PRE-INSTALLATION NIGHT NOISE TESTS

MAIDA VALE

at:

MAIDA VALE T.E
THIRD FLOOR
138 MAIDA VALE
LONDON
W9 1QD

for:

WEATHERITE BUILDING SERV'S LTD
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Sound test & report prepared by:

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Job Ref: WSL / 032043

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MAIDA VALE T.E

Ref:WSL /
03/2043

Pre-Installation Background Noise Rating Assessment for New 3rd Floor Vent/Cooling Plants

22nd February 2006

To: P.Tregurtha - Weatherite Building Services
From: D. Andrews - Bescom (Services)

Client:

Weatherite Building Services
The Old Brewhouse
Brewhouse Hill
Wheathampstead
Hertfordshire
Tel: 01582 831616
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Site Address:

Maida Vale T.E
138 Maida Vale
Maida Vale
London. W9 1QD

Objectives

1 To determine the existing background noise level, at the proposed sites of 3No. BTR30ec Air Handling Units *(AHU)* in the south east elevation and adjacent residential properties.

2 To calculate the predicted noise output of the Weatherite BTR30ec AHU's for the installations, utilising the methodology BS 4142 : 1997 'Method for Rating Industrial Noise affecting mixed residential and industrial areas' as a Rating Level at the Position of the nearest housing.

3 To compare the calculated Rating Level with the Background Level measured on site, to assess the impact of the new installation.

General

Maida Vale T.E is located on the A5 at 138 Maida Vale, in Maida Vale. It's located between residential properties to the south and north.

The installation is proposed to comprise of: 3No. BTR30ec AHU's with intake louvre and exhaust PRV mounted in the 3rd Floor south east elevation which overlook access around the exchange and residential block properties beyond the BT boundary.

The dominant noise sources at night emanated from local road traffic noise.

The Ventilating Plants will cater for telephone switching equipment on the 3rd Floor Apparatus Area. (*see the test record sheet enclosed).*

Our Pre-Installation sound tests recorded A-weighted background and residual sound levels.

Results

Night time Noise Levels

Pos'n 1	**Background Noise($L_{AF90(5min)}$)**	**=**	**43 dB**
Pos'n 1	**Residual Noise($L_{Aeq(5min)}$)**	**=**	**45 dB**

BS 4142: 1997 quotes: -

Rating Level

"Certain Acoustic features can increase the likelihood of complaint over that expected from a simple comparison between the specific noise level and the background noise level. Where present, at the assessment location, such features are taken into account by adding 5dB to the specific noise level to obtain **Rating level**."

Note: Rating level is equivalent to the specific noise level if there are no such features present.

The acoustic feature correction is added for fan and compressor noise thus the **Rating level** includes a 5dB correction.

Assessment Method

Assess the likelihood of complaints by subtracting the measured background noise from the 'calculated' rating level.

The greater this difference the greater the likelihood of complaints. A difference of around 10dB or more indicates that complaints are likely.

A difference of around 5dB is of marginal significance.

If background level is 10dB above Rating Level, then complaints are unlikely.

Our results below were

Position 1: Background level = 43dB

Working to calculate **a Rating level** from the predicted noise levels from the BTR30ec AHU's at the nearest residential property (measured at 10m) and taking into account both attenuation with distance and the character of the noise:

Predicted 43dBA at 2m, from 1No. BTR30ec AHU

(N.B External noise levels estimated with acoustic louvre and additional acoustically lined square bends.)

The proposed new installation of 3No.BTR30ec AHU's operating alone in full cooling mode, therefore will have a specific noise level of 48dBA at 2m.

(The acoustic feature correction is added for fan noise thus the **Rating level** includes a 5dB correction).

Rating Level = 53dBA at 2m

Rating Level at nearest residence to Position 1 installation:

$$L_2 = L_1 - 20 \log \frac{r_2}{r_1} = 53 - 20 \log \frac{9}{2} = 53 - (13) = \mathbf{40dB}$$

Site Sound Level Measurement Record

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south croydon surrey cr2 0ns t 020 8657 0682
www.bescom.co.uk office@bescom.co.uk f 020 8651 2027

commissioning
maintenance
consultancy [redacted]

SOUND LEVEL MEASUREMENT RECORD

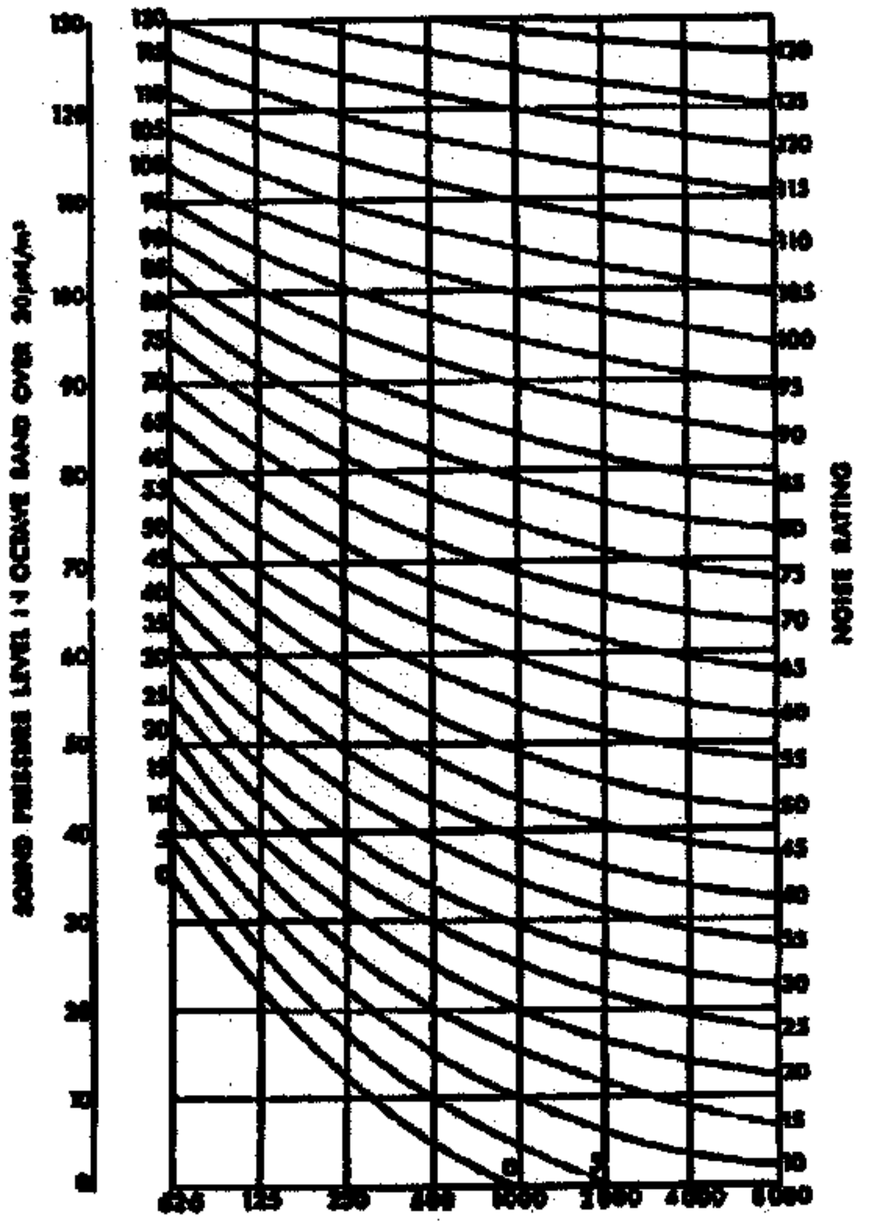
JOB: MAIDA VALE T2 | CLIENT: WEATHERITE BUILDING SERVICES

PLANT: FIRE INSTALLATION SUPPLY & EXTRACT | ENGINEERS: DA

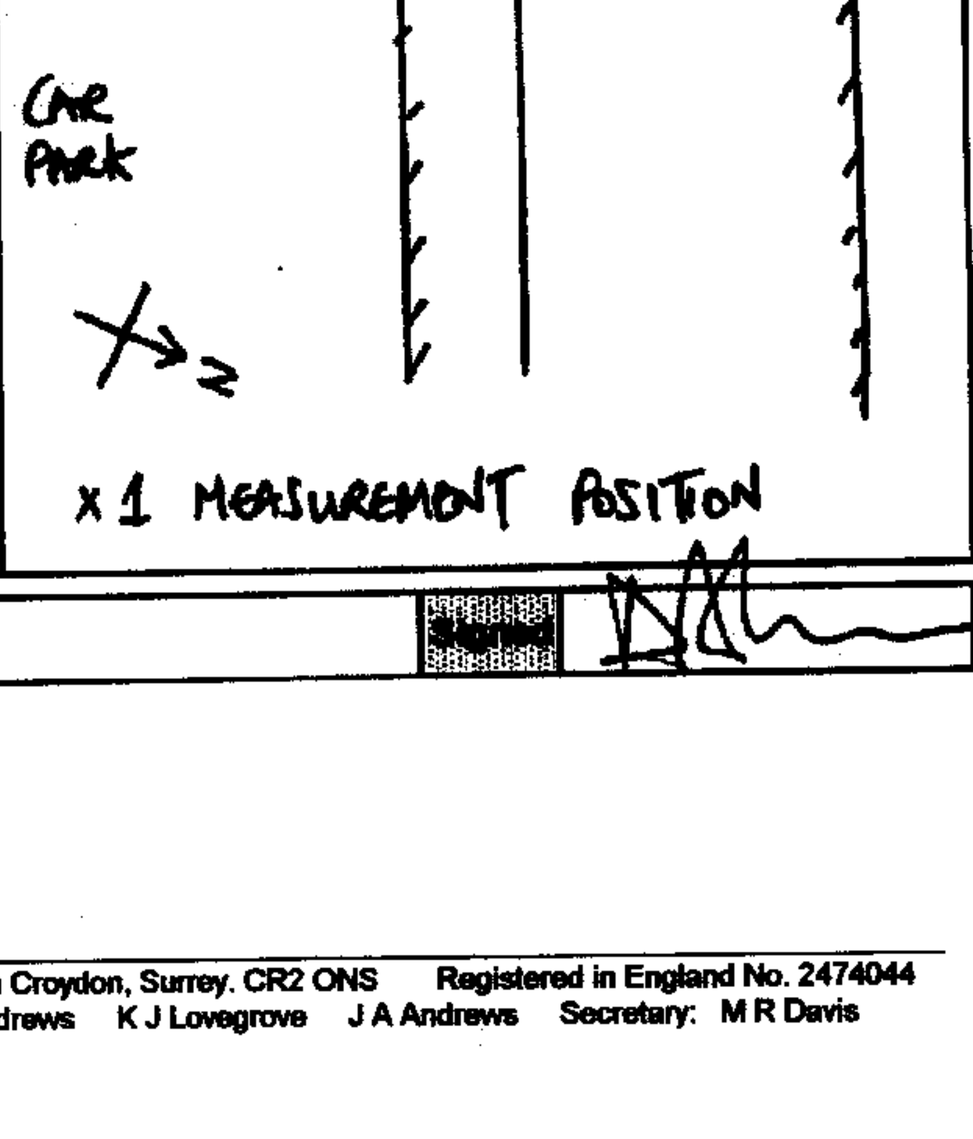
PLANT LOCATION: 3RD FLOOR EAST ELEVATION | DRY 3°C LIGHT N-W WIND | Date: 22.02.06 01:00

	Hz	63	125	250	500	1K	2K	4K	8K	dB(A)	dB(C)	NR
1	AMBIENT W/FL & EXT EQUIPMENT									44.5	48.0	

NOISE RATING



SKETCH OF LOCATION



x 1 MEASUREMENT POSITION

Engineer's: D. ANDREWS | Signed:

Conclusions

For **Position 1**, therefore we conclude that the calculated **Rating Level** at the nearest residence (the residential properties opposite our proposed noise source) **of 40 dB** is **3dB below** the measured Background Level of 43dB.

If this is achieved , BS 4142 : 1997 states that the likelihood of complaints will be marginal/unlikely.

Our calculations assume 'free field' conditions.

DEFINITION OF ACOUSTIC TERMS USED IN THIS REPORT

A-Weighting, dBA
The Human Ear is more responsive to mid-frequency noise than high and low frequency noise. The 'A' weighting scale is used to measure noise in a manner that approximates that of the varying response of The Human Ear. $L_{eq,T}$ and $L_{Aeq,T}$

Equivalent Continuous A Weighted Sound Pressure Level, $L_{Aeq,T}$
The value of the A Weighted sound pressure level in decibels of continuous steady sound that within a specified time interval, T, has the same mean squared sound pressure as sound that varies with time.

N.B The equivalent continuous A weighted sound pressure level is quoted to the nearest whole number of decibels.

Specific Noise Source
The noise source under investigation for assessing the likelihood of complaints.

Reference Time Interval, T_r '
The specified interval over which an equivalent continuous A-weighted sound pressure level is determined.

Specific Noise Level $L_{Aeq,Tr}$ '
The equivalent continuous A-weighted sound pressure level at the assessment position produced by the specific noise source over a given reference time interval.

Measurement Time Interval, T_m
The total time over which the measurements are taken.

Rating Level, $L_{Ar,Tr}$
The specific noise level plus any adjustment for the characteristic features of the noise.

Ambient Noise
Totally encompassing sound in a given situation at a given time usually composed of sound from many sources near and far.

Residual Noise
The ambient noise remaining at a given position in a given situation when the specific noise source is suppressed to a degree such that it does not contribute to the ambient noise.

Residual Noise Level, L_{AeqT}
The equivalent continuous A-weighted sound pressure level of the residual noise.

Background Noise Level, $L_{A90,T}$
The A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90% of a given time interval, T, measured using time weighting, F, and quoted to the nearest whole number of decibels.