

159-161 Dickenson Road Manchester

Acoustic Planning Report
0941/APR1
Revision 1

10 March 2022

For:

Mr Knafah
159-161 Dickenson Road
Manchester



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1.0 Introduction

Lighthouse Acoustics has been appointed by Mr Knafah to undertake an environmental sound survey at the proposed site of the enclosed external seating area situated directly outside the existing premises at 159-161 Dickenson Road, Manchester and to undertake an impact assessment of typical customer sound levels to the nearest noise sensitive receptor.

The survey methodology, results and assessment are presented in this report.

2.0 Objectives

To establish the Local Authority's acoustic requirements for the proposed enclosed external seating area.

To visit site to undertake a detailed environmental sound survey during critical periods in order to establish existing environmental sound levels at the site.

To undertake an impact assessment of typical customer sound levels from the proposed enclosed external seating area to the nearest noise sensitive receptor.

To assess the calculated sound levels and provide comments on the acceptability in terms of achieving the requirements of the Local Authority.

3.0 Site Description

The proposed site of the enclosed external seating area is situated directly outside the existing takeaway/sweet shop at 159-161 Dickenson Road, Manchester. The site currently comprises an area of external seating on what was previously parking spaces. The site is bound by 159-161 Dickenson Road to the north, parking/pavement to the east, Dickenson Road (A6010) to the south and parking/pavement to the west.

Commercial premises adjoin 159-161 Dickenson Road at ground floor level whilst residential flats are understood to adjoin 159-161 Dickenson Road at first floor level.

The site plan overleaf indicates the site boundary and the surrounding environment.



Site plan indicating the site boundary and the surrounding environment

4.0 Local Authority Requirements

We are unaware of any requirements that Manchester City Council have for sound emissions from external seating areas due to people talking. As such, it is proposed that L_{Aeq} external seating area sound levels should not exceed the L_{A90} background sound levels at the nearest noise sensitive receptors by more than 5dB.

5.0 Environmental Sound Survey

5.1 Measurements

The proposed enclosed external seating area is proposed to be used between 11:00 and 23:00 hours 7 days a week. Of these periods, environmental sound levels may typically be expected to be at their lowest during a Sunday to Wednesday evening.

Automated environmental sound measurements were undertaken from 16:00 hours on Tuesday 22 February 2022 to 16:00 hours on Wednesday 23 February 2022. During this period the L_{Amax} , L_{Aeq} and L_{A90} sound pressure levels were measured continuously over 15 minute periods.

5.2 Weather Conditions

At the start of the survey period there was a gentle westerly breeze (<5.0m/s) and the sky was overcast. There was no rainfall and road surfaces were dry. The temperature was approximately 9°C.

At the start of the survey period there was a gentle southerly breeze (<5.0m/s) and the sky was overcast. There was no rainfall and road surfaces were dry. The temperature was approximately 8°C.

Based on publicly available weather data for the survey period it is understood that weather conditions remained similar for the duration of the survey with no periods of significant rainfall or strong breezes. The weather conditions during the survey period are therefore considered to be suitable for undertaking measurements of sound levels.

5.3 Measurement Position

Environmental sound levels were measured at a single position on-site as described in the table below.

Position	Description
A	Microphone situated at 1m from the south façade of the building at 1 st floor level.

The measurement position is shown on the site plan below.



Site plan showing measurement position

Measurement Position A was selected in order to assess typical environmental sound levels representative of those at the nearest existing residential flats which adjoin 159-161 Dickenson Road at first floor level.

5.4 Equipment

The following equipment was used to undertake the environmental sound survey.

Equipment	Manufacturer	Model	Serial No.	Calibration Date
Class 1 Sound Level Meter	Casella	633C	0721320	28/09/2021
Preamplifier	Casella	495	001414	28/09/2021
Microphone	Casella	251	1025	28/09/2021
Microphone Extension Cable	Casella	C6717/5	-	-
Weather Protection System	Casella	6737	-	-
Class 1 Sound Calibrator	Casella	120/1	3864878	02/11/2021

Field calibration checks were performed on the sound level meter prior to and on completion of the survey and were found to be within acceptable tolerance limits.

5.5 Results

5.5.1 Time History Graph

The results of the environmental sound survey are presented on Time History Graph 0941/THG1 enclosed at the rear of the report.

The presented results for Position A have been corrected for reflections from the façade by subtracting 3dB from the measured sound levels in order to obtain free field sound levels.

5.5.2 L_{A90} Background Sound Level

The lowest representative daytime $L_{A90,15min}$ background sound level measured during the operational hours of the proposed enclosed external seating area are detailed in the table below.

Position	Lowest Representative $L_{A90,15min}$ Background Sound Level (dB)
	Daytime (11:00–23:00)
A	57

The presented results for Position A have been corrected for reflections from the façade by subtracting 3dB from the measured sound levels in order to obtain free field sound levels.

5.5.3 Discussion of Sound Climate

At the start and end of the survey period the dominant sound source at Position A was noted to be road traffic along Dickenson Road and Anson Road/Birchfields Road. Passing pedestrians also contributed towards the measured sound climate.

Whilst we are unable to comment on dominant sound sources or individual sound events during the survey period, based on the surrounding environment it is likely that road traffic remained the dominant sound source.

6.0 External Sound Assessment

6.1 Operating Hours

The proposed enclosed external seating area is proposed to be used between 11:00 and 23:00 hours 7 days a week. Typical customer sound levels from the proposed enclosed external seating area are therefore assessed against the lowest representative daytime $L_{A90,15min}$ background sound level measured during this period.

6.2 $L_{A90,T}$ Background Sound Level

The lowest representative daytime $L_{A90,15min}$ background sound level measured during the operational hours of the proposed enclosed external seating area are detailed in the table below.

Position	Lowest Representative $L_{A90,15min}$ Background Sound Level (dB)
	Daytime (11:00–23:00)
A	57

6.3 Sound Sources

It is understood that the proposed enclosed external seating area will have no music and will feature approximately 58No. seats. A worst case assessment will be undertaken with all 58No. seats occupied.

6.4 External Sound Data

For the proposed enclosed external seating area, it is assumed that half of the people in the space will be talking at any one time. Of these people it is assumed that half will be talking with a normal voice whilst half will be talking with a raised voice. The sound pressure levels for 1No. person talking with normal and raised voices at 1m are detailed below and will each be applied to a quarter of the total number of seats in the space.

Source Description	Leq Sound Pressure level (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
1No. person talking with normal voice at 1m for external seating area	42	47	57	60	54	49	44	39	60
1No. person talking with raised voice at 1m for external seating area	46	51	62	66	62	57	51	43	67

6.5 Nearest Noise Sensitive Receptors

The table below details the approximate distance between the proposed enclosed external seating area and windows of the nearest noise sensitive receptors.

Nearest Noise Sensitive Receptor	Distance (m)
Existing residential flats which adjoin 159-161 Dickenson Road at first floor level	5

6.6 Building Structure Attenuation

It is understood that the proposed structure of the enclosed external seating area comprises aluminium roof/wall panels with laminated glass windows. The following Sound Reduction Indices have been assumed for the proposed elements.

Element	Sound Reduction Index (dB) at Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
1.0mm Aluminium Panel	4	8	14	20	26	32	38	40
6.4mm Laminated Glass	16	22	24	30	36	33	38	40

6.7 Calculation

The sound pressure level radiated from the enclosed external seating area due to people talking has been calculated using the following formula:

$$L_p = L_{p1m} + 10 \log N + 8 + 10 \log T - 10 \log V + 10 \log S - SRI - 20 \log R$$

Where:

L_p is the sound pressure level at the receiver, dB;

L_{p1m} is the sound pressure level of 1 No. person talking at 1m, dB;

N is the total number of people talking within the space, m²;

T is the reverberation time in the space, secs;

V is the volume in the space, m³;

S is the total surface area of the radiating roof/wall of the space, m²;

SRI is the composite Sound Reduction Index of the radiating roof/wall of the space, dB;

R is the distance in meters between the radiating roof/wall of the space and the receiver, m.

6.8 Results

The calculated L_{Aeq} typical customer sound levels from the proposed enclosed external seating area incident upon the windows of the nearest residential properties are presented in the table below.

Nearest Noise Sensitive Receptor	Calculated L_{Aeq} (dB)
Existing residential flats which adjoin 159-161 Dickenson Road at first floor level	51

The assessment indicates that L_{Aeq} typical customer sound levels from the proposed enclosed external seating area incident upon the windows of the nearest residential properties are likely to achieve 6dB below the lowest representative daytime $L_{A90,15min}$ background sound level.

The proposed requirement of not to exceed the L_{A90} background sound levels at the nearest noise sensitive receptors by more than 5dB is therefore likely to be achieved.

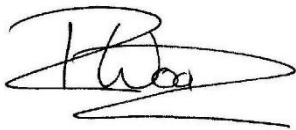
7.0 Conclusion

Acoustic requirements for the proposed enclosed external seating area have been proposed.

A detailed environmental sound survey has been undertaken during critical periods in order to establish existing environmental sound levels at the site.

An impact assessment of typical customer sound levels from the proposed enclosed external seating area to the nearest noise sensitive receptor has been undertaken.

The impact assessment indicates that typical customer sound levels from the proposed enclosed external seating area incident upon the windows of the nearest residential properties are likely to achieve the proposed requirement at the nearest noise sensitive receptors.

A handwritten signature in black ink, appearing to read 'Robin Wood', with a stylized, sweeping underline.

Robin Wood
LIGHTHOUSE ACOUSTICS

159-161 Dickenson Road, Manchester
Time History Graph - Tuesday 22 February 2022 to Wednesday 23 February 2022
 $L_{Amax,15min}$, $L_{Aeq,15min}$ & $L_{A90,15min}$ Noise Levels at Position A

