DISCHARGE OF PLANNING CONDITION 3

11 & 15 ALBION STREET, SOUTHWICK

CHEESMUR BUILDING CONTRACTORS

FEBRUARY 2025

DISCHARGE OF PLANNING CONDITION 3
11 & 15 ALBION STREET, SOUTHWICK

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CONTENTS

1	INTRODUCTION	6
2	SITE DESCRIPTION	7
3	PLANNING CONDITION 3	7
4	TESTING METHODOLOGY	9
5	NOISE MEASUREMENTS	10
6	RESULTS	11
7	CONCLUSIONS	13
8	REFERENCES	14

1 INTRODUCTION

Anderson Acoustics Ltd was commissioned by Cheesmur Building Contractors to undertake internal ambient noise commissioning testing within sample plots in a new development at Duke View House, 11 Albion Street, Southwick, BN42 4DN and 15 Albion Street, Southwick, BN42 4BX in order to discharge Planning Condition 3 of planning permission AWDM/0954/18 from Adur District Council.

The development comprises 2 purpose built blocks of flats totalling 49 residential units.

A scheme of internal ambient noise level (IANL) measurements was undertaken across both buildings from 31st January 2025 to 3rd February 2025 to determine compliance with the criteria imposed by Planning Condition 3.

This report sets out the methodology and results of various noise surveys and benchmarks the established noise contribution from both external noise sources and internal MVHR noise within plots in both buildings against the requirements of the planning condition.

2 SITE DESCRIPTION

The development is located at 11 and 15 Albion Street, Southwick. The relevant building layouts are shown in Figure A1 of Appendix A.

The site is bound by a railway track serving Southwick station to the north, Albion Street (A259) to the south, Victoria Road to the east, and Kingston Lane to the west. In the vicinity of the development there is a car garage to the east and a construction yard associated with the docks that was consistently in use for the duration of time on site.

Observations during our site visits indicated that the external noise climate at the site was governed by train movements to the north, traffic movements along Albion Street to the south with contributions from the construction yard also located to the south.

The development comprises 2 purpose built blocks of flats totalling 49 residential dwellings.

The site is a completed construction site with minimal works ongoing during the survey period. However, sound insulation testing was undertaken simultaneously with the unattended monitoring. As such periods considered to have been impacted by noise from sound insulation testing have been removed. Attended measurements were also taken to supplement data from the unattended measurements.

3 PLANNING CONDITION 3

The following items highlighted in bold are understood to be still outstanding for acoustic related planning conditions from planning application ref. AWDM/0954/18.

Part of Planning Condition 3 (outstanding item in **bold**):

"No development above slab level shall take place until a scheme for protecting the proposed noise sensitive development from noise and vibration from the road, railway and garage has been submitted to and approved by the local planning authority. The scheme should also include a strategy to prevent overheating. All works, which form part of the scheme, shall be completed before any part of the noise sensitive development is occupied. ***The scheme shall have regard to the principles contained within the World Health Organisation community noise guidelines and achieve the indoor ambient noise levels for dwellings specified in BS8233:2014. Following approval and completion of the scheme, tests shall be undertaken to demonstrate that the attenuation measures proposed in the scheme are effective and protect the residential units from noise.***
Reason: In the interests of residential amenity and to comply with policies 15 and 34 of the Adur Local Plan."

As such, detailed environmental noise surveys are required to determine whether internal ambient noise levels within dwellings are compliant with the above criteria. The relevant guidance stated within in BS 8233 is also given below.

3.1 British Standard 8233

British Standard BS 8233: 2014 provides guideline values for internal noise levels within a number of building types including residential dwellings.

In general, for steady external noise sources, it is desirable that the internal ambient noise level does not exceed the guideline values in Table 3.1:

Table 3.1: British Standard 8233 residential indoor noise levels

Activity	Location	Daytime	Night-time
Resting	Living room	35 dB $L_{Aeq,\ 16hour}$	-
Dining	Dining room/area	40 dB $L_{Aeq,\ 16hour}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,\ 16hour}$	30 dB $L_{Aeq,\ 8hour}$

Notes: Daytime assessment period – 07:00 to 23:00 hrs
Night-time assessment period – 23:00 to 07:00 hrs

Furthermore, the Standard notes that, "*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 $L_{Amax,F}$, depending on the character and number of events per night. Sporadic noise events could require separate values.*" No thresholds/criteria are provided within the Standard, however.

The previous, 1999 version of the Standard included the note that, "*For a reasonable standard in bedrooms at night, individual noise events (measured with F time-weighting) should not normally exceed 45 dB L_{Amax}.*".

This is the same threshold (i.e. 45 dB) given in the World Health Organization (WHO) Guidelines for Community Noise, and it is, therefore, considered to remain relevant and is described in the following sub-section.

3.2 World Health Organisation Guidelines

The following guideline values for community ambient noise levels in specific environments are presented in the World Health Organization (WHO) Guidelines for Community Noise.

Table 3.2: WHO guideline noise values

Specific Environment	Critical Health Effect(s)	dB $L_{Aeq,T}$	Time Base hours	dB $L_{Amax,F}$
Dwelling indoors	Speech intelligibility and moderate annoyance, daytime and evening	35	16	-
Inside bedrooms	Sleep disturbance, night-time	30	8	45

The 45 dB $L_{Amax,F}$ criterion applies to "single sound events" within bedrooms at night. This guideline is generally interpreted as the value that individual noise events should not normally exceed more than 10 times a night.

3.3 Summary of PC3 Criteria

A summary of the Planning Condition 3 criteria is presented below in Table 3.3.

Table 3.3: Summary of PC3 criteria

Location	Daytime	Night-time	
Living room	35 dB $L_{Aeq,\ 16hour}$	-	
Bedroom	35 dB $L_{Aeq,\ 16hour}$	30 dB $L_{Aeq,\ 8hour}$	Typically does not exceed < $L_{Amax,fast}$ 45 dB

Notes:
Daytime assessment period – 07:00 to 23:00 hrs
Night-time assessment period – 23:00 to 07:00 hrs

4 TESTING METHODOLOGY

Measurements of the internal noise levels and reverberation time measurements were undertaken within selected flats of both buildings Friday 31st January and Monday 3rd February 2025. Our methodology to the commissioning testing consisted of the following:

- Two no. internal sound level meters were installed in representative, completed, but unfurnished bedrooms in Building 1 at second floor level (UP1 and UP2). The sound level meters were positioned in rooms facing the northern and southern façades respectively to ensure the worst effected façade noise levels were captured with the floor level chosen to ensure direct line of sight to the most prominent noise sources (railway line and road). Measurements were carried out with the relevant MVHR units operating at their intended design duties.
- Two no. internal sound level meters were installed in representative, completed, but unfurnished kitchen/living rooms in Building 2 at second floor level (UP3 and UP4). The sound level meters were positioned in rooms facing the northern and southern façades respectively to ensure the worst affected façade noise levels were captured with the floor level chosen to ensure direct line of sight to the most prominent noise sources (railway line and road). Measurements were carried out with the relevant MVHR units operating at their intended design duties.
- These sound level meters were installed on Friday morning and were left measuring ambient noise levels over the weekend period.
- Additional short-term internal ambient noise measurements were carried out on the first floor level in the rooms directly below the unattended monitoring positions on Monday 3rd December 2025 to capture a larger sample of data.
- This was aimed at complementing the long-term unattended external measurements, such that internal noise levels could be measured in a larger sampling rate of rooms (without the need to undertake long-term measurements in every single room of interest).
- All of the tested rooms were unfurnished (only a kitchen top in living room/kitchen areas) or had basic finishes (i.e. carpet in bedrooms and living rooms); therefore, reverberation time measurements were also undertaken to account for the influence of a typical fully furnished room. A typical future fit-out is expected to introduce further acoustic absorption to the space, reverberation time measurements were carried out in each room to normalise the result to 0.5 seconds (typical reverberation time for furnished residential. These respective corrections have been applied to the results presented herein. The following respective reverberant sound corrections have been applied to each type of room:
    - Living rooms: -**2.5 dBA**
    - Bedrooms: -**2 dBA**
- Reverberation time tests were carried out in accordance with BS EN ISO 3382-2:2008. Full details of the reverberation time results are given Appendix B.

The methodology of testing has been based on the ANC Guidelines on Noise Measurement in Buildings, Part 1 (Noise from building services [1]) and Part 2 (Noise from external sources [2]). The following generic testing methodology, extracted from these documents, was followed on site and also complemented with the specific measurement details described above:

- Measurements were undertaken by suitably qualified acousticians, using a Type 1 sound level meter.
- The measurements followed general best practice, e.g. with the microphone at an approximate height of 1.5m and by maintaining a minimum distance of 1.5m from reflecting surfaces where possible.
- The measurements consisted of capturing sound pressure levels using the $L_{eq,T}$ parameter; over the octave band frequency range 63Hz to 8kHz.

5 NOISE MEASUREMENTS

Long-term unattended and short-term attended noise measurements were undertaken to determine the daytime and night-time IANL's within sample plots in both buildings.

5.1 Equipment

All sound level meters were calibrated before and after the survey periods, with no calibration drift observed. Full equipment details are provided in Table 5.1.

Table 5.1: Equipment Details

Equipment	Make and Model	Serial No	Calibration Due
Sound Level Meters	01dB DUO	10749	28/02/2026
	Rion NL-53	00730385	29/01/2026
	Rion NL-53	00830428	29/01/2026
	Rion NL-52	00732147	26/01/2026
Calibrators	Rion NC-75	34745902	18/09/2025
	Rion NC-75	34745903	18/09/2025
	Rion NC-74	34304643	16/07/2025

5.2 Long-term Unattended Measurements

Given that the measurements were largely unattended, it is not possible to comment on the nature of the noise climate over the entire duration of the survey. However, during our time on site, the external noise climate was dominated by train movements for the north façade and by road traffic movements to the south façade, which is expected to be similar during both daytime and night-time periods.

Data for long term surveys have been analysed, whereby interfering noise periods have been removed. These interruptions were due to our activity on site at the time of the measurements and also due to construction noise, as advised by site.

5.3 Short-term Attended Measurements

Short-term attended measurements were undertaken in the most representative living rooms and bedrooms in the sample plots (including the long-term locations), in terms of noise exposure to the external sources mentioned in the previous section.

The short-term measurements were taken at floor levels directly above or below the long-term measurement positions to collect a wider spread of samples across each elevation, which were then compared to the equivalent time period in the synchronised long-term measurement and the results of the latter scaled to the relevant correction between both long and short-term measurements.

6 RESULTS

6.1 Long-term Unattended Measurements

The results from the long-term measurements are detailed below.

6.1.1 UP1 – Building 1 Northern Elevation

Table 6.1: Long term measurement results – Building 1, Level 2, plot B1.02.F04, Bedroom

Monitoring Period	Measured		Measured + RT correction	
	Daytime (07:00 to 23:00 hrs) $L_{Aeq,16hr}$	Night-time (23:00 to 07:00 hrs) $L_{Aeq,8hr}$	Daytime (07:00 to 23:00 hrs) $L_{Aeq,16hr}$	Night-time (23:00 to 07:00 hrs) $L_{Aeq,8hr}$
Friday 31st January 2025*	24	22	22	20
Saturday 1st February 2025	25	21	23	19
Sunday 2nd February 2025	23	22	21	20
Overall	**26**	**22**	**24**	**20**

* Please note, the measurement started at 18:00 hours on this day due to construction noise, therefore not representative of a full daytime $L_{Aeq,16hour}$ period

As can be seen above, the measured average levels comply with target criteria in bedrooms on the northern elevation of Building 1.

The recorded maximum night time levels recorded are also presented below.

Table 6.2: Night time 11th highest recorded maximum sound level – Building 1, Level 2, Plot B1.02.F04, Bedroom

Monitoring Period	11th highest Night-time (23:00 to 07:00 hrs) $L_{Amax,fast}$	
	Measured	Measured + RT correction
Friday 31st January 2025	46	44
Saturday 1st February 2025	43	41
Sunday 2nd February 2025	44	42

As can be seen above, the maximum measured levels comply with target criteria in bedrooms on the northern elevation of Building 1.

6.1.2 UP2 – Building 1 Southern Elevation

Table 6.3: Long term measurement results – Building 1, Level 2, Plot B1.02.F06, Bedroom

Monitoring Period	Measured		Measured + RT correction	
	Daytime (07:00 to 23:00 hrs) $L_{Aeq,16hr}$	Night-time (23:00 to 07:00 hrs) $L_{Aeq,8hr}$	Daytime (07:00 to 23:00 hrs) $L_{Aeq,16hr}$	Night-time (23:00 to 07:00 hrs) $L_{Aeq,8hr}$
Friday 31st January 2025*	29	26	27	24
Saturday 1st February 2025	31	26	29	24
Sunday 2nd February 2025	29	25	27	23

Monitoring Period	Measured		Measured + RT correction	
	Daytime (07:00 to 23:00 hrs) $L_{Aeq,16hr}$	Night-time (23:00 to 07:00 hrs) $L_{Aeq,8hr}$	Daytime (07:00 to 23:00 hrs) $L_{Aeq,16hr}$	Night-time (23:00 to 07:00 hrs) $L_{Aeq,8hr}$
Overall	**30**	**26**	**28**	**24**

* Please note, the measurement started at 18:00 hours on this day due to construction noise, therefore not representative of a full daytime $L_{Aeq,16hour}$ period

As can be seen above, the measured average levels comply with target criteria in bedrooms on the southern elevation of Building 1.

Table 6.4: Night time 11th highest recorded maximum sound level – Building 1, Level 2, B1.02.F06, Bedroom

Monitoring Period	11th highest Night-time (23:00 to 07:00 hrs) L_{Amax}	
	Measured	Measured + RT correction
Friday 31st January 2025*	41	39
Saturday 1st February 2025	39	37
Sunday 2nd February 2025	40	38

As can be seen above, the maximum measured levels comply with target criteria in bedrooms on the southern elevation of Building 1.

6.1.3 UP3 – Building 2 Northern Elevation

Table 6.5: Long term measurement results – Building 2, Level 2, plot B2.02.F01, Kitchen/Living Room

Monitoring Period	Measured		Measured + RT correction	
	Daytime (07:00 to 23:00 hrs) $L_{Aeq,16hr}$	Night-time (23:00 to 07:00 hrs) $L_{Aeq,8hr}$	Daytime (07:00 to 23:00 hrs) $L_{Aeq,16hr}$	Night-time (23:00 to 07:00 hrs) $L_{Aeq,8hr}$
Friday 31st January 2025*	28	24	26	22
Saturday 1st February 2025	29	22	27	20
Sunday 2nd February 2025	26	23	24	21
Overall	**28**	**23**	**26**	**21**

* Please note, the measurement started at 18:00 hours on this day due to construction noise, therefore not representative of a full daytime $L_{Aeq,16hour}$ period

As can be seen above, the measured average levels comply with the target criteria in living rooms on the northern elevation of Building 1.

6.1.4 UP4 – Building 2 Southern Elevation

Table 6.6: Long term measurement results – Building 2, Level 2, plot B2.02.F03, Kitchen/Living Room

Monitoring Period	Measured		Measured + RT correction	
	Daytime (07:00 to 23:00 hrs) $L_{Aeq,16hr}$	Night-time (23:00 to 07:00 hrs) $L_{Aeq,8hr}$	Daytime (07:00 to 23:00 hrs) $L_{Aeq,16hr}$	Night-time (23:00 to 07:00 hrs) $L_{Aeq,8hr}$
Friday 31st January 2025 [2]	38	33	36	31
Saturday 1st February 2025	39	31	37	31

Monitoring Period	Measured		Measured + RT correction	
	Daytime (07:00 to 23:00 hrs) $L_{Aeq,16hr}$	Night-time (23:00 to 07:00 hrs) $L_{Aeq,8hr}$	Daytime (07:00 to 23:00 hrs) $L_{Aeq,16hr}$	Night-time (23:00 to 07:00 hrs) $L_{Aeq,8hr}$
Sunday 2nd February 2025	35	N/A[1]	33	N/A[1]
Overall	**39**	**33**	**36**	**31**

[1] – Denotes period where meter lost power or stopped recording
[2] – The measurement started at 18:00 hours on this day due to construction noise, therefore not representative of a full daytime $L_{Aeq,16hour}$ period.

As can be seen above, on Saturday 1st February the daytime and night-time measured average levels marginally exceed the target criteria. It is noted, however, that rainfall was present on Friday and continued into Saturday. It is therefore expected that wet roads are likely to have increased the recorded levels - where is commonly accepted that these can be increased by between 2-3 dBA. As such, it is considered that the exceedance of the measured overall average level of $L_{Aeq,16hour}$ 36 dB is marginal and that is expected to be lower during dry conditions.

6.2 Short-term Attended Measurement Results

The results from the short-term measurements are detailed in Table 6.7 below.

Table 6.7: Summary of short-term measurement results extrapolated to the long term results

Elevation	Building	Level	Plot	Room	Measurement Duration (hh:mm)	Measured IANL results, dB $L_{Aeq,T}$	Time & RT corrected results	Compliance
Northern	1	1	B1.02.F04	Bedroom	02:55	27	25	Yes
Southern	1	1	B1.02.F06	Bedroom	03:05	33	31	Yes
Northern	2	1	B2.02.F01	Kitchen/Living Room	01:00	29	27	Yes

As shown above, all short-term attended measurements undertaken in Buildings 1 and 2 shown above appear to comply with the PC 3 criteria.

7 CONCLUSIONS

Anderson Acoustics has been commissioned by Cheesmur Building Contractors to undertake a scheme of internal noise monitoring within several plots across both buildings at 11 and 15 Albion Street, Southwick to determine compliance with Planning Condition 3 of planning application ref. AWDM/0954/18.

The results show that all but one of the internal ambient noise levels measured in all the tested habitable rooms in both buildings comply with the requirements in Planning Condition 3. The instance where the target noise levels were exceeded were marginal and are likely to have been impacted by adverse weather conditions during the survey period.

8 REFERENCES

1 The Association of Noise Consultants (ANC). ANC Guidelines. Noise Measurement in Buildings. Part 1: Noise from Building Services. Produced August 1997, revised September 2011.

2 The Association of Noise Consultants (ANC). ANC Guidelines. Noise Measurement in Buildings. Part 2: Noise from External Sources. Produced August 1997, revised February 2013.

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APPENDIX A

SITE PLAN

Figure A.1: Level 2 GA – Showing measurement locations in Building 1 (UP1 AND UP2)

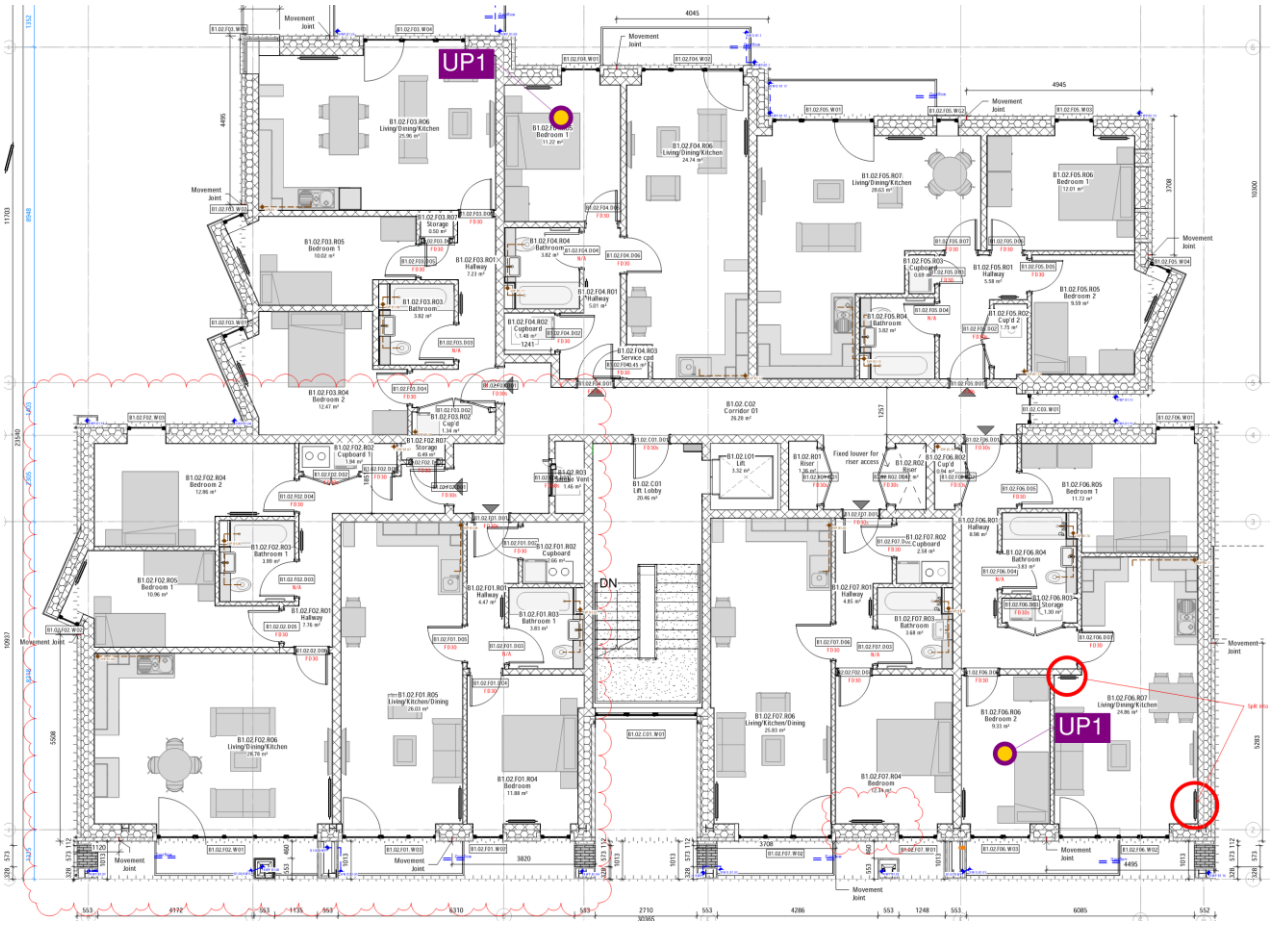
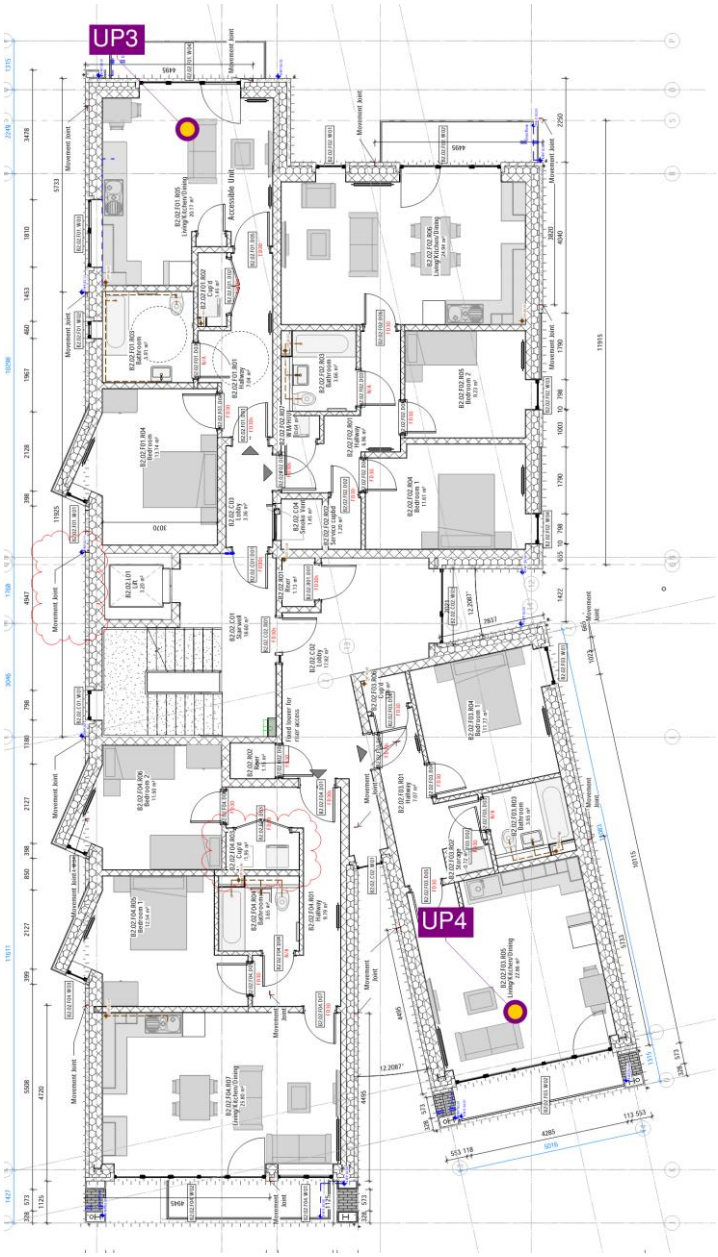


Figure A.2: Level 2 GA – Showing measurement location in Building 2 (UP3 and UP4)



APPENDIX B

REVERBERATION TIME RESULTS

Table B1: Reverberation times measured in all tested rooms (T, seconds)

Plot	Room	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
B1.02.F04	Bedroom	1.1	0.8	0.8	0.9	0.7	0.6
B1.02.F06	Bedroom	0.9	0.9	0.8	0.7	0.7	0.6
B2.02.F01	K/L	1.1	1.0	0.8	0.7	0.6	0.6
B2.02.F03	K/L	1.2	1.1	0.8	0.9	0.8	0.8

APPENDIX C

NOISE UNITS

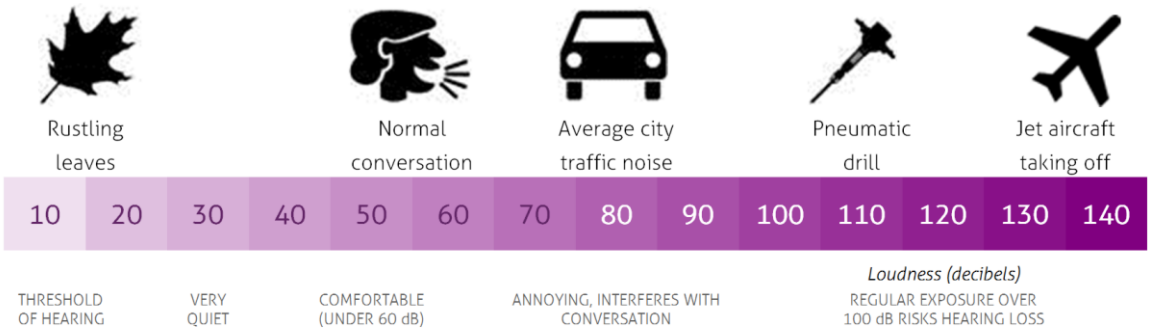
Noise Units

There is a ten million to one ratio between the threshold of hearing and the highest tolerable sound pressure. Noise is therefore measured using a logarithmic scale, to account for this wide range, called the decibel (dB). Noise is defined as unwanted sound and the range of audible sound varies from around 0 dB to 140 dB.

The human ear is capable of detecting sound over a range of frequencies from around 20 Hz to 20 kHz, however its response varies depending on the frequency and is most sensitive to sounds in the mid frequency range of 1 kHz to 5 kHz. Instrumentation used to measure noise is therefore weighted across the frequency bands to represent the sensitivity of the ear. This is called 'A weighting' and is represented as dB(A).

It is generally accepted that under normal conditions humans are capable of detecting changes in steady noise levels of 3 dB, whilst a change of 10 dB is perceived as a doubling or halving of the noise level. An indication of the range of noise levels commonly found in the environment is given below.

Figure C1: Typical noise levels



A number of different indices are used to describe the fluctuations in noise level over certain time periods. The main indices include:

$L_{A90,T}$ This is the noise level exceeded for 90% of the measurement period and provides a measurement of the quieter 'lull' periods in between noise events. It is often referred to as the background noise level.

$L_{Aeq,T}$ This is the "equivalent continuous A weighted sound pressure level" and is the level of a notional steady sound which has the same acoustic energy as the fluctuating sound over a specified time period. It is often used for measuring all sources of noise in the environment, which can be referred to as the ambient noise.

$L_{Amax,F}$ This is the maximum sound pressure level measured in a given time period with the sound level meter set to 'fast' response.

Reference is often made to acoustic measurements being undertaken in 'free-field' or 'façade' locations. Free-field measurements represent a location away from vertical reflecting surfaces, normally by at least 3.5 metres. A façade measurement is undertaken, or calculated to a position 1 metre from an external façade and a correction of up to 3 dB can be applied to account for the sound reflected from the façade. This latter position is often used when assessing the impact of external noise affecting residents inside properties.