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NOISE IMPACT ASSESSMENT FOR RETROSPECTIVE DEVELOPMENT:

**Flying Tandoori, 250 Easterly Road, Leeds,
West Yorkshire LS8 3ES**

Prepared for:


250 Easterly Road
Leeds
West Yorkshire
LS8 3ES

Prepared by:

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Institute of Acoustics number: 43468

Test Report Number: AS24-35V2

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1.0 INTRODUCTION

1.1

Acoustic Solutions has been commissioned by [REDACTED] to undertake a noise impact assessment for the retrospective installation of a kitchen extraction unit at Flying Tandoori 250 Easterly Road, Leeds.

1.2

The objectives for the noise impact assessment were as follows:

- Establish the daytime, evening and night time ambient and background sound levels at the application site and its surrounding environs;
- Establish the specific sound level, at the nearest noise sensitive dwelling associated with noise sources associated with the premise, specifically 2x kitchen extraction units consisting of extraction fans and 2x external extraction vents.

1.3

This report details the methodology and results of the assessment. It has been prepared to accompany a future application for planning permission application (ref 24/01836/FU) that has been submitted to Leeds City Council for the proposed change of operating hours at the application site. This noise impact report addresses noise-related concerns raised by Leeds City Council regarding noise sources associated with the development.

1.4

This report has been prepared for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties referring to the report should consult [REDACTED] and Acoustic Solutions as to the extent to which the findings may be appropriate for their use.

1.5

A glossary of acoustic terms used in the main body of the text is contained in Appendix 1.

2.0 NOISE IMPACT ASSESSMENT CRITERIA

2.1

In terms of noise impact assessment criteria, Paragraph 170e of the National Planning Policy Framework (NPPF) 2023 states that planning policies and decisions should contribute to and enhance the natural local environment by *‘preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability.’*

2.2

Planning Practice Guidance specifically dealing with noise was uploaded to the Government’s Planning Portal in March 2024 as an accompaniment to the National Planning Policy Framework. This guidance is summarised herein.

2.3

The guidance states that noise needs to be considered when new developments may create additional noise. Whilst noise can override other planning concerns, neither the Noise Policy Statement for England and Wales nor the National Planning Policy Framework (which reflects the Noise Policy Statement for England and Wales) expects noise to be considered in isolation, separately from the economic, social and other environmental dimensions of proposed development.

2.4

In order to determine noise impact, local planning authorities’ plan-making and decision taking should take account of the acoustic environment and in doing so consider:

- Whether or not a significant adverse effect is occurring or likely to occur;
- Whether or not an adverse effect is occurring or likely to occur, and;
- Whether or not a good standard of amenity can be achieved.

2.5

In line with the Explanatory Note of the Noise Policy Statement for England and Wales, this would include identifying whether the overall effect of the noise exposure is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation.

2.6

In terms of Observed Effect Levels:

- No Observed Adverse Effect Level (NOAEL) – This is the level of noise exposure below which no effect at all on health or quality of life can be detected;
- Lowest Observed Adverse Effect Level (LOAEL) – This is the level of noise exposure above which adverse effects on health and quality of life can be detected, and;
- Significant Observed Adverse Effect Level (SOAEL) – This is the level of noise exposure above which significant adverse effects on health and quality of life occur.

2.7

At the lowest extreme, when noise is not noticeable, there is by definition, no effect. As the noise exposure increases, it will cross the 'no observed' effect level as it becomes noticeable. However, the noise has no adverse effect so long as the exposure is such that it does not cause any change in behaviour or attitude. The noise can slightly affect the acoustic character of an area but not to the extent there is a perceived change in quality of life. If the noise exposure is at this level no specific measures are required to manage the acoustic environment.

2.8

As the exposure increases further, it crosses the lowest observed adverse effect level boundary above which the noise starts to cause small changes in behaviour and attitude, for example, having to turn up the volume on the television or needing to speak more loudly to be heard. The noise therefore starts to have an adverse effect and consideration needs to be given to mitigating and minimising those effects (taking account of the economic and social benefits being derived from the activity causing the noise).

2.9

Increasing noise exposure will at some point cause the significant observed adverse effect level boundary to be crossed. Above this level the noise causes a material change in behaviour such as keeping windows closed for most of the time or avoiding certain activities during periods when the noise is present. If the exposure is above this level the planning process should be used to avoid this effect occurring, by use of appropriate mitigation such as by altering the design and layout. Such decisions must be made taking account of the economic and social benefit of the activity causing the noise, but it is undesirable for such exposure to be caused.

2.10

At the highest extreme, noise exposure would cause extensive and sustained changes in behaviour without an ability to mitigate the effect of noise. The impacts on health and quality of life are such that regardless of the benefits of the activity causing the noise, this situation should be prevented from occurring.

2.11

Table 2.1 summarises noise exposure hierarchy, based on likely average response.

Table 2.1 Guidelines – Noise Exposure Hierarchy

Noise Source	Assessment Location	LOAEL	SOAEL	Time
	Outdoor living space	55 dB $L_{Aeq, 1 \text{ hour}}$ (A)	56-60 dB $L_{Aeq, 1 \text{ hour}}$ (A)	Day (07:00-23:00)
	Façade	50 dB $L_{Aeq, 1 \text{ hour}}$ (A)	72 dB $L_{Aeq, 16 \text{ hour}}$ (A)	Day (07:00-23:00)
General environmental noise: Road/Rail	Façade	45 dB $L_{Aeq, 8 \text{ hour}}$ (B)	67 dB $L_{Aeq, 8 \text{ hour}}$ (A)	Night (23:00-07:00)
	Habitable Room	30 dB $L_{Aeq, 8 \text{ hour}}$ (B)	40 dB $L_{Aeq, 8 \text{ hour}}$ (A)	Night (23:00-07:00)
	Habitable Room	35 dB $L_{Aeq, 16 \text{ hour}}$ (A)	45 dB $L_{Aeq, 16 \text{ hour}}$ (A)	Day (07:00-23:00)
(A: World Health Organisation, 'Guidance for Community Noise: 1999';				
B: World Health Organisation, 'Night Time Noise Guidance for Europe: 2009';				
C: BS4142+A1: 2019)				

2.12

The subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation. These factors include:

- The source and absolute level of the noise together with the time of day it occurs;
- For non-continuous sources of noise, the number of noise events, and the frequency and pattern of occurrence of the noise;
- The spectral content of the noise (i.e. whether or not the noise contains particular high or low frequency content) and the general character of the noise (i.e. whether or not the noise contains particular tonal characteristics or other particular features);
- The local acoustic character of the area.

2.13

In addition, further useful contextual guidance is provided in:

- British Standard BS4142+A1: 2019 'Methods for Rating and Assessing Industrial and Commercial Sound' (BS BS4142+A1: 2019);
- British Standard 8233: 2014 'Guidance on Sound Insulation and Noise Reduction for Buildings' (BS 8233);
- World Health Organisation (WHO) Guidelines for Community Noise (1999)

2.14

BS BS4142+A1: 2019 states:

The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs'. Typically, the greater this difference, the greater the magnitude of the impact. For example:

- *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context;*
- *A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context;*
- *The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context*
- *Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact. Where the initial estimate of the*

impact needs to be modified due to the context, take all pertinent factors into consideration, including the absolute level of sound. For a given

- *difference between the rating level and the background sound level, the magnitude of the overall impact might be greater for an acoustic environment where the residual sound level is high than for an acoustic environment where the residual sound level is low. Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.*

2.15

British Standard 8233:2014 ‘Guidance on Sound Insulation and Noise Reduction for Buildings’ sets indoor ambient noise levels from residential dwellings (see table below).

Table 2.2 – Indoor Ambient Noise Levels in Dwellings (BS 8233): 2014

Activity	Location	Good Indoor Ambient Noise Levels	
Resting	Living Room	35 dB LAeq (0700–2300)	-
Sleeping (daytime resting)	Bedroom	35 dB LAeq (0700–2300)	30 dB LAeq (2300–0700)

2.16

With regard to sound attenuation through the building envelope, the ‘weak points’ in the building façade are generally considered to be the windows. The worked example (G.1) at Annex G of BS 8233 suggests that a partially opened window would provide sound attenuation of approximately 15 dB R_w . The Standard also suggests that “..standard insulating glass units have an insulation value of approximately 30 dB R_w ” when closed.

2.17

With respect to noise affecting external areas, i.e. gardens, BS 8233 states that “.. *it is desirable that the steady noise level does not exceed 50 dB LAeq, and 55 dB LAeq should be regarded as the upper limit*”.

2.18

The World Health Organisation’s Guidelines for Community Noise (1999) sets indoor ambient noise levels from residential dwellings (see table below).

Table 2.3 – Indoor Ambient Noise Levels in Dwellings (WHO 1999)

Activity	Location	Good Indoor Ambient Noise Levels	
Resting	Living Room	35 dB LAeq (0700–2300)	-
Sleeping (daytime resting)	Bedroom	35 dB LAeq (0700–2300)	30 dB LAeq (2300–0700)

3.0 BASELINE NOISE SURVEY

3.1

The application site is 250 Easterly Road (Appendix 2). The application is for a variation of condition 4 (Opening Hours) to previously approved planning application H34/582/89/ (Change of use of shop to take away hot food shop) for alteration to opening hours to Monday to Thursday - 8:00 AM to 11:30 PM, Friday and Saturday - 8:00 AM to 00:30 AM, Sunday - 12:00 PM to 11:30 PM.

Leeds City Council's Environmental Health department has commented:

“The extended hours of opening requested risks harm to amenity of nearby residents from noise and odour from the continuation of operation of fixed plant into the night time period, customers/delivery drivers coming and going etc.

No supporting information to demonstrate that adverse impacts would be avoided but given the likely type of noise such as car doors, engines idling and car radios etc, it would be difficult to predict accurately or enforce in the event of complaints being received.”

The premises is part of a two-storey terraced row of properties running east to west along the southern side of A58 Easterly Road. Easterly Road is a busy dual carriage way that runs past the front of the terrace, east-west at approximately 11 metre's distance. All the premises occupying the terrace are mainly commercial in nature: (retail, restaurants, health-related and bookmakers), however there are some first floor domestic dwelling situated above these commercial premises. To the rear of the terrace is Lawrence Gardens, a domestic cul-de-sac consisting of semi-detached properties.

Typically, the customer-base of food outlets such as the Flying Tandoori consist of customers telephoning or e-ordering their food, and customers who arrive in person to order. Customers ordering in person consists of sole individuals or groups of individuals. Groups of individuals typically consist of persons who have left other nearby night time entertainment establishments such as pubs or clubs en-masse. The nearest bar to the Flying Tandoori is The Orchard Bar, approximately 550 metres east on Dib Lane. This being the case, it is very unlikely that groups of patrons from this establishment will be arriving at the Flying Tandoori to order food.

Table 3.1 summarises the Flying Tandoori's current and proposed opening hours.

Table 3.1 Flying Tandoori current and proposed opening hours

Day	Current	Proposed
Monday	16:00-23:30 hours	16:00-23:30 hours
Tuesday	16:00-23:30 hours	16:00-23:30 hours
Wednesday	16:00-23:30 hours	16:00-23:30 hours
Thursday	16:00-23:30 hours	16:00-23:30 hours
Friday	16:00-23:30 hours	16:00-00:30 hours
Saturday	16:00-23:30 hours	16:00-00:30 hours
Sunday	16:00-23:30 hours	12:00-23:30 hours

The kitchen is on the ground floor. The kitchen’s two canopies are served by 2x extraction fans. Kitchen fumes are extracted via 2x 500mm diameter steel flues. The flues rise vertically from the ground floor before terminating vertically approximately 500mm above number the first storey level roof. Neither flue currently benefits from any noise attenuation, such as in-line silencers. Table 3.2 summarises the location of the nearest noise sensitive dwelling relative to the ducts’ terminus points.

Table 3.2: Nearest Noise-Sensitive Dwellings

Noise Source	Distance at its closest point, m				Noise-Sensitive Dwelling
	North	South	East	West	
Kitchen Extraction Unit, 250 Easterly Road Road	N/A	4	N/A	N/A	First storey, 248A Easterly Road

3.2

In order to establish the daytime ambient and background noise levels at the application site and its surrounding environs, a baseline noise survey was undertaken on Sunday 9 June (12:00-16:00 hours) and Saturday/Sunday 15 & 16 June (17:00-01:00 hours) 2024. A secondary night time assessment was undertaken on Wednesday 6 & 7 November 2024 (23:00-01:00). The assessment period reflects the premises’ proposed night time opening hours.

3.3

For the purpose of the assessment, one noise monitoring position, MP1 was adopted in free field environments at over 1.5 metres above ground and over 3 metres from any vertical reflective surface (see Appendix 2):

- MP1. Car park at the rear of the Flying Tandoor, 250 Easterly Road, approx. 3x metres from the 2x kitchen extraction ducts serving the premises' kitchen. The monitoring position was selected to assess typical daytime, evening and night time, 'baseline' noise levels at the identified noise-sensitive dwelling, and to assess the noise level associated with the kitchen unit's extraction ducts.
- MP2. Front of Flying Tandoori. The monitoring position was selected to assess the typical night time, 'baseline' noise environment at the front of the premises. Leeds City Council's Gary Mann has stated: "*Bedrooms at the front and rear of premises will be likely affected by noise from either patrons or the kitchen odour extraction system*".

3.4

A series of hourly 15-minute noise measurements were undertaken using a Type 1 integrating sound level meter (Appendix 3). The measurement system calibration was verified immediately before the commencement of the measurement sessions and again at the end. Weather conditions throughout the survey were:

- June Assessment: Dry and clear with a maximum southerly wind speed of 4 metres;
- November Assessment: Dry and Clear with a maximum south-easterly wind speed of 2 metres per second.

Weather conditions on both occasions were appropriate for monitoring. Measurements consisted of A-weighted parameters: L_{Aeq} and L_{A90} .

3.5 MP1

3.5.1 Background/Residual (June)

Daytime

Daytime noise levels between 12:00 and 15:00 hours can be described as moderately noisy. The dominant noise source throughout the measurement period was road traffic travelling along Easterly Road. Other sources were children playing in the rear gardens of Lawrence Gardens and birdsong.

Night Time

Night time noise levels between 23:30 and 00:30 hours can be described as moderately noisy. The dominant noise source throughout the measurement period was road traffic travelling along Easterly Road. Other noise sources were the air management system serving the Neu Dor Bo Chinese takeaway at 242 Easterly Road.

3.5.2 Background/Residual (November)

Night Time

Night time noise levels between 23:00 and 01:00 hours can be described as moderately noisy. The dominant noise source throughout the measurement period was road traffic travelling along Easterly Road. Other noise sources were the air management system serving the Neu Dor Bo Chinese takeaway at 242 Easterly Road. Table 3.5 summarises measured Background noise levels between 12:00 and 15:00 hours, and between 23:30 and 00:30 hours.

3.5.3 Ambient (June)

Daytime/Evening/Night Time

From approximately 23:00 to 23:30 hours the dominant noise source was the 2x extraction units and road traffic on Easterly Road, car doors closing, pedestrians on Easterly Road. Other noise sources were the air management serving the Neu Dor Bo Chinese Takeaway, and birdsong. Noise from the extraction unit serving the Flying Tandoori can be described as a low murmur. It contained a slight mid-frequency tonal element.

Table 3.3 summarises measured Background noise levels between 12:00 and 15:00 hours, and between 23:30 and 00:30 hours. These periods have been selected

because, should the planning application be successful, the Flying Tandoori will operate during these hours. Table 3.3 summarises Residual and Background Noise Levels at MP1, average L_{Aeq} : its and L_{A90} and the Maximum Sound Levels (L_{Amax} and its maximum measured value). Table 3.4 summarises the Ambient Sound Levels (L_{Aeq}): the measured noise levels associated with the operating air extraction system at its full operational setting and other audible noise in the vicinity of MP1, as described above.

3.5.4 Ambient (November)

Night Time

From 23:00 to 23:30 hours the dominant noise source was the 2x extraction units and road traffic on Easterly Road. Other noise sources were the air management serving the Neu Dor Bo Chinese Takeaway and birdsong. Noise from the extraction unit appeared to be louder than that heard during Acoustic Solutions' June assessment. A clearly audible a mid-frequency tonal element was present.

Table 3.3 – MP1: Baseline Noise Measurement Data, Daytime/Night-time (June 2024)

Measurement Time	Residual Noise Level, dB, $L_{Aeq, 15 \text{ min}}$	Background Noise Level, dB $L_{A90, 15 \text{ min}}$	Measured Noise Level, dB $L_{AMax, 15 \text{ min}}$
07:00	N/A	N/A	N/A
08:00	N/A	N/A	N/A
09:00	N/A	N/A	N/A
10:00	N/A	N/A	N/A
11:00	N/A	N/A	N/A
12:00	52.1	49.5	N/A
13:00	52.5	49.3	N/A
14:00	52.5	49.5	N/A
15:00	53.1	49.6	65.4
16:00	N/A	N/A	N/A
17:00	N/A	N/A	N/A
18:00	N/A	N/A	N/A
Average/Max	53	49	65
19:00	N/A	N/A	N/A
20:00	N/A	N/A	N/A
21:00	N/A	N/A	N/A
22:00	N/A	N/A	N/A
Average/Max	#DIV/0!	#DIV/0!	0
23:00	51.2	48.1	63
00:00	50.9	47.8	65.1
01:00	N/A	N/A	N/A
02:00	N/A	N/A	N/A
03:00	N/A	N/A	N/A
04:00	N/A	N/A	N/A
05:00	N/A	N/A	N/A
06:00	N/A	N/A	N/A
Average/Max	51	48	65

Table 3.4 – MP1: Ambient Noise Measurement Data. Daytime, Evening, Night-time (June 2024)

Measurement Time	Residual Noise Level, dB, $L_{Aeq, 15 \text{ min}}$	Background Noise Level, dB $L_{A90, 15 \text{ min}}$	Measured Noise Level, dB $L_{AMax, 15 \text{ min}}$
07:00	N/A	N/A	N/A
08:00	N/A	N/A	N/A
09:00	N/A	N/A	N/A
10:00	N/A	N/A	N/A
11:00	N/A	N/A	N/A
12:00	N/A	N/A	N/A
13:00	N/A	N/A	N/A
14:00	N/A	N/A	N/A
15:00	52.2	48.8	65.4
16:00	52.5	48.7	66.7
17:00	52.5	48.8	69.0
18:00	52.3	49.0	55.5
Average/Max	52	49	69
19:00	52.0	51.4	53.7
20:00	52.4	50.4	55.5
21:00	52.1	51.0	54.2
22:00	52.6	51.2	55.0
Average/Max	52	51	56
23:00	51.4	50	66.3
00:00	51.3	49.8	65.1
01:00	N/A	N/A	N/A
02:00	N/A	N/A	N/A
03:00	N/A	N/A	N/A
04:00	N/A	N/A	N/A
05:00	N/A	N/A	N/A
06:00	N/A	N/A	N/A
Average/Max	51	50	66

Table 3.5 – MP1: Baseline Noise Measurement Data, Night-time (November 2024)

Measurement Time	Residual Noise Level, dB, $L_{Aeq 15 \text{ min}}$	Background Noise Level, dB $L_{A90, 15 \text{ min}}$
23:30	45.0	41.2
00:00	44.7	40.8
01:00	44.1	40.6
Average, dB	44.6	40.9

Table 3.6 - MP1: Ambient Noise Measurement Data, Night-time (November 2024)

Measurement Time	Ambient Noise Level, dB, $L_{Aeq\ 15\ min}$
23:00	53.1
23:15	53.4
Average, dB	53.25

3.5.5 MP1 Specific Noise Level

The Specific Noise Level calculated from the November assessment's measurement data will be used to assess the noise impact at 248A Easterly Road, the nearest noise sensitive dwelling. Logarithmic subtraction of the Residual from the Ambient sound levels can be used to predict the flues' daytime and night time Specific Noise Level at MP1: that is to say, the noise level associated with the flues in the absence of all competing noise sources. The subtraction is described by Equation 3.1, below.

Equation 3.1

$$SPL = 10 \log \left(10^{\frac{spl_1}{10}} - 10^{\frac{spl_2}{10}} \right)$$

(Where spl1 is the Ambient Sound Level and spl2 is the Residual Sound Level)

The equation predicts that the extraction flues' Specific Noise Level is **53 dB, L_{Aeq}** .

3.5.6 Existing Residual Sound Level at Nearest Noise Sensitive Dwellings

The nearest noise sensitive dwelling is 248A Easterly Road (southern façade), 4 metres from the extraction flues. Using Equation 3.2 which describes sound's decay over distance, the extraction systems' Sound Pressure Level at 25 Lawrence Gardens can be predicted.

Equation 3.2

$$SPL_3 = SWL - 20 \log r$$

(Where SPL is the measured sound pressure level, 53 dB, r is the distance from microphone to noise source, 4 metres)

It is predicted that the extraction flues' Specific Noise Level at 248A Easterly Road be **41 dB, L_{Aeq}**

3.6 MP2

The noise environment was dominated by road traffic travelling along Easterly Road. Throughout the assessment period, no patrons were seen entering the premises to purchase food, therefore patrons are considered to be a noise source to be considered. As such, no measurements of patron noise have been undertaken.

the extraction systems' Sound Pressure Level at 25 Lawrence Gardens can be predicted.

4.0 DISCUSSION

4.1 BS4142+A1: 2019

Table 4.1 summarises the likely noise impact of the proposed kitchen extraction system at the identified noise sensitive dwelling. A single-figure rating is achieved by subtracting the measured LA90 background level from the Specific Noise Source – the noise from the kitchen extraction system - as predicted at the dwellings. For the purpose of the calculation, a +6 dB tonal correction factor is added. It is predicted that, at the identified noise sensitive dwelling, the night time noise impact associated with the kitchen extraction unit will be Adverse.

Table 4.1. Predicted daytime external noise impact of kitchen extraction unit at 248A Easterly Road

Period	Ambient Noise, dB, LAeq,15	Residual Noise, dB, LAeq,15	Background Noise, dB, LA90,15	Specific Noise Level, dB, LAeq	Tonal Penalty (3-6)	Impulsive Penalty (3-9)	Intermittency Penalty (0-3)	Rating, dB	Comments
Day	52	53	49	41	6	0	0	-2	Moderate Adverse Impact
Evening	N/A	N/A	N/A	41	6	0	0	N/A	
Night	53	45	41	41	6	0	0	6	Moderate Adverse Impact

BS4142+A1: 2019 caveats this by placing the Rating within the context of the noise source's Absolute Noise Level, the Noise's characteristics and the sensitivity of the recipient. The noise's Absolute Noise Level can be discussed in the context of WHO: 1999 and BS8233: 2014.

4.1.2 WHO: 1999 & BS8233: 2014 Predicted Internal Impact

Table 4.2 summarises the likely internal daytime (12:00-2300 hours) and night time (23:00-01:00 hours) noise impact of the kitchen extraction system's Specific Noise Level at the identified noise sensitive dwelling. The prediction assumes that dwellings' windows are slightly open, providing noise attenuation of -15 dB. Predicted internal noise levels are compared against WHO: 1999 and BS8233: 2014 maximum daytime (35 dB) and night time (30 dB) criteria. The predictions assumes that all competing noise sources (road traffic etc.) associated with the Residual Noise Level will be inaudible. It is predicted that, at the noise sensitive dwelling identified, the noise levels associated with the kitchen unit it will be below the WHO and BS8233 criteria.

Table 4.2 Predicted internal daytime impacts at identified noise sensitive dwellings

Time	Location	External SPL, dB	Open Window Attenuation, dB	Predicted Internal SPL, dB	WHO & BS8233 35/30 dB Criteria met?
Daytime/Evening	248A Easterly Road	41	15	26	Yes
Night	248A Easterly Road	41	15	26	Yes

The noise's Characteristic can be discussed in the context of WHO: 1999 and BS8233: 2014 with a +6 dB tonal correction imposed. Table 4.3 summarises the likely internal daytime (12:00-2300 hours) and night time (23:00-01:00 hours) noise impact of the kitchen extraction system's Specific Noise Level (corrected for tonality) at the identified noise sensitive dwelling. The prediction assumes that dwellings' windows are slightly open, providing noise attenuation of -15 dB. Predicted internal noise levels are compared against WHO: 1999 and BS8233: 2014 maximum daytime (35 dB) and night time (30 dB) criteria. The predictions assumes that all competing noise sources (road traffic etc.) associated with the Residual Noise Level will be inaudible. It is predicted that, at the noise sensitive dwelling identified, the noise levels associated with the kitchen unit it will be below the WHO and BS8233 criteria.

Table 4.3 Predicted internal daytime impacts at identified noise sensitive dwellings

Time	Location	External SPL, dB	Open Window Attenuation, dB	Predicted Internal SPL, dB	WHO & BS8233 35/30 dB Criteria met?
Daytime/Evening	248A Easterly Road	47	15	32	Yes
Night	248A Easterly Road	47	15	32	No

The Recipient's Sensitivity is not known, however, the predicted daytime noise level arising solely from the kitchen extraction system, 32 dB, is below the level at which WHO: 1999 and BS8233: 2014 considers it to be problematic to residents' amenity. The predicted night-time noise level, 32, dB, exceeds WHO: 1999 and BS8233: 2014 by +2 dB.

5.0 RECOMMENDATIONS

5.1

An in-line noise attenuator should be installed as close to the fan as possible, and in any event, before the ducting exits the kitchen at 5 Meadow Rise. The Helios RSD 450/4mm attenuator (ref: 8759) (Helios, 2022, page 436) provides 15 dB noise attenuation. Table 5.1 Summarises the Helios RSD 500mm attenuator's noise reduction data.

Table 5.1: Helios RSD 500mm attenuator's noise reduction data

Frequency	Hz	Total	125	250	500	1K	2K	4K	8K
SPL	dB(A)	15	5	10	16	15	15	11	8

Table 5.2 summaries the likely noise impact at Identified Noise Sensitive Dwellings of the kitchen extraction system using BS4142+A1: 2019 methodology, given a -15 dB reduction in the extraction system's noise level.

The prediction assumes that noise from the kitchen system will have no acoustic components (tonality, intermittency). At all premises the noise from the extraction system will have been reduced to inaudibility. At all premises, the resulting impact will be reduced to insignificant levels.

Table 5.2 Likely noise internal impact at 248A Easterly Road of the kitchen extraction system using the system's distance and tonal-corrected Specific Noise Level, dB

Time	Location	External SPL, dB	Open Window Attenuation, dB	Predicted Internal SPL, dB	WHO & BS8233 35/30 dB Criteria met?
Daytime/Evening	248A Easterly Road	32	15	17	Yes
Night	248A Easterly Road	32	15	17	Yes

6.0 CONCLUSIONS

6.1

A daytime (12:00-17:00 hours) assessment of current baseline noise levels was undertaken at the rear of Flying Tandoori 250 Easterly Road, Leeds.

6.2

Daytime and night time (15:00-23:00 hours) (23:00-23:30 hours) assessments of the current ambient noise levels was undertaken at the rear of Flying Tandoori 250 Easterly Road, Leeds.

6.3

A further night-time (23:00-01:00 hours) assessment was conducted on 6 & 7 November 2024. The day and night time noise impact at 248A, the nearest noise sensitive dwelling, has been predicted using the November measurement data.

6.4

At the identified nearest noise sensitive dwelling, the system's daytime and night time noise impact for the premises' proposed extended hours have been predicted. The predictions were based upon on site noise measurements of the extraction units operating at full power.

6.5

The predicted noise level has been compared to criteria set out in BS4142+A1: 2019, BS8233: 2014 and WHO: 1999 criteria. The predictions indicate that the noise impact of the system will Adverse, subject to context. The context suggests that the night-time impact will adversely affect the amenity of occupiers at 248A Easterly Road.

6.6

To address this potential adverse impact, the introduction of a in-line silencers for each extraction flue has been recommended. It is predicted that the introduction of these silencers will reduce the system's Specific Noise Level by -15 dB. Such a reduction will reduce the noise impact at 248A Easterly Road to negligible levels.

6.7

Potential noise from patrons using the Flying Tandoori (as identified by Leeds City Council's Gary Mann) was not an issue.

Appendix 1

Glossary of Acoustic Terms

Sound Pressure Level (L_p)

The basic unit of sound measurement is the sound pressure level. As the pressures to which the human ear responds can range from 20 μPa to 200 Pa, a linear measurement of sound levels would involve many orders of magnitude.

Consequently, the pressures are converted to a logarithmic scale and expressed in decibels (dB) as follows:

$$L_p = 20 \log_{10}(p/p_0)$$

Where L_p = sound pressure level in dB; p = rms sound pressure in Pa; and p_0 = reference sound pressure (20 μPa).

A-weighting Network

A frequency filtering system in a sound level meter, which approximates under defined conditions the frequency response of the human ear. The A-weighted sound pressure level, expressed in dB(A), has been shown to correlate well with subjective response to noise.

Equivalent continuous A-weighted sound pressure level, $L_{Aeq, T}$

The A-weighted 'equivalent continuous noise level' which is an average of the total sound energy measured over a specified time period. In other words, L_{Aeq} is the level if a continuous noise which has the same total (A-weighted) energy as the real fluctuating noise, measured over the same time. L_{Aeq} is increasingly being used as the preferred parameter for all forms of environmental noise.

$L_{A90, T}$

The A-weighted sound pressure level of the residual noise in decibels exceeded 90% of a given time interval, T. L_{A90} is typically taken as representative of background noise.

L_{Amax}

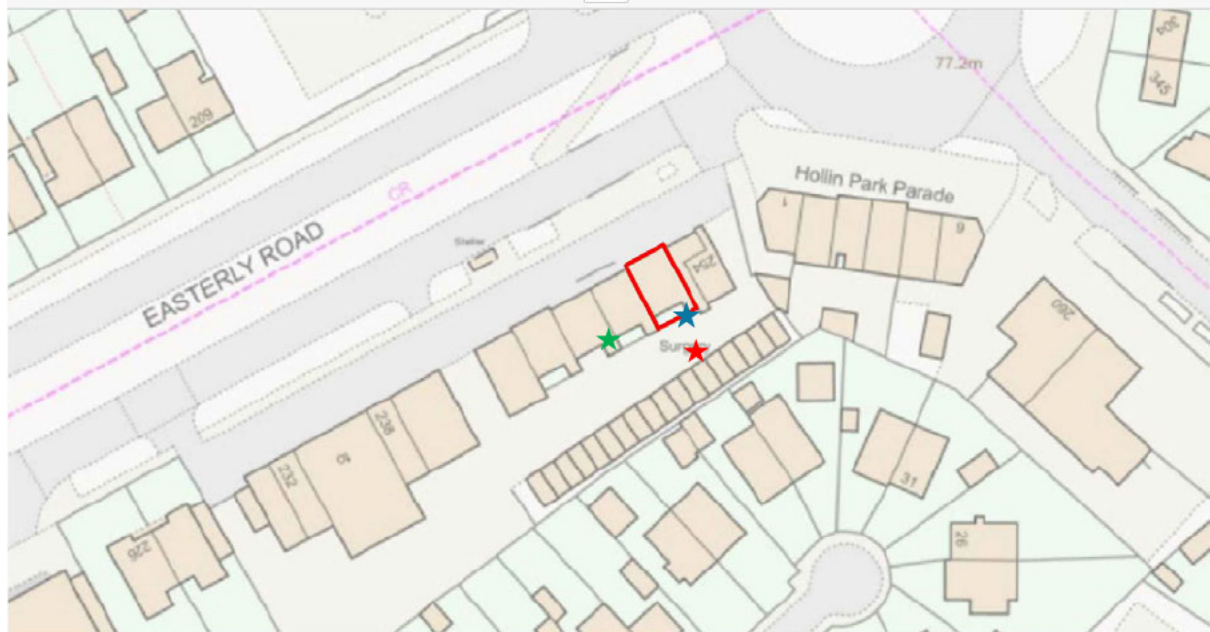
The maximum A-weighted noise level recorded during the measurement period.

Hz

The unit of frequency. The number of cycles (in the context of acoustics, the number of complete sound waves generated) per second.

Appendix 2

Location Plan and Noise Monitoring Positions



MP1: Rear of Flying Tandoori, 250 Easterly Road

Noise Source: 2x AC extraction duct outlets, 250 Easterly Road

Nearest noise sensitive dwelling, 248A Easterly Road

Appendix 3

Equipment Used

Noise measurements were undertaken using a precision grade sound level meter:

Norsonic Nor145 Model integrating sound level meter.

Serial Number 14529307

Certificate Number U35939/U35940

Last Laboratory Calibrated 17/10/24

B & K 4230 Model calibrator

Serial Number 724157

Last Laboratory Calibrated 13/2/24

The Sound Level Meter was calibrated before and after both measurement periods, with no significant change in calibration. All calibrations took place at the measurement position.

The SLM met the requirements of BS EN 60651: 1994 and BS EN 60804: 2001 IEC 60804: 2000. It was capable of simultaneously measuring Leq and Ln values. Batteries for the SLM and calibrator were checked prior to all measurements.

