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BACKGROUND NOISE ASSESSMENT

78 Queens Crescent

London NW5 4EB

Client: Mr Salam

Report Date: 28th March 2019
Ref: 20190328 8570 Camden Fan.docx
Site Visit by: S B Mellor MA MIOA CMIOSH
Site Visit: 20th & 21st March 2019

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1.0 INTRODUCTION

Mr Salam instructed Martec Environmental Consultants Ltd. to undertake a noise assessment of background noise levels in connection with proposals to install a commercial kitchen extract system at 78 Queens Crescent, London NW5 4EB.

This report considers measurements taken on this site, the requirements of current government/local authority guidance and makes recommendations for noise control conditions as necessary. Acoustic terminology is explained at Appendix 1; consultants' qualifications at Appendix 2; References at Appendix 3, and full results at Appendix 4.

2.0 PROJECT BACKGROUND

The ground floor of No.78 Queens Crescent is currently retail premises and consent is being sought to convert to restaurant use which would require a kitchen extract system and flue to be located at the rear of the building. The nearest noise sensitive premises are the flats directly above No.78 [See Figure 1 below].

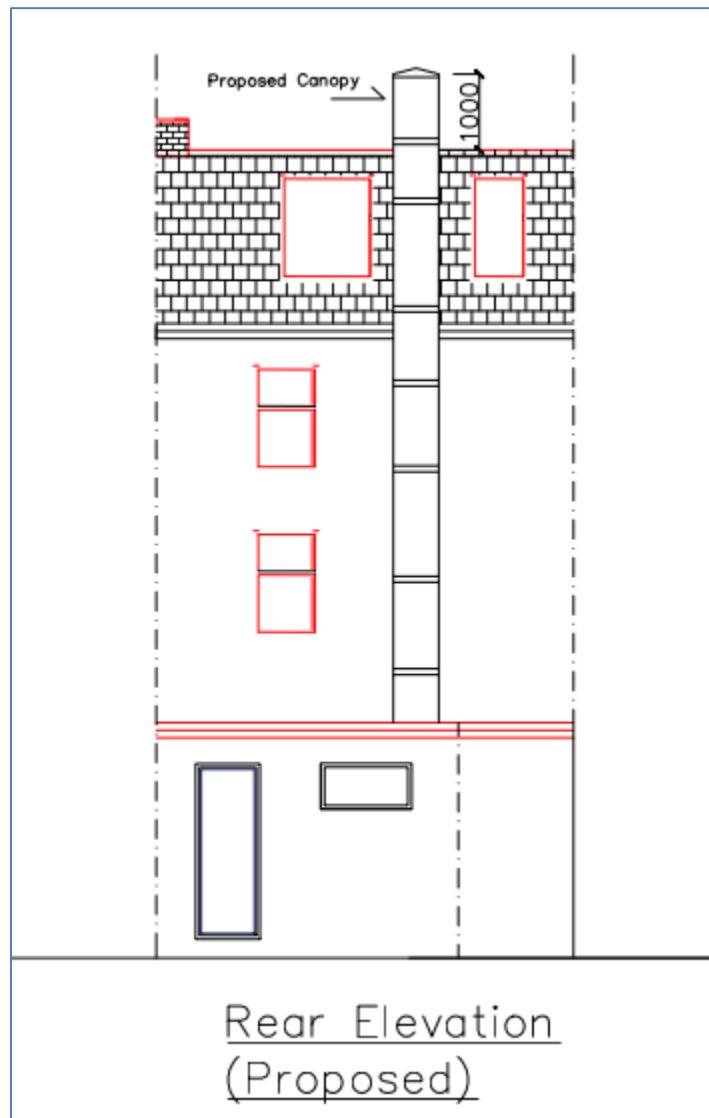


Figure 1: Extract of Sylarc Planning Dwg No.SYL/19/78/3A

The kitchen extract system has not been finally designed, e.g. location and specification of fans and silencers, so that this report specifies the acoustic design criteria that will need to be incorporated within the planning consent.

3.0 NOISE CRITERIA

3.1 Local Authority Requirements

Appendix 3 of Camden's Local Plan contains Noise Thresholds; the document defines categories of acceptability for various different noises. Essentially noise has to be "Green" to be considered acceptable. Table C from the Local Plan, shown below, deals with noise from commercial premises including plant [e.g. fans] and it is reproduced below; for noise to be considered "Green" the rating level should be 10dB below background noise levels.

For fan noise, typically the rating level is the same as the measured/predicted level because this type of noise is usually non-descript and should not attract any penalties for its character.

For fan noise in restaurant premises, the most critical periods are when background noise levels are at their lowest, i.e. in the evening. Late at night, when background levels are lower, the kitchen extract fans do not operate.

Table C: Noise levels applicable to proposed industrial and commercial developments (including plant and machinery)

Existing Noise sensitive receptor	Assessment Location	Design Period	LOAEL (Green)	LOAEL to SOAEL (Amber)	SOAL (Red)
Dwellings**	Garden used for main amenity (free field) and Outside living or dining or bedroom window (façade)	Day	'Rating level' 10dB* below background	'Rating level' between 9dB below and 5dB above background	'Rating level' greater than 5dB above background
Dwellings**	Outside bedroom window (façade)	Night	'Rating level' 10dB* below background and no events exceeding 57dBL _{Amax}	'Rating level' between 9dB below and 5dB above background or noise events between 57dB and 88dB L _{Amax}	'Rating level' greater than 5dB above background and/or events exceeding 88dBL _{Amax}

*10dB should be increased to 15dB if the noise contains audible tonal elements. (day and night). However, if it can be demonstrated that there is no significant difference in the character of the residual background noise and the specific noise from the proposed development then this reduction may not be required. In addition, a frequency analysis (to include, the use of Noise Rating (NR) curves or other criteria curves) for the assessment of tonal or low frequency noise may be required.

4.0 MEASUREMENTS

The site was visited on Wednesday 20th March 2019 and instrumentation

was installed at the location shown in Figure 2 below, which was on the rear flat roof at first floor level under approximately free-field conditions.



Figure 2: Instrumentation on Roof at First Floor Level

The sound level meter was a SVAN type 977, mounted on a tripod at a height of 1.4m above the roof and fitted with a RION WS02 "all-weather" windmuff. The meter calibrated correctly before and after the measurements and both the calibrator and meter had been laboratory calibrated within the preceding 2 years [See Table 1 below]:

Instrument	Type	Serial No.	Calibration Cert No.	Date of Due Calibration
Svan 977	Meter	36870	1400 7535-1	24/10/2019
Svan SV12L	Preamp	47576	1400 7535-1	24/10/2019
ACO 7052E	Microphone	61121	1400 7535-1	24/10/2019
Calibrator	Cirrus CR:511D	12379	266840	08/10/2020

Table 1: Instrumentation

During the monitoring the weather conditions were temperatures around 10 degrees Centigrade and dry with the wind speeds of Beaufort 2 to 3 from the west or southwest; cloud cover 70 to 20%.

Subjectively on installation and collection the main noise source was road traffic controlling the LA90 levels.

5.0 RESULTS

The full results appear at Appendix 4 at the rear of the report and have been plotted in Figure 3 below:

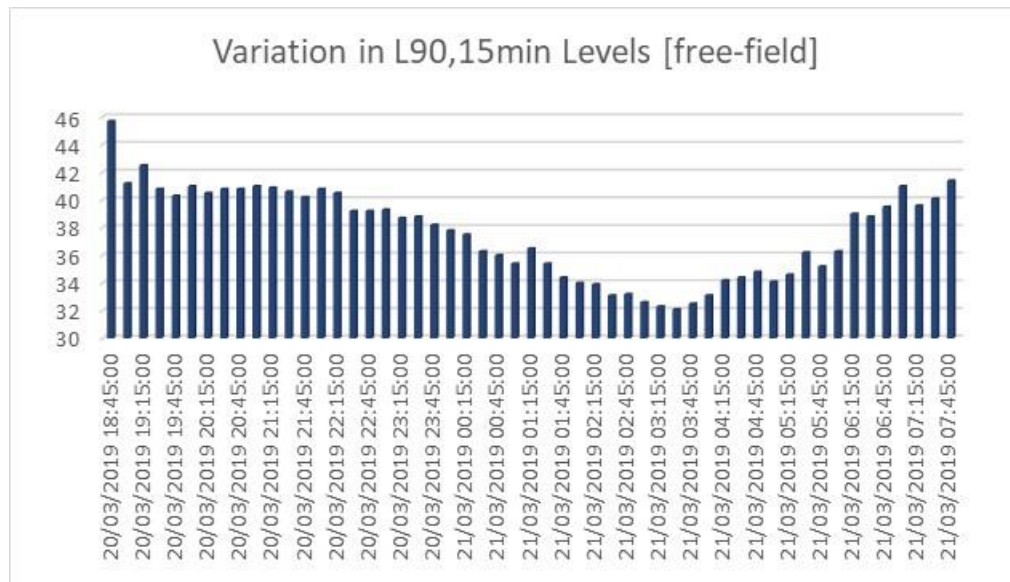


Figure 3: Plot of Free-Field Background Noise Levels

6.0 ASSESSMENT OF MEASURED LEVELS

From Figure 3, it can be seen that the background noise levels vary throughout the course of the evening so the target rating level will naturally vary depending on the end hour of operations of the Kitchen Extract Fan as shown in Table 2 below:

Factor	End Hour			
	9pm	10pm	11pm	Midnight
Background [LA90]	40	40	39	38
Rating Level [LAeq]	30	30	29	28

Table 2: Noise Control Target for “Green” rating

7.0 CONCLUSIONS

It is considered that planning consent should be granted subject to a condition that the kitchen extract system should be designed to achieve a free-field rating level of 28 dB [as assessed using BS4142:2014] outside the nearest bedroom windows and that operation of the kitchen extract fan should cease by midnight.

Accordingly, it is not considered that the noise impact should bar the grant of planning consent for this development.

APPENDIX 1

EXPLANATION OF ACOUSTIC TERMS

The dB or the decibel, is the unit of noise. The number of decibels or the level, is measured using a sound level meter. It is common for the sound level meter to filter or 'weight' the incoming sound so as to mimic the frequency response of the human ear. Such measurements are designated **dB(A)**.

A doubling of the sound is perceived, by most people, when the level has increased by 10 dB(A). The least discernible difference is 2 dB(A). Thus most people cannot distinguish between, say 30 and 31 dB(A).

The Background level of noise is most commonly represented by the level which is exceeded for 90% of the time i.e. the LA90.

If a noise varies over time then the **equivalent continuous level, or LAeq**, is the notional constant level of noise which would contain the same amount of acoustic energy as the time varying noise.

The following table gives an approximate indication of the comparative loudness of various noises expressed in terms of the A weighted scale:

Source of noise	dB(A)	Nature of Noise
Inside Quiet bedroom at night	25-30	Very Quiet
Quiet office	40-45	
Rural background noise	35-45	
Normal conversational level	55-65	
Busy restaurant	65-75	
Inside suburban electric train	70-80	
Hand clap @ 1m	75-85	
HGV accelerating @ 5m away	85-90	Very Loud

APPENDIX 2

QUALIFICATIONS AND EXPERIENCE OF M. A. KENYON

My full name is Melville Alexander Kenyon. I am the principal of the firm of Martec Environmental Consultants Ltd, a consultancy company that specialises in environmental noise assessment and control. I graduated in 1982 with a Bachelor's degree in Engineering and subsequently a Master's degree in Environmental Acoustics. I have been a corporate member of the professional body for noise and vibration specialists, the Institute of Acoustics, since 1988, and have sat on the British Standards Committee dealing with noise in buildings [BS.8233:1999].

I have lectured at Liverpool John Moores University on the Diploma of Acoustics course and at Manchester Metropolitan University on their Environmental Health degree course.

The firm of Martec Environmental Engineering was formed in the 1970's and joined The Association of Noise Consultants in 1996. It is now known as Martec Environmental Consultants Ltd.

Since its formation, Martec has advised many groups of both residents and developers about the problems of noise and vibration in the environment.

APPENDIX 3

REFERENCES

- 1 ProPG: Planning and Noise. – June 2017 – IoA, ANC & CIEH
- 2 BS.8233:1999 “Sound Insulation and noise reduction for buildings – Code of practice.”
- 3 Calculation of Road Traffic Noise (CRTN) – Department of Transport and the Welsh Office, HMSO, 1988, ISBN 0-11-550847-3
- 4 Method for Converting the UK Road Traffic Noise Index $L_{A10,18h}$ to the EU Noise Indices for Road Noise Mapping – TRL/Casella Stanger
www.defra.gov.uk/environment/quality/noise/research/crtn/documents/noise-crtn-update2006.pdf
- 5 Road Vehicles (Construction and Use) Regulations 1986(SI 1986/1078)
- 6 BS EN 12354-3:2000 *Building Acoustics-Estimation of Acoustic Performance in buildings from the performance of elements. Part 3 Airborne sound Insulation against outdoor sound.*
- 7 Road Traffic Forecasts 2015 - DTp March 2015.

APPENDIX 4

DETAILS OF NOISE MEASUREMENTS

Start date & time	LAmx,F	LAmn	LAeq	L01	L10	L50	L90	L95
20/03/2019 18:45:00	66.7	41.6	51.8	60.2	54.6	49.2	45.7	45.1
20/03/2019 19:00:00	75.5	39.3	49.7	58.3	46.8	43.2	41.2	40.7
20/03/2019 19:15:00	72.0	40.1	54.2	68.8	52.2	45.1	42.5	42.1
20/03/2019 19:30:00	63.7	39.2	43.3	48.0	45.1	42.5	40.8	40.3
20/03/2019 19:45:00	64.1	38.0	43.0	48.3	44.5	42.2	40.3	39.8
20/03/2019 20:00:00	59.9	39.3	44.2	50.7	46.4	42.9	41.0	40.5
20/03/2019 20:15:00	60.7	38.9	43.6	50.5	45.6	42.4	40.5	40.1
20/03/2019 20:30:00	63.4	38.8	44.1	49.6	45.9	43.0	40.8	40.2
20/03/2019 20:45:00	57.4	38.9	43.9	50.0	46.0	42.8	40.8	40.2
20/03/2019 21:00:00	54.9	39.4	43.6	49.1	45.6	42.9	41.0	40.5
20/03/2019 21:15:00	54.8	39.2	43.8	49.7	45.7	42.9	40.9	40.4
20/03/2019 21:30:00	63.1	38.7	44.2	49.9	46.6	42.5	40.6	40.2
20/03/2019 21:45:00	52.6	38.5	42.6	47.9	44.5	41.9	40.2	39.8
20/03/2019 22:00:00	62.9	39.2	46.3	57.4	47.4	42.8	40.8	40.3
20/03/2019 22:15:00	50.8	39.1	43.0	48.9	44.9	42.1	40.5	40.1
20/03/2019 22:30:00	52.3	37.0	42.1	47.8	44.5	41.3	39.2	38.8
20/03/2019 22:45:00	53.5	38.2	41.9	47.7	43.8	41.0	39.2	39.0
20/03/2019 23:00:00	51.8	37.1	41.5	45.7	43.2	41.0	39.3	39.0
20/03/2019 23:15:00	51.5	36.7	41.4	47.1	43.4	40.5	38.7	38.2
20/03/2019 23:30:00	62.7	36.3	43.1	51.0	44.4	40.9	38.8	38.3
20/03/2019 23:45:00	50.7	36.6	41.4	48.0	44.1	39.9	38.2	37.8
21/03/2019 00:00:00	54.4	35.6	40.9	46.7	43.0	40.0	37.8	37.2
21/03/2019 00:15:00	53.4	36.1	40.6	47.2	42.7	39.4	37.5	37.2
21/03/2019 00:30:00	52.5	35.0	38.9	44.3	40.8	38.0	36.3	36.0
21/03/2019 00:45:00	50.9	34.7	38.6	45.7	40.4	37.4	36.0	35.7
21/03/2019 01:00:00	57.2	34.2	38.8	46.2	40.8	37.2	35.4	35.1
21/03/2019 01:15:00	52.7	34.3	38.8	44.0	40.4	38.1	36.5	36.1
21/03/2019 01:30:00	47.5	34.0	37.6	42.6	39.5	36.8	35.4	35.1
21/03/2019 01:45:00	55.3	33.3	37.9	45.5	40.1	35.9	34.4	34.2
21/03/2019 02:00:00	50.4	32.8	36.4	44.2	37.5	35.4	34.0	33.6
21/03/2019 02:15:00	44.1	32.8	35.5	40.6	36.7	35.0	33.9	33.4
21/03/2019 02:30:00	52.3	31.9	35.8	44.5	36.8	34.3	33.1	33.0
21/03/2019 02:45:00	45.7	31.8	35.5	42.2	37.1	34.6	33.2	32.9
21/03/2019 03:00:00	46.8	31.5	34.4	40.8	35.5	33.8	32.6	32.3

21/03/2019 03:15:00	50.1	30.9	36.5	45.4	39.3	34.0	32.3	32.0
21/03/2019 03:30:00	66.0	30.7	42.3	55.0	42.2	33.8	32.1	31.7
21/03/2019 03:45:00	54.9	31.0	37.9	47.5	41.5	34.1	32.5	32.2
21/03/2019 04:00:00	49.9	31.0	36.9	44.7	39.6	35.1	33.1	32.7
21/03/2019 04:15:00	54.2	32.1	41.3	50.3	45.0	38.3	34.2	33.6
21/03/2019 04:30:00	52.3	31.7	40.0	47.5	43.3	37.9	34.4	33.8
21/03/2019 04:45:00	55.5	32.7	40.3	48.0	43.5	38.0	34.8	34.2
21/03/2019 05:00:00	52.0	31.6	39.2	46.8	42.1	37.3	34.1	33.4
21/03/2019 05:15:00	55.4	31.9	39.4	45.9	42.3	37.9	34.6	34.0
21/03/2019 05:30:00	60.5	33.5	41.7	52.5	42.5	38.7	36.2	35.4
21/03/2019 05:45:00	58.7	33.1	41.2	50.9	43.8	38.0	35.2	34.6
21/03/2019 06:00:00	68.6	34.2	43.5	51.2	44.9	39.4	36.3	35.7
21/03/2019 06:15:00	63.9	37.0	45.2	56.0	47.0	42.0	39.0	38.3
21/03/2019 06:30:00	60.5	36.0	45.1	54.4	48.2	42.0	38.8	38.2
21/03/2019 06:45:00	75.6	37.5	48.1	51.4	45.1	41.8	39.5	39.1
21/03/2019 07:00:00	64.5	38.7	44.3	51.7	46.1	42.8	41.0	40.5
21/03/2019 07:15:00	62.3	37.9	44.4	54.8	45.8	41.8	39.6	39.2
21/03/2019 07:30:00	70.4	38.2	44.9	53.0	45.7	41.7	40.1	39.6
21/03/2019 07:45:00	83.1	39.3	49.4	52.4	47.9	44.2	41.4	40.8