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SENT VIA EMAIL ONLY

Noise Impact Assessment: Verification Survey

Noise Assessments Ltd was commissioned to undertake a noise assessment verification survey at the above site following the installation of a small kitchen extraction system for heating paninis and light snacks, and internal acoustic ceiling for their newly approved bar with cooking facility and background music during the daytime and nighttime.

A revised noise assessment for planning was issued in December 2022 (NALPRO090821.03).

Existing Context

The site is in an urban location surrounded by residential areas, commercial sites, and the busy Wilmslow Road.

Noise Guidance

The rating level (noise from the commercial site) is to be compared to the background sound level to determine the resultant noise impact in accordance with BS4142:

- A Sound Rating Level at or below the background noise level is indicative of Low Impact;
- A Sound Rating Level that exceeds the background noise level by around + 5dB is likely an indication of Adverse Impact, depending on the context;
- A Sound Rating Level that exceeds the background noise level by around + 10dB is likely an indication of Significant Adverse Impact, depending on the context.

Measurement Equipment

Measurements were undertaken using a calibrated, Pulsar N45 class 1 sound level meter. Full details as available on request.

During all measurements the microphone was protected with an outdoor windshield.

The calibration level of the meter was checked before and after the survey with a sound calibrator with no variation in the levels observed.

The sound level meters were set to measure various noise parameters including LAeq values using a 'fast' time weighting. Calibration certificates have been included.

Weather Conditions

Weather conditions were deemed acceptable for noise measurements outside.

Noise Survey

A background noise survey was conducted from the 20th to 25th August 2021. This period was chosen to obtain background noise levels over a weekday/end period.

Environmental Noise Levels

Location	Date	T (hrs)	dB L _{Aeq}	dB L _{Amax}	dB L _{A90}	dB L _{A10}
M2	22/08/21	30 (min) daytime	46	66	41*	-
M2	22/08/21	30 (min) night-time	45	67	37*	-

*LA90 daytime reference period is 1hr *LA90 night-time reference period is 15 mins

Figure-1: Site & Measurement Location



Measured noise level from extraction exit point at ground floor level: L_{Aeq} 51 dB @1m

Specific Sound Levels

The specific sound level is denoted L_{As} and is the A-weighted, equivalent noise level measured at the NSR façade location over the reference time period.

The calculated Specific Sound Level (see appendix B) of the extraction system motor at the nearest NSR location is summarised below.

Specific Sound Level	
NSR	Specific Sound Level, dB L _{As}
1 (5m to the residential façade)	32
3 (13m to the residential façade)	24

Rating Level

The specific sound level may be corrected for certain characteristics that make a sound more noticeable at the NSR locations. Corrections for tonality, impulsivity and intermittency may be applied.

The associated rating penalties and resultant sound rating levels, dB L_{Ar}, are tabulated below:

Rating Penalties, dB, and Sound Rating Levels					
NSR	dB L _{As}	Tonality	Impulsivity	Intermittency	dB L _{Ar}
1	32	3	0	0	35
3	24	3	0	0	27

Rating Level Vs Background

The rating level is to be compared to the background sound level to determine the resultant noise impact in accordance with BS4142:

A Sound Rating Level at or below the background noise level is indicative of *Low Impact*;

A Sound Rating Level that exceeds the background noise level by around + 5dB is likely an indication of *Adverse Impact*, depending on the context;

A Sound Rating Level that exceeds the background noise level by around + 10dB is likely an indication of *Significant Adverse Impact*, depending on the context.

The noise impact during the daytime and night-time is tabulated below:

Noise Impact - Daytime			
NSR	Rating Level, dB L _{Ar}	Difference, dBA	Impact
1	35	6	<i>Low Impact</i>
3	27	14	<i>Low Impact</i>

Noise Impact - Night-time			
NSR	Rating Level, dB L _{Ar}	Difference, dBA	Impact
1	35	2	<i>Low Impact</i>
3	27	10	<i>Low Impact</i>

The Sound Rating Level from the extraction system motor at the nearest receptors is below the background noise level and is an indication of **Low Impact**.

First Floor Ceiling Noise Impact

The noise associated with the background bar music through the newly installed acoustic ceiling into the bedrooms and lounge areas on the first floor has been assessed. A noise survey based on an actual worst case maximum music level from the speakers was assessed against the equivalent Noise Rating Curve (N.R.C.) between 07.00 hours and 22.00 hours.

First floor bedroom and lounge: LAeq 29.1 dBA

Frequency, Hz	63	125	250	500	1000	2000	4000
Internal Noise, dB Leq	41.0	36.0	30.0	25.0	20.0	22.0	20.0
A-Weighting	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0
Internal Noise, dB, LAeq	14.8	19.9	21.4	21.8	20.0	23.2	21.0
NR 25	55.0	44.0	35.0	29.0	25.0	22.0	20.0
Difference NR25	-14.0	-8.0	-5.0	-4.0	-5.0	0.0	0.0
NR 30	59.0	48.0	40.0	34.0	30.0	27.0	25.0
Difference NR30	-18.0	-12.0	-10.0	-9.0	-10.0	-5.0	-5.0

Summary

Following the installation of the extraction system venting on nearby residents and the acoustic ceiling impacting residents in the apartment on the first floor, the results demonstrate that there is unlikely to be a noise disturbance from the operation of the bar during the daytime and nighttime.

Recommendations

No further mitigation measures are recommended.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Jemay', with a long, sweeping flourish extending upwards and to the right.

Jonathan Mape BSC (Hons) PgDip TechIOA
Technical Director

Appendix A

Utilising Measured Levels

Equipment	Measured Data, dB L_{Aeq}	r_1 , m	r_2 , m	Barrier	Level at NSR ₂
Extraction exit	72	100	1.0	0	32 (NSR1)

Barrier attenuation assumed as 5 dB and 10 dB for the partial and complete blockage of the line of sight respectively between source and receiver as per 'BS5228-1:2009 – Noise and vibration control on construction and open sites' pg. 130.

Point source distance attenuation: $L_y = 20 \times \log \frac{r_1}{r_2}$

Where L_y is the distance attenuation factor and $r_{1,2}$ are the source -> measurement distance and source -> NSR distance in metres respectively