Proposed installation of new air conditioning units 40 Churchway, London, NW1

MAJ025

STATEMENT

ACCOUSTIC

ORIGNAL

1 Introduction

On behalf of Maverick Television, a survey and assessment has been carried out at 40 Churchway, London NW1, to determine the noise impact of a proposed air conditioning units.

The work has been carried out in August 2007 by Analytical and Environmental Services, part of Northumbrian Limited. A glossary of terms is given at Appendix 1.

2 Description

The site location is shown in Figure 1.

There is a small flat roofed area on the Maverick Television site to the rear of the building marked Victoria (PH) on Figure 1. This is the proposed location of the new air conditioning units. The roof is shown in plan on Figure 2.

The new air conditioning units will be 2 @ Fujitsu asyal 14LC and 1 @ Fujitsu 24LC. We are informed that the noise level at 1.8 m is 48 dB L_{AP} for the 14LC and 52 dB L_{AP} for the 24LC when the units are operating normally.

The nearest residential units appear to be over the Victoria PH and in 29 to 35 Chalton Street.

The facades of these residential units are about 12 m from the proposed units on the roof. The residential façade of the Victoria PH is set back from the edge of the pub building shown on Figure 2.

We are informed by Maverick Television that the existing air conditioning units are only operational from 09:30 to 18:00. The new units will have the same hours of operation.

3 Criteria

Planning Policy Guidance Note PPG24 *Planning and Noise*^[1] gives the official government advice to planning authorities for dealing with noise aspects of planning.

For new industrial and commercial noise sources affecting existing noise sensitive receivers, PPG24 refers to British Standard BS4142 *Method for Rating Industrial Noise Affecting Mixed Residential and Industrial Areas*^[2], which can be used to determine whether complaints are likely from a specific industrial noise source. The specific noise is measured in terms of the equivalent continuous noise level L_{Aeq} over a given time period (one hour for daytime or five minutes for night time). The background noise in the absence of the specific noise is measured in terms of the noise level exceeded for 90% of the time L_{A90} . The specific noise is corrected for tone or character and this rating level is compared with the background noise. If the rating level exceeds the background noise by around 10 dB or more, there is an indication that complaints are likely. Excesses of around 5 dB are of marginal significance.

The World Health Organisation Environmental Health Criteria 12 *Noise*^[3] advises a bedroom noise level of less than 35 dB L_{Aeq} to preserve the restorative process of sleep. General daytime outdoor noise levels of less than 55 dB L_{Aeq} are desirable to prevent any significant community annoyance. The World Health Organisation has published a revised document in 2000^[4]. For dwellings, recommended guideline values inside bedrooms are 30 dB L_{Aeq} for steady state continuous noise. At night-time, outdoor noise should not exceed 45 dB L_{Aeq} so that people may sleep with bedroom windows open. Daytime noise levels should not exceed 50 dB L_{Aeq} to prevent the majority of people from being moderately annoyed or 55 dB L_{Aeq} to prevent the majority of people being seriously annoyed.

The application of WHO guidelines to UK planning has been questioned in a 1998 report^[5] by the Department of the Environment, Transport and the Regions. It states that WHO guidelines do not have any official status in the UK and that perhaps their main weakness is that they fail to consider the practicality of actually being able to achieve any of the stated guideline values. Further to this it states that exceedances of the WHO guideline values do not necessarily imply significant noise impact and indeed, it may be that significant impacts do not occur until much higher degrees of noise exposure are reached.

PPG24 states that the 1987 version of British Standard BS 8233 *Sound Insulation and Noise Reduction for Buildings*^[6] provides guidance on suitable internal noise levels for dwellings. These are 30 dB to 40 dB $L_{Aeq, T}$ for bedrooms and 40 dB to 45 dB $L_{Aeq, T}$ for living areas.

BS 8233 was revised in 1999^[7]. It states criteria for continuous noise of 30 dB to 35 dB $L_{Aeq,T}$ for bedrooms and 30 dB to 40 dB $L_{Aeq,T}$ for living rooms. In gardens and on balconies etc, it is desirable that the steady noise level does not exceed 50 dB $L_{Aeq,T}$ and 55 dB $L_{Aeq,T}$ should be regarded as the upper limit.

4 Noise measurements

Measurements of the noise in the area near the site were carried out on 9th August 2007. The measurements were made at the locations shown on Figure 2. A logging sound level meter was left at Location 3 for 24 hours and was collected on 10th August 2007.

The weather conditions were dry with very light winds.

The main source of noise were the ducts on the Victoria PH. There was comparatively little noise from the existing units at Maverick Television.

The equipment used is given in Appendix 2. It was field calibrated before and after use and no drift in calibration was noted.

5 Results

The results of the short term measurements are given in Table 1.

The results of the logged measurements are shown in Figure 3 and summarised in Table 2.

6 **Predictions**

The distance to the nearest residential facades is about 12 m from the new units. So the calculation of noise at 12 m is as follows.

Noise level at 1.8 m dB	Distance correction 1.8 m to 12 m dB	Noise level at 12 m dB
48	16.5	31.5
52	16.5	35.5
48	16.5	31.5
	Total	38.1

7 Discussion

It can be seen that the short term noise level measurements were highest near the pub. This in an indication that the pub air moving systems are controlling the noise in the area.

Because of this, it is difficult to measure a difference in the daytime with and without the exiting air conditioning units operating. It is reasonable to say that the existing air conditioning units are not contributing to the background noise in the area.

The noise climate from 09:30 to 18:00, when the new units are proposed to operate may, therefore, be summarised as follows.

background noise with all existing air conditioning units turned off	52.7 dB L _{A90}
background noise with all existing air conditioning units turned on	52.7 dB L _{A90}
predicted noise levels of new air conditioning units operating	38.1 dB L _{Aea}

The method of assessment of noise from proposed industrial premises in PPG24 is that given in BS4142. If the noise has a character that makes it attract attention such as a whine or hum, or contains bangs or thumps, a 5 dB penalty must be added.

It is important to remember that the BS4142 is a standard designed to deal specifically with industrial noise. Therefore, just because noise has an "industrial" nature, does not mean that it should automatically attract the 5 dB penalty.

Given that the predominant noise in the area is from air handling units, it is not considered that the new noise would have a character that would make it stand out. Therefore, a 5 dB penalty is not considered appropriate.

It can be seen that the predicted noise is below the background noise. Therefore, the new noise will not even be of marginal significance. Therefore, following the advice in PPG24, it is considered that noise from these new units is not a material issue for planning.

8 Summary and conclusions

A survey and assessment has been carried out at 40 Churchway, London NW1, to determine the noise impact of a proposed air conditioning units.

The nearest residential units appear to be over the Victoria PH and in 29 to 35 Chalton Street. The facades of these residential units are about 12 m from the proposed units on the roof.

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References

- 1. DEPARTMENT OF THE ENVIRONMENT, Planning Policy Guidance Note PPG24, *Planning and Noise*, HMSO, London, September 1994.
- 2. BRITISH STANDARDS INSTITUTION, BS 4142, *Rating industrial noise affecting mixed residential and industrial areas,* British Standards Institution, London, 1997.
- 3. WORLD HEALTH ORGANISATION, *Environmental Health Criteria 12: Noise*, World Health Organisation, Geneva, 1980.
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- 5. DEPARTMENT OF THE ENVIRONMENT, TRANSPORT AND THE REGIONS, Health effect based noise assessment methods: a review and feasibility study, HMSO, London, September 1998
- 6. BRITISH STANDARDS INSTITUTION, BS 8233, *Sound insulation and noise reduction in buildings*, British Standards Institution, London, 1987.

7. BRITISH STANDARDS INSTITUTION, BS 8233, *Sound insulation and noise reduction in buildings*, British Standards Institution, London, 1999.

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Table 1 Summary of short term results

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Location	Duration minutes	L _{AMax} dB	L _{Aeq} dB	L _{A90} dB
1	4	72.6	57.9	56.5
2	5	66.3	56.3	55.5
3	3	59.6	55.6	54.5

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Table 2 Summary of 24-hour measurements	e 2 Summary of 24-I	our measurements
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Time from	То	L _{AFmx} dB	L _{Aeq} dB	L _{AF90} dB
12:00	13:00	86.2	55.6	54.2
13:00	14:00	66.3	54.9	54.0
14:00	15:00	76.8	54.9	52.9
15:00	16:00	68.4	51.7	50.2
16:00	17:00	77.6	53.7	51.8
17:00	18:00	67.9	54.7	53.8
18:00	19:00	72.3	55.8	54.2
19:00	20:00	77.8	56.0	53.7
20:00	21:00	72.4	54.6	53.5
21:00	22:00	71.9	54.1	53.1
22:00	23:00	74.4	51.5	49.7
23:00	00:00	64.7	49.7	48.4
00:00	01.00	71.8	48.0	45.8
01:00	02:00	72.5	48.2	47.4
02:00	03:00	63.8	47.9	47.2
03:00	04:00	57.7	47.3	46.6
04:00	05:00	59.5	46.5	44.9
05:00	06:00	66.0	49.5	46.7
06:00	07:00	67.4	50.2	47.9
07:00	08:00	71.9	50.2	48.3
08:00	09:00	72.4	51.2	48.3
09:00	10:00	71.5	52.0	50.4
10:00	11:00	71.8	53.8	51.5
11:00	12:00	80.5	55.1	53.9