



Peaky Blinders Bar, 23 Peter Street, Manchester

Noise Survey and Noise Impact Assessment

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Revision History

Revision	Date	Revision Details	Author	Checked
R01	29/04/2022	Original Issue	Joseph Tony BTech MIOA	Ben Tomlin BSc MIOA
R01A	13/07/2022	Updated to include latest architectural drawings	Joseph Tony BTech MIOA	Ben Tomlin BSc MIOA
R01B	09/08/2022	Updated to address comments from EHO	Joseph Tony Joseph Tony BTech MIOA	<i>Ben Tomlin</i> Ben Tomlin BSc MIOA

1 INTRODUCTION

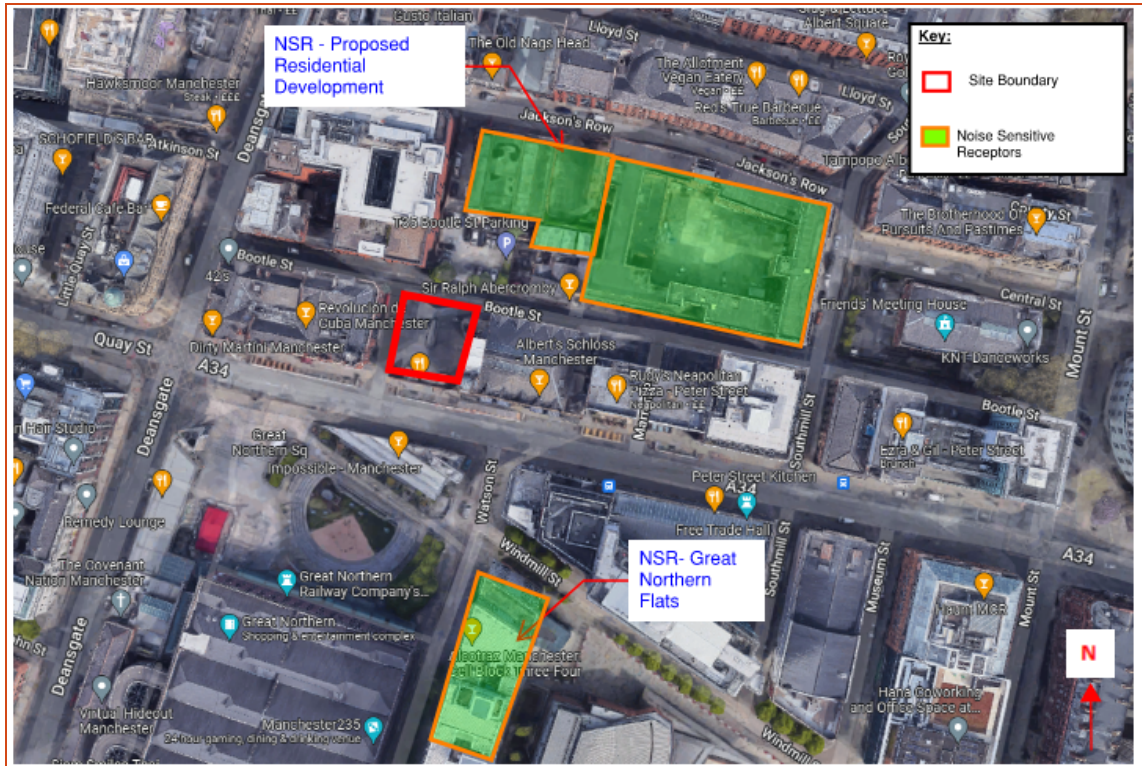
- 1.1 dBx Acoustics has been appointed by Ocean Treasure 23 Ltd to undertake a noise survey and noise assessment for the proposed new external dining terrace at the Peaky Blinders Bar on Peter Street, Manchester.
- 1.2 This report presents results of the noise survey undertaken around the noise sensitive receptors to understand the existing noise climate and thereby assess the potential noise impact from the development in accordance with the requirements of Manchester City Council (MCC).
- 1.3 A glossary of acoustic terminology is presented in Appendix A.

2 SITE DESCRIPTION

Site Description

- 2.1 Peaky Blinders bar is located in Manchester City Centre. It is bounded by Bootle Street to the south, Jerusalem Palace to the east, and Peter Street to the north.
- 2.2 The area surrounding the site is predominantly commercial nature including drinking establishments and restaurants.
- 2.3 Figure 1 illustrates the location of the building, and the nearest noise sensitive receptors (NSRs).

Figure 1: Site Boundary and Nearby Noise Sensitive Properties



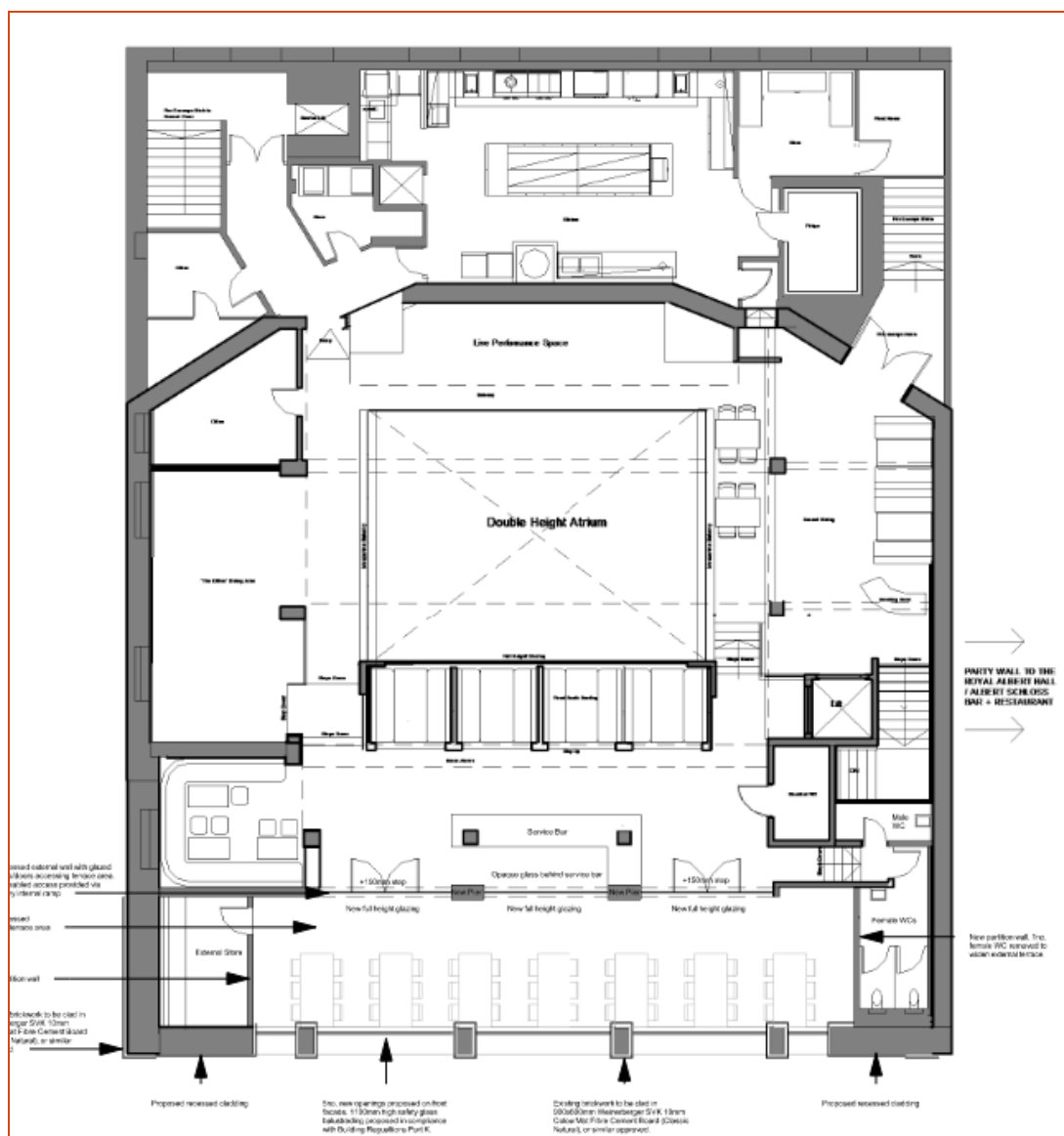
Nearby Noise Sensitive Receptors (NSR)

- 2.4 The nearest noise sensitive receptor is the proposed Jacksons Row / Bootle Street development, to the rear of the proposed external terraces, approximately 34m to the north. The Great Northern Tower apartment building is located approximately 50m to the south-east.

Proposed Development

- 2.5 The proposal seeks to set the first-floor external wall back to form a new external dining terrace fronting Peter Street. It is understood that the proposed external terrace will be operational from 12:00h to 23:00h, seven days a week.
- 2.6 It is understood that there will be no new building service plant associated with the proposed external terrace.
- 2.7 Figure 2 below presents proposed first floor plan including the new external terrace area.

Figure 2: Proposed New External terrace Area



3 BASIS OF NOISE ASSESSMENT

Local Authority

- 3.1 The site falls under the jurisdiction of Manchester City Council (MCC). Their acoustic criteria are detailed below.

Manchester City Council – Planning & Noise Technical Guidance (December 2015)

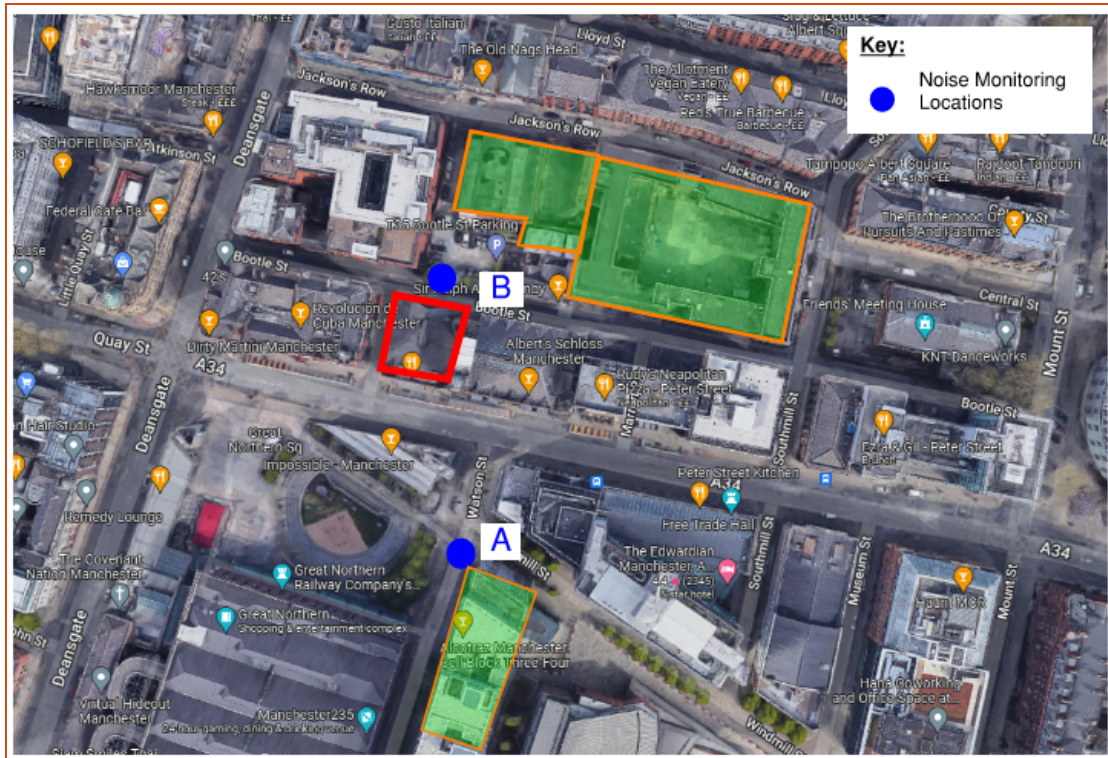
- 3.2 This document sets out Manchester City Council's requirements with regard to current guidance and policy, with the aspiration that new developments achieve the highest standards without compromising the health and wellbeing of residents.
- 3.3 The following requirements are considered relevant to this project;
- “Entertainment noise (L_{Aeq}) should be controlled to 10dB below the background noise level (L_{A90}) without the entertainment noise present, in each octave band at the nearest noise sensitive location”.*

4 NOISE SURVEY

Methodology

- 4.1 dBx Acoustics has undertaken noise measurements between 21:20h and 23:18h on Monday 25th April at Locations A and B, as indicated on Figure 3. The measurement period is selected such that this will represent the quietest background noise levels that are likely to be experienced at NSRs while external terrace may be operational.

Figure 3: Noise Monitoring Locations



- 4.2 These noise measurement locations were selected to measure background and ambient noise levels representative of nearest noise sensitive properties most at risk of exposure to breakout noise from the external terrace.
- 4.3 All measurements were undertaken in accordance with BS 7445-1:2003 *Description and Measurement of Environmental Noise*, with microphones located at approximately 1.5 metres above the local ground level and at least 3.5 metres away from reflective surfaces other than the ground which can be considered as in free field conditions.

Equipment

- 4.5 The equipment used during the environmental noise survey is detailed in Table 1.

Table 1: Equipment Used in the Environmental Noise Survey

Equipment	Manufacturer & Part No	Serial Number
Sound Level Meter	Norsonic Nor140	1405619
Calibrator	Norsonic Nor1251	33827
Microphone	Norsonic Nor1225	168247

- 4.6 The sound level meters were calibrated before and after measurements, with no significant drift recorded. An accredited laboratory calibrated the equipment not more than two years prior to the measurements being made, with the exception of the calibrators, which had been calibrated not more than one year prior to the survey.

Weather Conditions

- 4.7 Weather conditions throughout the survey period were suitable for environmental measurements with wind speeds of less than 5 m/s. No precipitation was recorded during the noise survey. Temperatures varied between 5°C and 8°C.

5 ENVIRONMENTAL NOISE SURVEY RESULTS

- 5.1 A summary of the attended daytime noise levels measured is presented in Table 2. All measurements were 15 minutes in duration.

Table 2: Summary of Measured Daytime Attended Noise Levels

Location - Receptor (Figure 23)	Time(hh:mm)	Ambient Noise Level (dB L _{Aeq,15mins})	Maximum Noise Level (dB L _{AFmax})	Background Noise Level (dB L _{A90, 15mins})
A – Bootle Street (Proposed Jacksons Row / Bootle Street development)	21:20	63	83	62
	22:02	69	97	64
	22:41	62	76	62
B – Watson Street (Great Northern Tower)	21:44	58	75	54
	22:23	57	71	54
	23:03	59	84	55

- 5.2 At location A the dominant source of noise was noise from the building service plant items serving commercial properties overlooking Peter Street. At location B the dominant source of noise was road traffic noise from the surrounding road network (Peter Street and Deansgate) as well as pedestrian noise.
- 5.3 The relevant octave band background sound levels (dBL₉₀) measured at the NSRs (location A and location B) from this survey used in the assessment of entertainment noise emissions are presented in Table 3 below.

Table 3: Summary of Measured External Background Noise Levels L₉₀

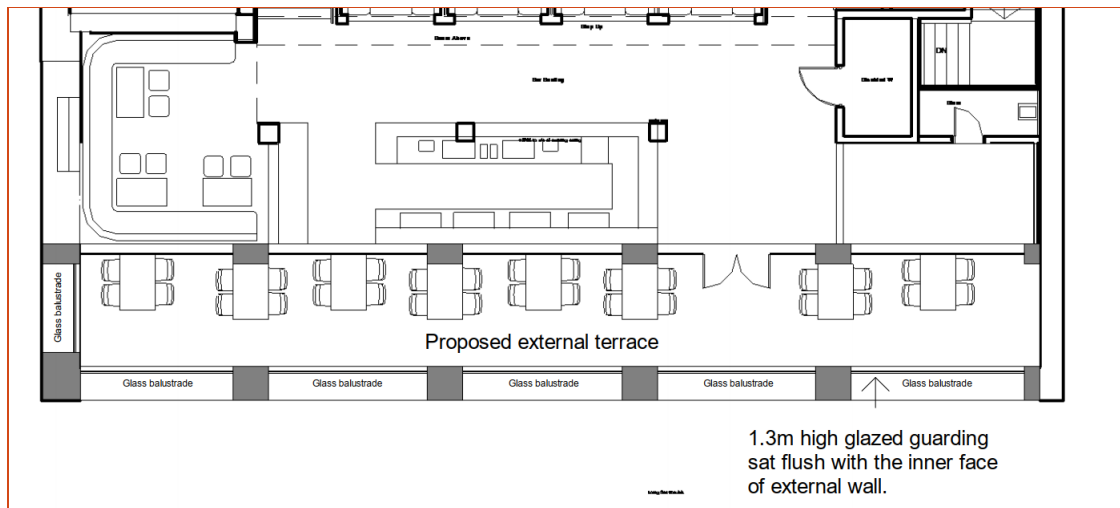
Description	Noise Metric	Octave Band Centre Frequency (Hz), dB (Lin)							dB(A)
		63	125	250	500	1k	2k	4k	
Position A	L ₉₀	68	67	63	56	56	51	44	62
Position B		59	57	54	51	49	44	35	54

- 5.4 Noise levels are not atypical or unexpected given the urban environment and significant contribution of road traffic, building services noise and pedestrian activity in the area.

6 NOISE IMPACT ASSESSMENT- ROOF TERRACE

- 6.1 MCC requirements are that “where entertainment noise is proposed the L_{Aeq} (entertainment noise) shall be controlled to 10 dB below the L_{A90} (without entertainment noise) in each octave band at the façade of the nearest noise sensitive location.”
- 6.2 It is understood that proposed external terrace will be operational from 12:00h to 23:00h.

Figure 4: Proposed Roof Terrace



- 6.3 In terms of patron noise potentially affecting the NSR, it is understood that up to 48 patrons could potentially use the external seating area. There will be no amplified music in the external seating area, and hence any noise emanating from the seating area will be voices.
- 6.4 Noise levels in the external seating area have been determined using the calculation method presented in the J.H. Rindel, C.I.Christensen, A.C. Grade research paper: ‘Dynamic sound source for simulating the Lombard effect in room acoustic modelling software’ (Proceedings of Inter-Noise 2012, New York, USA, (2012)).
- 6.5 As the seating area is associated with a bar, it has been deemed appropriate to use a noise level representative of ‘raised’ speech conversation levels. The sound power level of a person speaking in a raised voice is equal to approximately 76dBL_{WA} (Ref. ANSI 3.5).
- 6.6 Converting this to allow for a group of people in the proposed seating area used the following method.
- 6.7 The equation below is used to convert the sound power level to a sound pressure level, where r is the distance to the nearest noise sensitive receiver, and AS is any acoustic screening at the NSR.
- 6.8 Sound pressure level, $L_p = L_w - 20\log(r) - 8 - AS$
- 6.9 Although there may be 48 people in the external area, the nature of conversation means that there would only ever be, at most, half of the occupants talking at any one time; for this reason, 24 noise sources are used in the calculation.
- 6.10 The screening effect of the parapet and building structures has been considered within the assessment.
- 6.11 Table 4 and Table 5 below presents the noise impact assessment from the roof terrace to the NSRs (Proposed Jacksons Row / Bootle Street development and Great Northern Tower Building).

Table 4: Noise Impact from Roof Terrace to NSR- Proposed Jacksons Row / Bootle Street development

Description	Octave Band Centre Frequency (Hz), dB (Lin)							dB(A)
	63	125	250	500	1k	2k	4k	
Raised Voice Sound Power Level	48	59	70	75	72	64	57	76
Correction for 24 people	+14	+14	+14	+14	+14	+14	+14	
Combined Sound Power Level	62	73	83	89	86	78	71	89
Correction for a distance of 34m	-31	-31	-31	-31	-31	-31	-31	-
-8	-8	-8	-8	-8	-8	-8	-8	-
Screening Effect (AS)	-10	-10	-10	-10	-10	-10	-10	-
Predicted level at NSR	13	24	35	40	37	29	22	41
Measured Background Noise Levels at NSR	68	67	63	56	56	51	44	61
Difference	-54	-43	-28	-16	-19	-22	-22	-20

Table 5: Noise Impact from Roof Terrace to NSR- Great Northern Tower

Description	Octave Band Centre Frequency (Hz), dB							dB(A)
	63	125	250	500	1k	2k	4k	
Raised Voice Sound Power Level	48	59	70	75	72	64	57	76
Correction for 24 people	+14	+14	+14	+14	+14	+14	+14	
Combined Sound Power Level	62	73	83	89	86	78	71	89
Correction for a distance of 50m	-34	-34	-34	-34	-34	-34	-34	-
-8	-8	-8	-8	-8	-8	-8	-8	-
Screening Effect (AS)	-5	-5	-5	-5	-5	-5	-5	-
Predicted level at Great Northern Tower	15	26	36	42	39	31	24	42
Measured Background Noise Levels at NSR	59	57	54	51	49	44	35	54
Difference	-44	-31	-18	-9	-10	-14	-11	-12

6.12 It can be seen from above assessments that the predicted patron noise from the external seating from proposed terrace is at least 10dB below the measured existing background noise levels (L_{90}) in each octave band at the nearest noise sensitive receptors. Therefore, there will be no adverse noise impact from the proposed external roof terraces at the nearest sensitive receptors.

7 SUMMARY AND CONCLUSION

- 7.1 dBx Acoustics has been appointed by Ocean Treasure 23 Ltd to undertake a noise survey and noise assessment for the proposed new external dining terrace of the Peaky Blinders Bar on Peter Street, Manchester.
- 7.2 A noise survey was undertaken around the site to determine existing noise levels affecting the site and nearby noise sensitive receptors.
- 7.3 An assessment of noise emissions from the proposed rooftop terrace affecting nearest noise sensitive receptors has been undertaken which indicates that there will be no adverse noise impact.
- 7.4 Taking the above into account, noise should not be a limiting factor in any planning application.

APPENDIX A – GLOSSARY OF ACOUSTIC TERMINOLOGY

Decibel, dB	A unit of level derived from the logarithm of the ratio between the value of a quantity and a reference value. For sound pressure level (L_p) the reference quantity is $2 \times 10^{-5} \text{ N/m}^2$. The sound pressure level existing when microphone measured pressure is $2 \times 10^{-5} \text{ N/m}^2$ is 0 dB, the threshold of hearing.
L	Instantaneous value of Sound Pressure Level (L_p) or Sound Power Level (L_w).
Frequency	Number of cycles per second, measured in hertz (Hz), related to sound pitch.
A-weighting	Arithmetic corrections applied to values of L_p according to frequency. When logarithmically summed for all frequencies, the resulting single "A weighted value" becomes comparable with other such values from which a comparative loudness judgement can be made, then, without knowledge of frequency content of the source.
$L_{eq,T}$	Equivalent continuous level of sound pressure which, if it actually existed for the integration time period T of the measurement, would possess the same energy as the constantly varying values of L_p actually measured.
$L_{Aeq,T}$	Equivalent continuous level of A weighted sound pressure which, if it actually existed for the integration time period, T, of the measurement would possess the same energy as the constantly varying values of L_p actually measured.
$L_{n,T}$	L_p which was exceeded for n% of time, T.
$L_{An,T}$	Level in dBA which was exceeded for n% of time, T.
$L_{max,T}$	The instantaneous maximum sound pressure level which occurred during time, T.
$L_{Amax,T}$	The instantaneous maximum A weighted sound pressure level which occurred during time, T.
$L_{A,T,r}$	The equivalent continuous A-weighted sound pressure level of the noise, plus any adjustment for the characteristic features of the noise.

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Final Audit Report

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