NOISE SURVEY LTD

Noise Assessment Report for 121 Kentish Town Road Proposed Restaurant

Report Ref:	198CAM
Client:	Muzahid Miah
Site Location:	121 Kentish Town Road London NW1 8PB
Date of Issue:	31st January 2017
Date of Assessment:	27th January 2017

Picture 1: 121 kentish Town Road London NW1 8PB

Executive Summary

The rating level over background of +2dB represents a low likelihood of adverse impact in the context of the noise environment.

Recommendation

Silencers must be placed inside the building so that all specific noise is attenuated before leaving the building.

Uncertainty is estimated at ±5dB

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Source under Assessment

The client proposes to convert an existing building known as 121 Kentish Town Rd into a restaurant. The restaurant will prepare hot food as part of its operations. A Helios 450 GBW/4 extraction fan will be used to extract odour and fumes from the kitchen and transport it to the outside of the building. The fan will produce noise during its operation. This report assess the impact of the fan noise together with the accompanying silencer on the nearest residential dwelling.

In addition, it is proposed to use a motorist fan by Airflow model 90G2WL/4 to provide fresh air into the building. The fan noise with its accompanying silencer will be assessed as part of this report.

Picture 2: 121 Kentish Town Rd showing residential flat above.

Picture 3: 121 Kentish Town Road is in a mixed use area.

Methodology

Measurement of Background Noise Levels;

The outlet of the Helios extractor fan will be connected to 450mm ducting that will terminate outside at the rear of the building. The shop is located on the ground floor and to the first floor of the building is a residential dwelling.

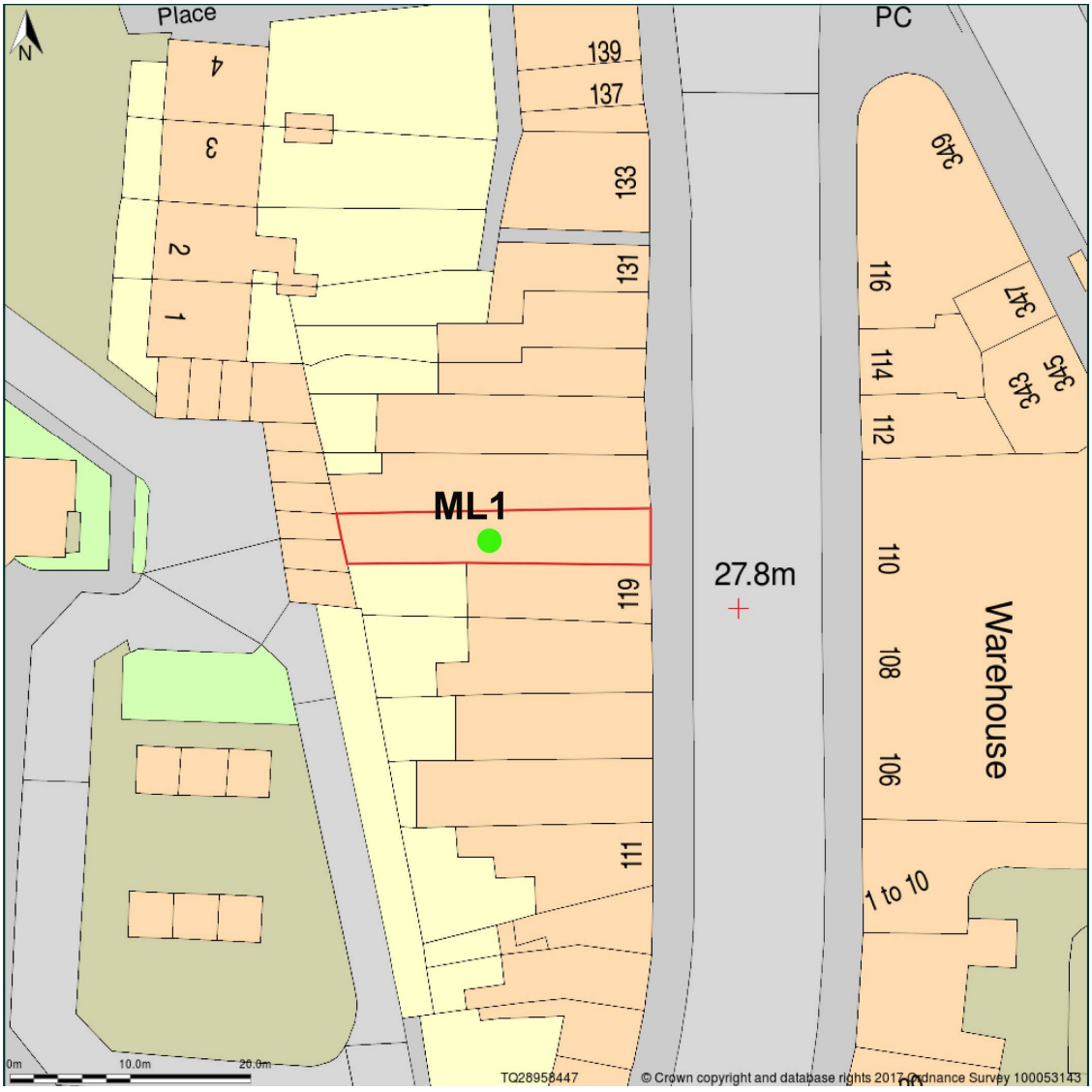
A Cesva SC310 Class 1 sound level meter was placed outside the window of the first floor apartment to the rear of the building at a distance of 3.5m from the window.

Picture 4: Location of measurement location. The red outline is 121 Kentish Town Rd at the rear. The Green circle indicates the measuring location (ML1) where the sound level meter was placed. The distance between ML1 and the nearest reflective surface is 3.5m.

Façade Correction

Façade measurements occur when the meter is in front of a large reflective surface at a distance of less than 3.5m away from the reflective surface. ML1 is 3.5m from the nearest façade wall of 121 Kentish Town Rd. No façade correction is required. The measurements are in free field conditions.

Site and Measurement Locations



Site plan: This is a site location plan purchased and cropped from the website https://www.buyaplan.co.uk on 30th of January 2017 at 13:15. The full site plan is attached as part of this report in the Appendix. The green circle indicates the noise measurement position and is marked with ML1. ML1 is on the roof of a single storey extension to the rear of the building. The red border indicates building known as 121 Kentish Town Rd.

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Specific & Background Noise Level

Measurements were taken at ML1. Only the background LAF90 and the residual noise LAeq were measured. The restaurant is not yet operational so the specific noise is obtained from data supplied by the client.

Hours of Operation

It is proposed that the restaurant will be open Monday – Sunday 12:00PM – 11:00PM

Receptor Sensitivity

The nearest residential dwellings is a flat located immediately above the proposed restaurant

Date and Time of Measurements

Measurements were conducted on Friday the 27th of January 2017 between 12:00PM – 11:00PM.

Mode of Operation.

The calculations are based on the extractor fan and fresh air fan operating at maximum capacity for 1 hour.

Noise Characteristics

Irregular: The fans will have a stop start nature. A +6dB character correction has been applied.

Impulsive: None detectable at the nearest dwelling.

Tonal: The fan will have a hum from the spinning of the blades. A +6dB character correction is applied.

The combined character correction is +6dB due to the context of the noise environment (see below).

Location	**Ambient Noise dB (fan in operation)**	**Residual Noise dB (fan turned off)**	**Background Noise (fan turned off) Level $L_{AF}90$ dB**
ML1	n/a	$L_{Aeq\ (11\ hours)}$ 55.8 dB	$L_{AF90\ (11\ hours)}$ 51.2 dB

Table 1: Measurements at ML1.

Specific Noise Level

The Helios 450GBW/4 has the following noise profile at the outlet.

Frequency **Hz**	**125**	**250**	**500**	**1K**	**2K**	**4K**	**8K**
L_{wA}	60	69	71	67	65	62	55
L_w	76	78	74	67	64	61	56
Silencer CP03 attenuation	10	16	26	29	29	29	20
Attenuated L_w	66	62	48	38	35	32	36
Attenuated L_{WA}	50	53	45	38	36	33	35

Table 2: Extractor fan Helios 450GBW/4 noise profile

Total attenuated $L_{WA} = 55.4$

The noise from the Helios extractor fan will be (assuming free field conditions over a single reflective surface at a distance of 1m from the duct outlet);

$$L_p = 55.4 - 20Log(1) - 8$$
$$L_p = 47.4dBA$$

Radiated noise from the ducting will be lower than at the duct outlet but the difference between the out let and duct radiated noise is thought to be small.

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Specific Noise of the Air Fan by Airflow unit 90G2WL/4

Frequency Hz	**63**	**125**	**250**	**500**	**1K**	**2K**	**4K**	**8K**
Lp dBA @3m	18	38.5	42	42	45	43.5	42.5	38.5
LwA (freefield)	39	59	63	63	66	64	63	59
Lw	65	75	72	66	66	63	62	60
Silencer CP01 attenuation	3	6	9	18	26	23	15	12
Attenuated L_w	62	69	63	48	40	40	47	48
Attenuated L_{WA}	36	53	54	45	40	41	48	47

Table 3: Fresh Air Fan noise profile

Total LwA = 58

The fresh air fan will vent above the ground floor door located at the rear of the flat roof extension to the rear of the building. This point is 6m from the nearest dwelling. The noise from the fresh air fan is (assuming free field conditions over a single reflective surface at a distance of 6m from the nearest residential dwelling);

$$L_p = 58 - 20Log(6) - 8$$

$$L_p = 34dBA$$

The combined noise from the Helios extractor fan and the Airflow fresh air fan is 52dBA

The specific noise at the nearest residence of 52dB(A) is below the residual noise level but higher than the background level.

BS4142:2014 Assessment Day Time for the Proposed Restaurant

Results		**Relevant Clause BS4142:2014**	**Commentary**
Measured ambient sound level	n/a	7.3.1	Specific noise obtained by calculation
Residual Sound Level	$L_{Aeq\ (11\ hour\ )}$ 56 dB	7.3.3	Obtained by onsite measurement
Background sound level	$L_{AF90\ (11\ hour)}$ 51 dB	8.3	Measured onsite
day time, reference time interval is 60 min.		7.2	
Specific sound level	$L_{Aeq(60\ min)}$ 47 dBA	7.3.3	Obtained by measurement and calculation
Acoustic feature correction	+6dB	9.2	
Rating Level (specific level plus correction for noise characteristics)	53dB(A)	9.2	
Excess of rating over background level	53 – 51 = 2 dB	11	
This indicates a low likelihood of an adverse impact.		11	
Uncertainty of the assessment	uncertainty is estimated at ± 5dB		

Table 4: BS4142 noise rating level calculation.

Context

- The specific noise of 47dB is below the day time background level of $L_{AF90\ (11\ hours)}$ 51dB(A).
- The specific noise of 47dB is lower than the residual noise level of $L_{Aeq\ (11\ hour\ )}$ 56 dB
- 121 Kentish Road is a mixed use area with other restaurants nearby.
- There are a number of existing vents and air conditioning units generating noise from nearby restaurants.
- The nearest residence is immediately above the proposed restaurant.

The rating over background level of +2dBA represents a low likelihood of adverse impact in the context of the noise environment.

Recommendations

- All silencers must be inside the building in their entirety so that all specific noise is attenuated before leaving the building.

Uncertainty

The noise levels were obtained by direct onsite measurements. The sound level meter was fitted with a wind shield and maintained on a tripod during the measurement period. Once readings were began, the sound level meter was free from human interference. This was done to minimize uncertainty in the readings. In addition, the data used was taken during suitable weather conditions. Each measurement was conducted for a duration sufficient to provide a representation of the background and residual noise levels.

It is possible that the measurements may vary from day to day depending on the background levels. An uncertainty of ±5dB has been used because of the potential difference.

Laboratory calibration uncertainty of the sound level meter ± 1 dB

$$u = \sqrt{a^2 + b^2 + c^2 ...etc}$$

U = ± 5 dB

Conclusion

The rating level over background of +2dB represents a low likelihood of adverse impact in the context of the noise environment.

Recommendation

Silencers must be placed inside the building so that all specific noise is attenuated before leaving the building.

Signed:

Donald I Angir

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Noise Survey Ltd
30th January 2017

BIBLIOGRAPHY

British Standards Institution (2014) BS EN 4142:2014 **Methods for Rating and Assessing Industrial and Commercial Sound.** London. BSI

Watson R, Downey O, (2013) **The Little Red Book of Acoustics A Practical Guide 3rd Edition,** Blue Tree Acoustics.

APPENDIX A

Measuring Equipment

Cesva SC310 type 1 sound level meter serial no. T237608. Calibrated traceable to UKAS standards by Pennine Instrument Services on 30 June 2015 Cert No. 028298-1.

Cesva Acoustic Calibrator 94dB @ 1KHz serial No 9004470. Laboratory calibrated by Pennine Instruments Services Ltd on 29th June 2015.

Kane May Thermostat model KM330 serial: 723858 calibrated 19/05/2015 by Stroma Technology certificate: 723858-150519

Kaindl Electronic model: Windtronic 2 Anemometer.

Measuring Equipment & Calibration

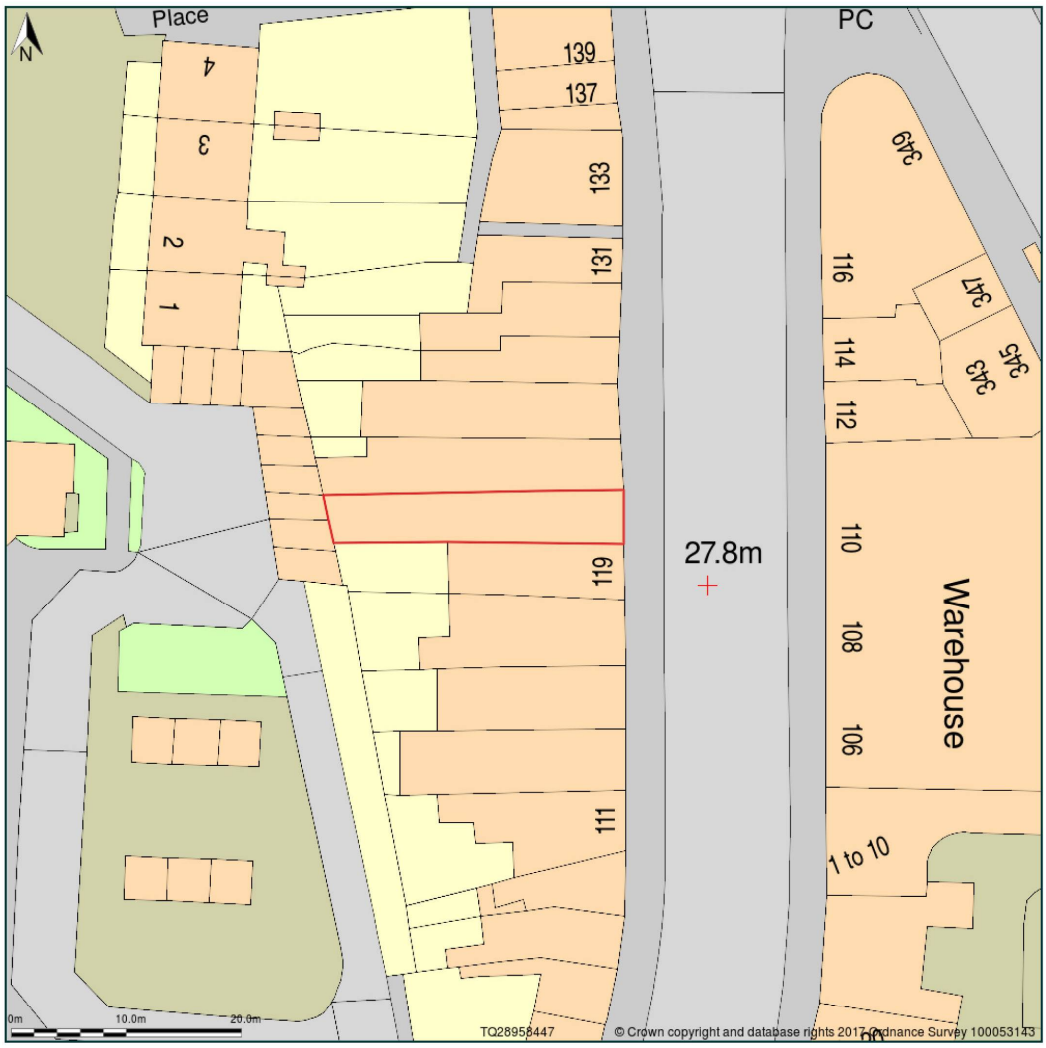
The sound level meters used is a Cesva SC310. The meter is a type 1 and has been laboratory calibrated traceable to UKAS standards. On each occasion at the beginning and at the end of measurements the meter was calibrated with an acoustic calibrator before and after the measurements with negligible deviation (≤ 0.4dB).

Weather Conditions

	Weather @ 12:00 Friday 27th January 2017 *SLM Calibrated successfully	Weather @ 23:00 Friday 27th January 2017 *SLM Calibrated successfully
Temperature	8.6ºC	8.9ºC
Wind	0.4 m/s	1.1m/s
Precipitation	None	none
Cloud cover	70%	80%

Table 5: Weather conditions at the start of the measurements. This is for the residual and background noise levels taken at the proposed site. *The calibration reference level is 94dB at 1KHz.

121 Kentish Town Road, London, NW1 8PB



Block Plan shows area bounded by: 528908.92, 184428.06 528998.92, 184518.06 (at a scale of 1:500), OSGridRef: TQ28958447. The representation of a road, track or path is no evidence of a right of way. The representation of features as lines is no evidence of a property boundary.

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