
Our Ref: NA/1065/22/079/v1.0/545 Barlow Moor Road

5th May 2022

Mr Justin Keleghan
JK Technical Services (NW) Limited
21 Campbell Road
Swinton
Manchester
M27 5QG



Dear Sir,

NOISE ASSESSMENT

PROPOSED CHANGE OF USE TO SELF CONTAINED FLATS AT 545 BARLOW MOOR ROAD, CHORLTON-CUM-HARDY, MANCHESTER, M21 8AN

MANCHESTER CITY COUNCIL PLANNING APPLICATION 133008/FO/2022

1.00 INTRODUCTION

- 1.01 RP Acoustics Limited has been commissioned by Mr Wei Liu to carry out a noise assessment for a proposed change of use from a single dwellinghouse to self-contained flats at 545 Barlow Moor Road, Chorlton-cum-Hardy, Manchester, M21 8AN (hereafter referred to as the application site).
- 1.02 The noise assessment has been undertaken to support Planning Application 133008/FO/2022 submitted to Manchester City Council.
- 1.03 The objectives of the noise assessment are to:
- Determine the ambient noise levels at the application site
 - Provide recommendations for mitigation measures (glazing / ventilation) in order to protect residential amenity with cognisance to current planning and noise-related policies and guidelines
- 1.04 This report sets out the methodology and findings of the noise assessment.
- 1.05 This report has been prepared on behalf of Mr Wei Liu for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties making reference to the report should consult Mr Wei Liu (applicant), JK Technical Services (NW) Limited (applicant's agent) and RP Acoustics Limited as to the extent to which the findings may be appropriate for their use.
- 1.06 A glossary of acoustic terms is contained in Appendix 1 for reference.

2.00 APPLICATION SITE SETTING AND PROPOSED DEVELOPMENT

- 2.01 The application site is set in mixed residential and commercial/retail area. The B5217 Barlow Moor Road is located to the east (note: there is circa 12 metres distance between the eastern façade of the building and the centreline of the road). Barlow Moor Road traffic is dominant.
- 2.02 The proposed development consists of the formation of self-contained flats (floor plans are reproduced in Appendix 2 for reference).

3.00 CONSULTATION RESPONSE FROM MANCHESTER CITY COUNCIL

3.01 The following consultation response has been received from Manchester City Council in accordance with Policy NSE4(a):

a) Before the development commences a scheme for acoustically insulating the proposed residential accommodation against noise from Barlow Moor Road shall be submitted to and approved in writing by the City Council as local planning authority. There may be other actual or potential sources of noise which require consideration on or near the site, including any local commercial/industrial premises. The approved noise insulation and ventilation scheme shall be completed before any of the dwelling units are occupied.

Noise survey data shall include measurements taken during a rush-hour period and night time to determine the appropriate sound insulation measures necessary. The following noise criteria shall be required to be achieved:

- *Bedrooms (night time – 23.00 – 07.00) 30 dB LAeq (individual noise events shall not exceed 45 dB LAmax,F by more than 15 times)*
- *Living Rooms (daytime – 07.00 – 23.00) 35 dB LAeq*
- *Gardens and terraces (daytime) 55 dB LAeq*

b) Prior to first occupation of the residential units, a verification report shall be required to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic consultant's report. The report shall also undertake post completion testing to confirm that the internal noise criteria have been met. Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the internal noise criteria.

Reason: To secure a reduction in noise from traffic or other sources in order to protect future residents from noise disturbance.

3.02 The consultation response is consistent with the advice contained in British Standard 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings (BS 8233) which sets guideline indoor ambient noise levels for dwellings for steady external noise sources and transportation noise sources (such as road traffic).

Table 3.1 – BS 8233:2014 Indoor Ambient Noise Levels in Dwellings

Activity	Location	0700–2300 hours	2300–0700 hours
Resting	Living Room	35 dB LAeq	–
Dining	Dining Room	40 dB LAeq	–
Sleeping (daytime resting)	Bedroom	35 dB LAeq	35 dB LAeq

3.03 Note 4 to the above table states ‘Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or L_{AFMax} depending on the character and number of events per night. Sporadic noise events could require separate values.’ With respect to the noise events it is now industry-wide commonly adopted good practice to recognise ‘it is considered that if, in bedrooms at night, the L_{AFMax} from individual noise events (from all sources) would not normally exceed 45 dB more than 15 times a night, then this represents a reasonable threshold below which the effects of individual noise events on sleep can be regarded as negligible.’

3.04 Note 5 to the above table states ‘If relying on closed windows to meet the guide values, there needs to be an appropriate alternative ventilation that does not compromise the façade insulation or the resulting noise level. If applicable, any room should have adequate ventilation (e.g. trickle ventilators should be open) during assessment.’

4.00 BASELINE NOISE SURVEY

- 4.01 A 24-hour baseline noise survey was undertaken at the application site on Tuesday 3rd May 2022 through to Wednesday 4th May 2022.
- 4.02 For the purpose of the baseline noise survey, the following noise monitoring positions (NMP) were adopted (as reproduced in Appendix 3):
- EXT-1 (the control position) was located 1 metre from the front (eastern) façade of the building at 2nd floor level overlooking Barlow Moor Road
 - EXT-2 was located 1 metre from the front (eastern) façade of the building at ground floor level overlooking Barlow Moor Road
 - EXT-3 was located 1 metre from the gable (southern) façade of the building at ground floor level overlooking Barlow Moor Road
 - EXT-4 was located in the garden area at the rear of the property
 - INT-1 was located inside a 2nd floor room located on the front (eastern) façade overlooking Barlow Moor Road
 - INT-2 was located inside a 1st floor room located on the front (eastern) façade overlooking Barlow Moor Road
- 4.03 Baseline noise measurements were undertaken using NTi Audio XL2 Type 1 integrating sound level meters. The calibration was verified immediately before and after measurement sessions and no drift in calibration level was noted.
- 4.04 Baseline noise measurements consisted of A-weighted broadband parameters, together with linear one-third octave band L_{eq} levels, with a logging interval of 1 second (and full audio recording).
- 4.05 The baseline noise measurements are summarised in the following table (whilst the free field 24-hour hourly data for EXT-1 (the control position) is reproduced in Appendix 4 for reference). As measurements at EXT-1, EXT-2 and EXT-3 were made at 1 metre from the existing building, a – 3 dB façade enhancement correction has been applied in order to establish free field external noise levels.

Table 4.1 – Baseline Noise Measurement Data

NMP	Time	LAeq (dB)	LA90 (dB)	LA10 (dB)	LA1 (dB)	LAFMax (dB)	Comments
EXT-1	0700-2300	67	52	70	74	n/a	Barlow Moor Road dominant; 550 vehicles per hour daytime; 8 percent HGVs (mostly buses)
	2300-0700	61	35	66	73	77*	
EXT-1: 67 dB LAeq (0700-2300), 61 dB LAeq and (15 th highest) 77 dB LAFMax (2300-0700)							
EXT-2	1037-1052	67	47	70	74	77	LAeq same as EXT-1 (control) at 1037-1052
EXT-2 Same as EXT-1 (i.e. no attenuation due to vertical distance (as expected due to proximity))							
EXT-3	1055-1110	59	46	64	67	70	LAeq 8 dB less than EXT-1 (control) at 1055-1110
EXT-3: 59 dB LAeq (0700-2300), 53 dB LAeq and (15 th highest) 69 dB LAFMax (2300-0700)							
EXT-4	1112-1127	52	44	56	60	63	LAeq 15 dB less than EXT-1 (control) at 1112-1127
EXT-4: 52 dB LAeq (0700-2300); gardens compliant with < 55 dB LAeq (0700-2300)							
INT-1	1250-1300	33	22	37	40	43	2 no. vents open; 34 dB less than EXT-1 at 1230-1240 & 1250-1300, respectively
INT-2	1230-1240	33	22	37	40	43	
Internal levels 34 dB less than EXT-1; 2 x vents open (vents have external canopy i.e. good) Internal levels compliant with NSE4(a) < 35 dB LAeq (0700-2300), 30 dB LAeq & 45 dB LAFMax (2300-0700)							

- 4.06 The ambient noise level was due to road traffic and was relatively constant (67 dB +/- 1 dB) between 0700 and 1900 hours (see Appendix 4). Retail/commercial noise was inaudible.

5.00 CONCLUSIONS

- 5.01 A noise assessment has been undertaken for a proposed change of use from a single dwelling house to self-contained flats at 545 Barlow Moor Road, Chorlton-cum-Hardy, Manchester, M21 8AN.
- 5.02 The dominant noise source is Barlow Moor Road, which is moderately trafficked with 550 vehicles per hour during the daytime period (with circa 8 percent HGVs, notably buses). Traffic noise is relatively constant throughout the daytime, reducing during the night time period. Noise from commercial/retail premises in the locale was inaudible throughout.
- 5.03 It has been demonstrated by measurements (both externally and internally) that the existing scheme of sound insulation (double glazing and window vents with external canopies which provide a good standard of sound insulation) is sufficient to comply with Manchester City Council Residential Sound Insulation NSE4(a) and British Standard 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings (BS 8233).
- 5.04 It is therefore concluded that noise should not pose a constraint to the granting of planning permission. Furthermore, there is no requirement / justification for any noise related conditions to be attached to a planning approval.

If we can be of any further assistance, please do not hesitate to contact us.

Yours sincerely

Jonathan Rigg
MEng (Hons), Associated Member of the Institute of Acoustics
For and on behalf of RP Acoustics Limited

cc Mr Wei Liu, Investwin Ltd

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 μ Pa 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 μ Pa).

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 value of the A-weighted sound pressure level in decibels of continuous steady sound that within a specified time interval, T , has the same mean-square sound pressure as a sound that varies with time. $L_{Aeq, 16h}$ (07:00 to 23:00 hours) and $L_{Aeq, 8h}$ (23:00 to 07:00 hours) are used to qualify daytime and night time noise levels.

$L_{A10, T}$

The A-weighted sound pressure level in decibels exceeded for 10% of the measurement period, T . $L_{A10, 18h}$ is the arithmetic mean of the 18 hourly values from 06:00 to 24:00 hours.

$L_{A90, T}$

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.

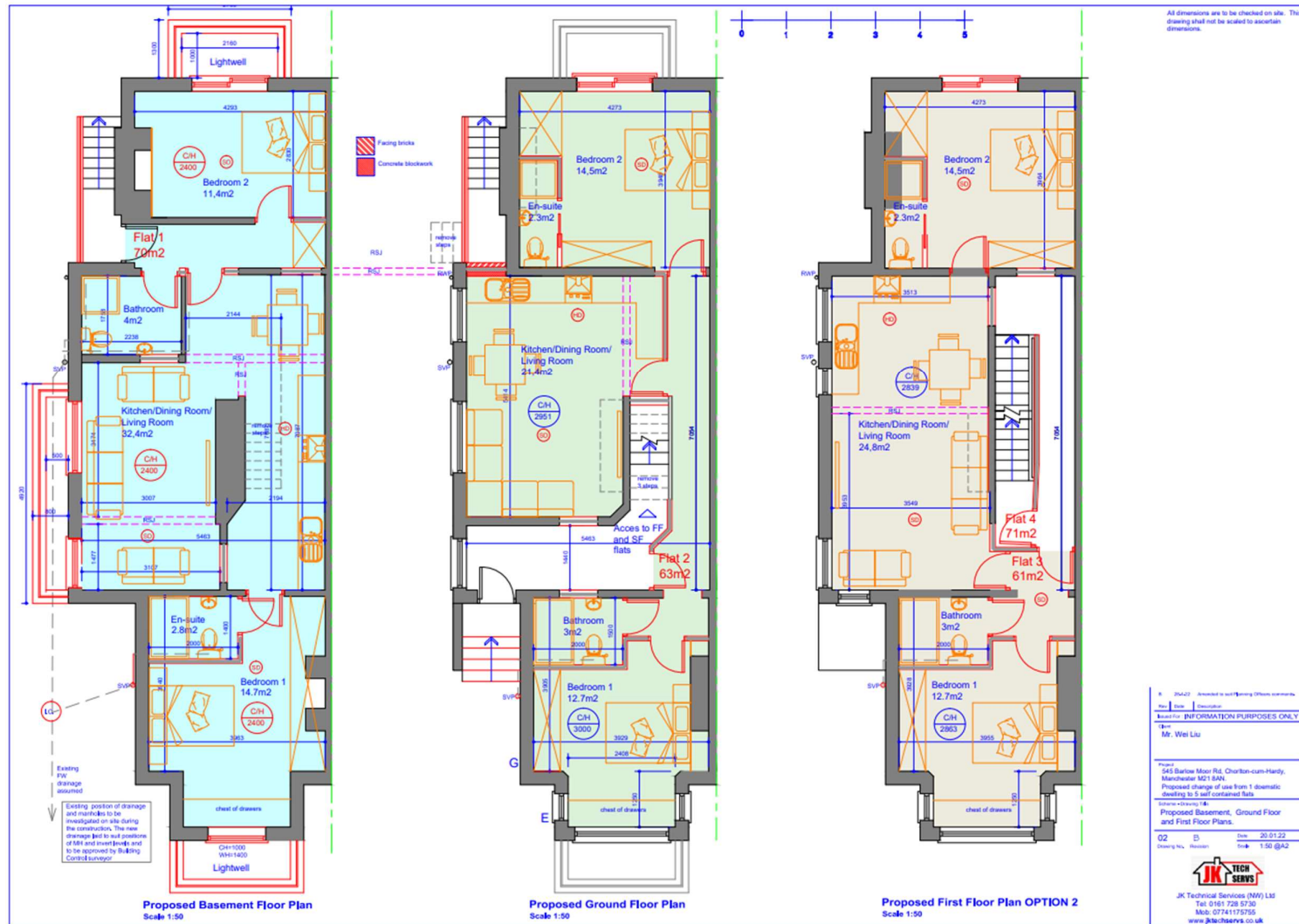
$L_{AF \max}$

The maximum A-weighted noise level recorded during the measurement period. The subscript 'F' denotes fast time weighting, slow time weighting 'S' is also used.

Sound Exposure Level (SEL or L_{AE})

The energy produced by a discrete noise event averaged over one second, no matter how long the event actually took. This allows for comparison between different noise events that occur over different lengths of time.

Appendix 2 Proposed Development Floor Plans



Proposed Development Floor Plans (continued)



Appendix 3 Noise Monitoring Positions



Appendix 4
Baseline Noise Measurement Data
EXT-1 (Control Position)

Time	LAeq	LA90	LA10	LA1
07:00:00	68	50	72	75
08:00:00	68	52	72	74
09:00:00	68	54	71	74
10:00:00	67	54	71	74
11:00:00	67	54	71	73
12:00:00	67	55	70	73
13:00:00	66	52	70	72
14:00:00	66	55	70	73
15:00:00	67	55	70	73
16:00:00	67	55	70	73
17:00:00	66	55	70	73
18:00:00	67	54	70	73
19:00:00	66	56	70	73
20:00:00	66	53	70	73
21:00:00	66	53	70	73
22:00:00	65	51	69	74
23:00:00	64	46	69	73
00:00:00	61	40	66	72
01:00:00	58	37	59	71
02:00:00	56	35	56	70
03:00:00	59	36	60	72
04:00:00	59	41	61	71
05:00:00	62	49	67	73
06:00:00	66	50	71	74