise (bangs, clicks, clatters, thumps), special attention should be given to reducing the noise levels at any sensitive facade by at least 10dB(A) below the LA90 level."

It is anticipated that plant units already installed didn't show any distinguishable, discrete continuous note or impulsive noise. Therefore, noise levels predicted at 1 metre external to sensitive façade, should be 5dB(A) less than the existing background noise measured (L90) when the equipment is in operation.

We therefore propose to set the noise criterion as shown in Table 4.1 in order to comply with the above requirement.

	Day-time (07:00 to 23:00)	**Night-time (23:00 to 07:00)**
Noise criterion at nearest receiver	31dB(A)	29dB(A)

Table 4.1: Proposed Noise Emissions Criterion

As the plant units could be operating during the night time we would recommend the adoption of the nigh-time criterion, in order to ensure that the amenity of the closest receivers will be protected.

5.0 DISCUSSION

It is understood that the plant installation is comprised of the following units:

- 3 No. Mitsubishi MXZ – 4E72VA Condenser Unit.

The plant units are installed on the rear wall of the property facing the main road West Health Road as shown in 16969.SP1. The closest noise sensitive receiver is located approximately 15 metres from the condenser units as shown 16969.SP1.

The sound pressure levels at 1m from the units, as provided by the manufacturer, are shown in Table 5.1.

	Sound Pressure Level (dB) in each Frequency Band (at 1m)								
Unit	**63Hz**	**125Hz**	**250Hz**	**500Hz**	**1kHz**	**2kHz**	**4kHz**	**8kHz**	**dB(A)**
Mitsubishi MXZ – 4E72VA	59	57	55	51	48	43	36	29	**53**

Table 5.1 Manufacturer's Sound Pressure Levels at 1m

5.1 Objective overview

Taking all acoustic corrections into consideration, including distance corrections, the noise level expected at the closest residential window would be as shown in Table 5.2. Detailed calculations are shown in Appendix B.

Criterion	Noise Level at 1m from the nearest residential widow
29dB(A)	Non-significant

Table 5.2 Predicted noise level and criterion at nearest noise sensitive receivers

As shown in Appendix B and Table 5.2, transmission of noise to the nearest sensitive windows due to the effects of the plant installation fully satisfies the set emissions criterion based on the requirements of London Borough of Camden.

5.2 BS8233 Assessment

Furthermore, the predicted figures shown in Table 5.2 are to be considered outside the nearest residential windows. Windows may be closed or partially closed leading to further attenuation, as follows. Further calculations have been undertaken to assess whether the noise emissions from the

plant units installations would be expected to meet the recognised British Standard recommendations, in order to further ensure the amenity of nearby noise sensitive receivers.

British Standard 8233:2014 '*Sound insulation and noise reduction for buildings – Code of Practice*' gives recommendations for acceptable internal noise levels in residential properties. Assuming worst case conditions, of the closest window being for a bedroom, BS8233:2014 recommends 30 dB(A) as being the value for internal resting/sleeping conditions during night-time.

According to BS8233:2014, even a partially open window offers 10-15dB attenuation, thus leading to a further reduced interior noise level.

Receiver	**Design Range** – ***For resting/sleeping conditions in a bedroom, in BS8233:2014***	**Noise Level inside Receiver**
Closest to plant units location	30 dB(A)	Non-significant

Table 5.3 Plant installation noise level and criterion inside nearest residential space

Criterion and the predicted level inside the receiver's window are shown in Table 5.3 with detailed calculations shown in Appendix B. It can therefore be stated that, as well as complying with the requirements of London Borough of Camden, the noise emissions of the plant unit installation would be expected to comfortably meet the most stringent recommendations of the relevant British Standard BS8233:2014.

6.0 CONCLUSION

An environmental noise survey has been undertaken at 11 Mansion Gardens, London NW3 7NG by KP Acoustics Ltd between 13:20 on 8th February and 13:35 on 9th February 2018. The results of the survey have enabled criteria to be set for noise emissions of the plant unit installation.

Using manufacturer noise data, noise levels are predicted at the nearby noise sensitive receivers for compliance with current requirements of London Borough of Camden and the relevant British Standard BS8233:2014 criteria.

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11 Mansion Gardens, London NW3 7NG
Environmental Noise Time History
From 08 February 2018 To 09 February 2018

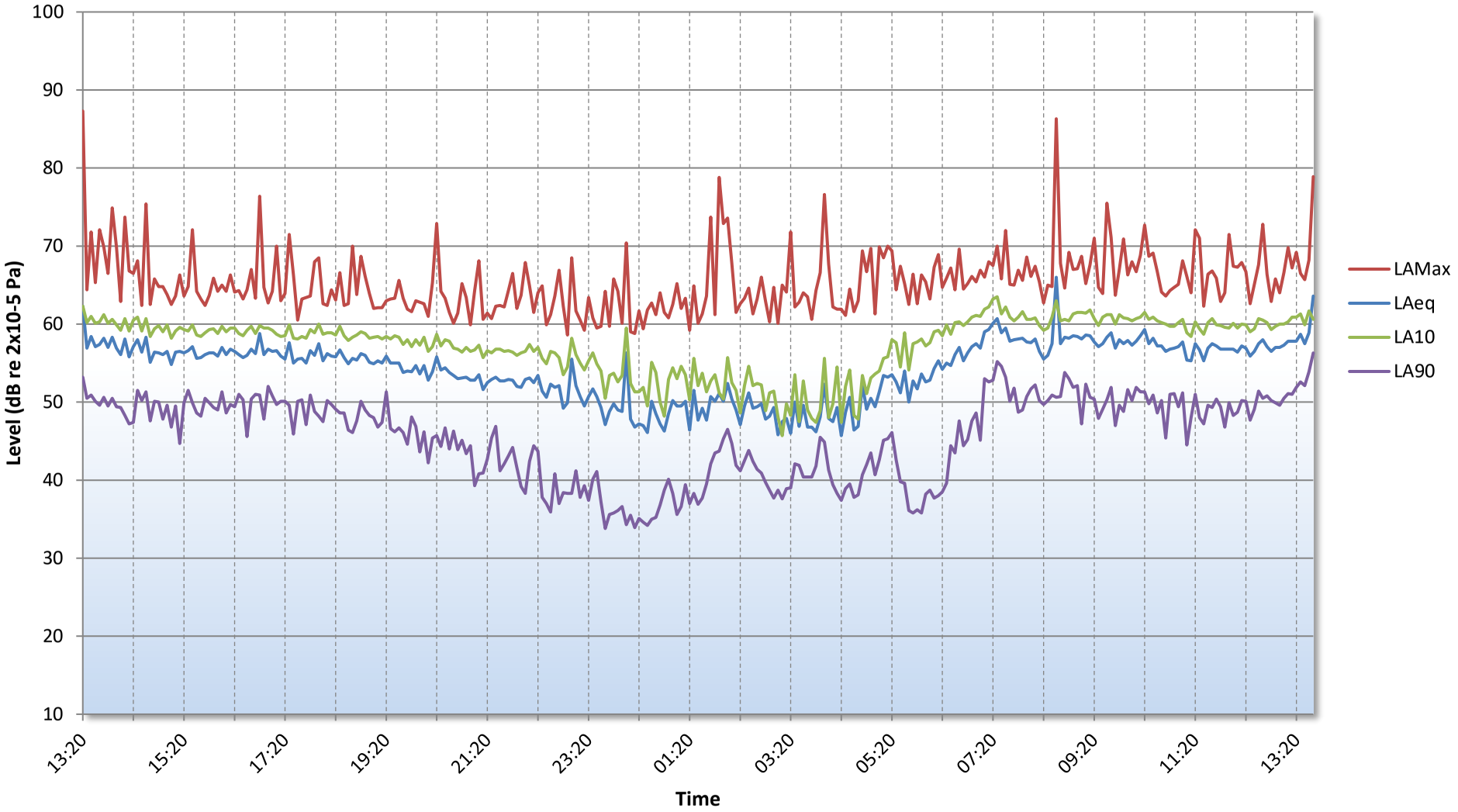

Figure 16969.TH1

Title: Site plan showing noise monitoring position, closest noise sensitive receiver and plant units location

Date: 19 February 2018

FIGURE 16969.SP1

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APPENDIX B

Flat 1, 101 Mount Street, Mayfair, London

PLANT UNIT EMISSIONS CALCULATIONS

Source: Plant Unit Installation Receiver: Nearest Residential Window	*Frequency, Hz*								
	63	***125***	***250***	***500***	***1k***	***2k***	***4k***	***8k***	***dB(A)***
Manufacturers Sound Pressure Level									
MXZ - 4E72VA Mitshubishi Electric	59	57	55	51	48	43	36	29	53
Correction due to No. of units (3)	5	5	5	5	5	5	5	5	5
Attenuation provided by distance to receiver (min. 15 m)	-24	-24	-24	-24	-24	-24	-24	-24	-24
Attenuation due directivity index	-3	-3	-3	-3	-3	-3	-3	-3	-3
Attenuation due to screening from building envelope	-5	-6	-7	-8	-10	-12	-15	-18	-8
Sound pressure level 1m from nearest residential receiver									**23**

Design Criterion	**29**

Receiver: Inside Nearest Residential Window

Source: Plant Unit Installation	*Frequency, Hz*								
	63	***125***	***250***	***500***	***1k***	***2k***	***4k***	***8k***	***dB(A)***
Sound pressure level outside window									23
Minimum attenuation from partially open window, dB									-10
Sound pressure level inside nearest residential window									**13**