THE EQUUS PARTNERSHIP

Member of the Association of Noise Consultants

CONSULTANTS IN ACOUSTICS

66 GOODGE STREET LONDON W1

PLANT NOISE ASSESSMENT REPORT

30th September 2014

Report prepared for:

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EPL:4364

30th September, 2014

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1.0 INTRODUCTION

A commercial unit on the ground floor of the premises is being fitted out as an estate agent's office, and as part of the works it is proposed to install three new condenser units externally on the first floor roof. The London Borough of Camden have requested that an assessment of atmospheric noise emissions from the proposed new plant items is undertaken in order to ensure the amenity of neighbouring properties is not compromised.

The Equus Partnership Ltd has therefore been commissioned to undertake a noise survey to establish existing background noise levels at the site, to discuss The London Borough of Camden's requirements regarding noise emissions and to carry out an assessment in light of these.

2.0 SITE LOCATION

The subject premises comprise a four storey building located on the north side of Goodge Street at the corner of the junction with Cleveland Street. The units are to be located against the lift shaft wall on the first floor flat roof at the rear of the premises, as shown on MPL Interiors drawing TL SF 01 which accompanies the application. The closest sensitive neighbouring properties are the residential accommodation on the upper floors of the adjoining building at 66a Goodge Street, which are approximately 3m from the proposed plant location, although it should be noted that the line of sight between these windows and the proposed units is interrupted by the corner of the lift shaft.

There are existing plant items on the first floor roof which comprise a kitchen extract fan and associated ductwork which is understood to serve the Barrica Tapas Bar at 64 Goodge Street, and small condenser unit which serves the travel agent located in the adjacent ground floor unit.

The new condenser units are required to operate during normal office hours (08.00 – 18.00) only.

3.0 PLANT NOISE DATA

Manufacturer's noise data for the proposed plant are summarised on the attached schedule ***4364*/*PN1***.

4.0 ENVIRONMENTAL NOISE SURVEY

An environmental noise survey was undertaken during the afternoon of Friday 26th September 2014. Measurements were taken on the first floor flat roof adjacent to the nearest residential windows with the L_{Aeq} and L_{A90} values being recorded over consecutive 15 minute periods.

The weather during the survey period was mild and dry with light winds.

4.1 Instrumentation

The following instrumentation was used for the survey:

Brüel and Kjær Precision Sound Level Meter	Type 2260B
Brüel and Kjær ½" Condenser Microphone	Type 4189
Brüel and Kjær Sound Level Calibrator	Type 4230
Brüel and Kjær ½" Windshield	Type UA 0237

The sound level meter was calibrated prior to the survey and the calibration was checked upon completion. No drift was found to have occurred.

4.2 Survey Results

It was found that the noise level on the roof was controlled and dominated by noise emissions from the kitchen extract fan associated with the restaurant in the adjacent premises, and that this resulted in the measured background noise level remaining constant and steady at 57 dB $L_{A90\ (15\ min)}$. Therefore a series of additional measurements were undertaken at a secondary location in Goodge Place (which is approximately 25m from the rear of the subject premises and is fairly well screened from noise due to traffic on Goodge Street and Cleveland Street). The lowest background noise level at this location was measured between 17.30 and 18.00 and was 52 dB $L_{A90\ (15\ min),}$ and it is suggested that this value may be taken to be representative of the lowest background noise level likely to be prevailing at the rear of the subject premises during the proposed plant operating period.

Please refer to ***Appendix A*** for an explanation of the acoustic terminology used above.

5.0 ACOUSTIC DESIGN TARGET

The London Borough of Camden have indicated that with respect to neighbouring sensitive properties they require that plant noise emissions rated in accordance with BS 4142:1997 should be controlled to a value at least 5 dB below the lowest measured ambient background noise level during the proposed operating period, when assessed at 1m from the nearest window of the nearest sensitive property. Based on the lowest measured background noise level of 52 dB L_{A90}, this equates to a criterion of 47 dB(A) to be achieved at the identified neighbouring properties.

6.0 ASSESSMENT

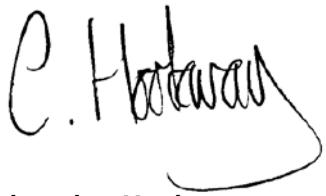
The local authority requirement refers to BS 4142: 1997: "*"Method For Rating Industrial Noise Affecting Mixed Residential and Industrial Areas".* This standard presents an assessment methodology for determining the likelihood of complaints from occupiers of residential accommodation with respect to noise from fixed plant installations, and based on the guidance in the Standard the target recommended would be tending toward the position where complaints would be "unlikely".

Based on the manufacturer's plant noise data and the acoustic design target outlined above, an assessment of noise emissions from the proposed plant items has been undertaken, with due allowance made for the distance and screening between the plant location and the identified neighbouring properties.

Calculations show (see ***Appendix B***) that with all three of the proposed new units operating simultaneously, the noise level at the closest noise sensitive window will be 43 dB(A), which is 4 dB below the local authority requirement.

7.0 CONCLUSIONS

Noise emissions from the proposed plant items have been assessed based on manufacturer's noise data and in accordance with local authority requirements. Calculations confirm that the local authority requirement is achieved at the closest windows to the identified neighbouring premises.



Christopher Hookway
THE EQUUS PARTNERSHIP LTD.

APPENDIX A

Glossary of Acoustic Terminology

Decibel (dB): The Decibel is a logarithmic unit used to express ratios of quantities such as sound pressure or sound power. The logarithmic nature of the unit means that decibel values cannot be added or subtracted in the usual way. An auditory sensation of halving or doubling of loudness equates to a decrease or increase of around 10 dB.

dB(A) or L_A: The A weighted scale is used to take account of the fact that the human ear is more sensitive to sounds at high frequencies than sounds at low frequencies. "A" weighted sound pressure level (sound level) measurements correspond roughly to the subjective impression of loudness of the average listener.

L_{max} : The L_{max} is the maximum sound pressure level (sound level) recorded during any given measurement period.

L_{90} : The L_{90} is the sound level that is exceeded for 90% of the measurement period, and is generally considered to describe the background noise, since it inherently excludes the sounds of transient events.

L_{eq} : The L_{eq} index is used as a method of averaging temporally or spatially varying sound levels. At a given position, it may be defined as the notional sound level which contains the same amount of acoustical energy as the actual (time varying) sound level over the same measurement period. The L_{eq} index has gained wide acceptance for many types of noise assessment, and is referred to within British Standards 4142 and 8233, and also within The Control of Noise at Work Regulations.

APPENDIX B

Assessment Calculation

Condenser Units On 1st Floor Roof

Condenser unit FDT100VN	56 dB(A) at 1m = **A**
Condenser unit FDT71VN	56 dB(A) at 1m = **B**
Condenser unit FDT50VN	56 dB(A) at 1m = **C**
A+**B**+**C**	= 61 dB(A) at 1m
distance (3m)	- 10 dB = 51 dB(A)
Nominal screening loss for intervening elements	-8 dB(A) (= 0.05m path length difference)
Specific Noise Level	43 dB $L_{Aeq,\ 5\ min}$
Character correction	0
Rating Noise Level	43 dB $L_{Ar,\ 5\ min}$
Minimum Background Noise Level	52 dB $L_{A90,\ 15\ min}$
Rating Level relative to Background	- 9 dB

SCHEDULE: 4364/PN1
SHEET NO. 1 OF 1
DATE: 30th September 2014

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PLANT REF.	MODEL	LOCATION	No. Off	Pa.	Lw / Lp	63	125	250	500	1k	2k	4k	8k
Condenser Unit	Mitsubishi FDT100VN	1st floor roof	1	N/A	Lp at 1m				56	dB(A)			
Condenser Unit	Mitsubishi FDT71VN	1st floor roof	1	N/A	Lp at 1m				56	dB(A)			
Condenser Unit	Mitsubishi FDT50VN	1st floor roof	1	N/A	Lp at 1m				56	dB(A)			

Lw = Sound Power Level (dB. re. 1 pico Watt).
Lp = Sound Pressure Level (dB. re. 20 micro Pascals).