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Evolved Acoustics

Noise Assessment

Land to the South of 212 Manor Hall Road, Southwick

Client

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1. Introduction

Evolved Acoustics Limited was commissioned in March 2025 to undertake a Noise Assessment for the proposed development at Land South of 212 Manor Hall Road, Southwick.

The assessment has been undertaken to inform a planning application for the erection of a new two-storey residential dwelling.

Environmental noise levels measured at the site have been used in conjunction with the proposed plans to estimate internal noise levels inside habitable rooms and an assessment of noise has been carried out using BS 8233:2014 [1] and ProPG: Planning & Noise 2017 [2].

[1] British Standards Institution (BSI). BS 8233:2014 Guidance on sound insulation and noise reduction for buildings. 2014.
[2] ANC, IOA, CIEH. Professional Practice Guidance on Planning & Noise. Main Document. May 2017.

2. Noise Policy and Criteria

2.1 National Planning & Noise Policy

Presented in Appendix A is an overview of national noise policy, planning guidelines and other relevant guidance on noise.

2.2 Planning Noise Advice Document: Sussex

The Planning Noise Advice Document: Sussex (PNADS) is a guidance document prepared on behalf of various Local Authorities in the Sussex area. The latest revision of the document was published in November 2023.

The document aims to provide advice for developers and their consultants to assist in making a planning application in East and West Sussex having regard to noise.

The PNADS advises that planning applications involving new noise-sensitive developments should be accompanied by a Noise Assessment using relevant standards such as BS 8233:2014 and BS 4142:2014+A1:2019.

2.3 BS 8233:2014

BS 8233:2014 Guidance on sound insulation and noise reduction for buildings sets out acoustic design advice and noise criteria for buildings including residential dwellings.

Set out in Table 4 of BS 8233 and reproduced below are the guideline internal noise criteria for residential dwellings.

TABLE 2.1: INDOOR AMBIENT NOISE LEVELS FOR DWELLINGS (TABLE 4 OF BS 8233)

Activity	Location	07:00 to 23:00	23:00 – 07:00
Resting	Living Room	35 dB LAeq,16hr	-
Dining	Dining Room/Area	40 dB LAeq,16hr	-
Sleeping	Bedroom	35 dB LAeq,16hr	30 dB LAeq,8hr

NOTE 1 Table 4 provides recommended levels for overall noise in the design of a building. These are the sum total of structure-borne and airborne noise sources. Groundborne noise is assessed separately and is not included as part of these targets, as human response to groundborne noise varies with many factors such as level, character, timing, occupant expectation and sensitivity.

NOTE 2 The levels shown in Table 4 are based on the existing guidelines issued by the WHO and assume normal diurnal fluctuations in external noise. In cases where local conditions do not follow a typical diurnal pattern, for example on a road serving a port with high levels of traffic at certain times of the night, an appropriate alternative period, e.g. 1 hour, may be used, but the level should be selected to ensure consistency with the levels recommended in Table 4.

NOTE 3 These levels are based on annual average data and do not have to be achieved in all circumstances. For example, it is normal to exclude occasional events, such as fireworks night or New Year's Eve.

NOTE 4 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.

NOTE 5 If relying on closed windows to meet the guide values, there needs to be an appropriate alternative ventilation that does not compromise the facade insulation or the resulting noise level.

If applicable, any room should have adequate ventilation (e.g. trickle ventilators should be open) during assessment.

NOTE 6 Attention is drawn to the Building Regulations [30, 31, 32].

NOTE 7 Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.

2.4 BS 4142:2014+A1:2019

BS 4142:2014+A1:2019 *Methods for rating and assessing industrial and commercial sound* describes how to assess industrial and commercial sound. The methods described in BS 4142 use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.

The basic mechanism of BS 4142 for determining an initial assessment of the impact of a specific sound source is to compare the "rating level" of the specific source against the background sound level. The background sound level is the typical sound level at the assessment location in the absence of the specific source being assessed, expressed using $L_{A90,T}$ descriptor which is the A-Weighted residual noise that is exceeded for 90% of a given time interval.

BS 4142 allows certain corrections to be applied to the rating level to account for sound characteristics which could attract attention such as tonality, intermittency and impulsivity. Feature corrections may be applied based on a subjective appraisal or, where appropriate, using objective methods prescribed in the standard.

Typically, the greater the excess of the rating level over the background sound level, the greater the magnitude of the impact. According to BS 4142:

- 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 context.

- the lower the rating level is relative to the measured background sound level, the less likely it is that the specific 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.

Once an initial assessment of the impact has been carried out using the method above, BS 4142 advises that the context of the sound should be considered and, if necessary, the assessment of impact modified accordingly.

3. Site & Proposed Development

3.1 Site Description

The site at Land South of 212 Manor Hall Road currently comprises the existing semi-detached residential dwelling, driveway, garden and separate garage.

The site is positioned south of Manor Hall Road and is adjacent to the Chalex Industrial Estate. The Fishersgate Railway Station is situated approximately 100m to the south of the site.

The location of the site is shown on Figure B1 in Appendix B.

3.2 Proposed Development

The proposed development comprises the subdivision of the existing site, demolition of the garage building and erection of a new two-storey, two-bedroom residential dwelling.

Proposed plans and elevations for the new dwelling are shown on Figure B2 in Appendix B. The plans show an open plan Kitchen / Dining area and Living Room on the ground floor and two bedrooms on the first-floor. The proposed layout also includes an external amenity area to the rear.

4. Environmental Noise Survey

A survey consisting of both attended and unattended noise monitoring was undertaken at the site in March 2025.

4.1 Continuous Unattended Noise Survey

An unattended noise survey was undertaken over an 8-day period. The main details of the survey are summarised in Table 4.1 below.

TABLE 4.1: SUMMARY OF NOISE SURVEY DETAILS

Position	Start Date & Time	End Date & Time	Description of Measurement Position
U-P1	Thurs 13/03/25 12:00 hrs	Thurs 20/03/25 16:45 hrs	Microphone mounted at 2m from ground within rear garden area of 212 Manor Hall Road. Represents position of proposed dwelling.

The fixed monitoring position U-P1 is marked on Figure B3 of Appendix B.

Although BS 8233:2014 effectively advises that free-field sound measurements should be made at 1.2 – 1.5m above ground level, in this case it was necessary to raise the microphone ~2.0m above ground level to provide an unobstructed line of sight to the potential noise sources on the industrial estate.

The equipment was configured to measure ambient ($L_{Aeq,5min}$), maximum ($L_{Amax,F}$) and background ($L_{A90,15min}$) noise levels as well as $L_{eq,T}$ and L_{max} noise levels in 1/3 octave bands.

The equipment was also configured to make sample audio recordings each time noise levels exceeded a pre-determined threshold to assist in identifying the sources of noise dictating the highest ambient levels.

4.2 Attended Noise Measurements

The unattended noise survey was supplemented by attended noise measurements on 13th, 14th and 20th March to gain observations on the sources of noise at different times of the day. This included noise readings at the start and end of the working day in respect of most of the businesses operating from the Industrial Estate.

The positions of the attended noise monitoring are labelled A-P1 and A-P2 on Figure B3 of Appendix B. A-P1 represented the rear façade and garden of the proposed dwelling whilst A-P2 represented the front façade of the dwelling.

4.3 Equipment

All noise measurements were undertaken using Svantek Type 971A and Rion NL-32 sound level meters, rated Class 1. A summary of the main details of the noise monitoring equipment is provided in Table 4.2.

TABLE 4.2: DETAILS OF NOISE MEASUREMENT EQUIPMENT

Type	Make	Model	Serial No.	Date of Last Laboratory Calibration
Class 1 Integrating Sound Level Meter	Svantek	SV971A	121165	18/12/2024
Class 1 Integrating Sound Level Meter	Rion	NL-32	00513572	05/12/2023

Copies of the calibration certificates for the noise monitoring equipment can be provided upon request.

4.4 Field Calibration

Calibration checks were performed on all noise monitoring equipment at the beginning and end of the surveys using a Castle dBCal GA611 acoustic calibrator. The calibration checks indicated that no significant drift occurred throughout the measurements.

4.5 Weather Conditions

Weather conditions during the attended surveys on 13/03, 14/03 and 20/03 were satisfactory for outdoor sound monitoring, with no precipitation, and temperatures ranging between 6 °C and 17 °C. Wind speeds were measured at below 2 $m{\cdot}s^{-1}$ using a handheld anemometer.

A record of the weather conditions for the unattended survey period has been obtained from a nearby meteorological monitoring position. The weather record is shown in Appendix D. Weather conditions during the unattended survey were satisfactory for outdoor noise monitoring, with no precipitation, average wind speeds remaining well below 5 $m.s^{-1}$ and average daily temperatures ranging between 4 °C and 13 °C.

5. Noise Surveys Results

5.1 Unattended Noise Survey Results

The results of the noise survey undertaken at position U-P1 are summarised in Table 5.1 with a time history graph provided in Appendix C.

The average ambient ($L_{Aeq,T}$) and background ($L_{A90,T}$) levels are shown for each day and night-time period, with the average levels across the full survey period shown on the bottom row of the table. The tables also include the maximum ($L_{Amax,F}$) levels for each night-time period. In accordance with Pro PG: Planning & Noise (2017) the assessment of sleep disturbance in bedrooms at night is based on the design aim of limiting exceedances of 45 dBA in bedrooms to no more than 10 instances per night. To enable this assessment, the 11th highest maximum level has been identified from each night and is included in the table as the 'design case' maximum level.

TABLE 5.1: NOISE LEVELS AT POSITION U-P1

Date	Measured Noise Levels, dB [A]						
	DAYTIME (07:00 – 23:00 hrs)		NIGHT-TIME (23:00 – 07:00 hrs)				
					Night Maxima ($L_{Amax,F}$)		
	$L_{Aeq,5min}$	$L_{A90,5min}$	$L_{Aeq,5min}$	$L_{A90,5min}$	Range	Average	Typical Maximum (Design Case)
Thu 13/03	49	40	39	31	62 - 36	47	59
Fri 14/03	48	41	39	33	66 - 37	47	56
Sat 15/03	46	41	48	33	93 - 38	49	58
Sun 16/03	46	39	40	31	67 - 33	46	57
Mon 17/03	49	42	41	37	68 - 43	52	60
Tue 18/03	49	42	40	34	70 - 38	49	60
Wed 19/03	48	40	41	33	73 - 37	48	59
Thu 20/03	50	42	-	-	-	-	-
Average [B] [Highest]	**48**	**41**	**43**	**33**	**71 - 37**	**48**	**[60]**

Notes:
[A] free-field sound levels, dB re $2x10^{-5}$ Pa.
[B] average LAeq,T levels calculated logarithmically. Average LA90,T and LAmax,F levels calculated arithmetically.

The average ambient noise level across the daytime periods of the survey (07:00 – 23:00 hrs) was 48 dB $L_{Aeq,16hr}$ whilst the average night-time level (23:00 – 07:00 hrs) was 43 dB $L_{Aeq,8hr}$. The criterion for maximum noise levels ($L_{Amax,F}$) during the night is based on limiting exceedances of 45 dBA inside bedroom to no more than ten. The eleventh highest individual noise event has been identified from the survey data accordingly. Based on the worse-case night(s) from across the survey duration, this level was 60 dB.

Analysis of the audio recordings confirmed that the highest noise levels ($L_{Aeq,T}$) during the day were dictated by road traffic sources, such as cars with louder exhausts or motorcycles. The sound source associated with the industrial estate producing the highest ($L_{Amax,F}$) levels was the catering van which plays music upon entering the industrial estate around 10:40am each weekday, lasting around 10s.

Levels were lower during the night (23:00 – 07:00 hrs), with $L_{Amax,F}$ levels generally falling below 60 dBA. The highest maximum level during the night-time was attributable to foxes based on the audio recordings captured by the unattended monitoring equipment.

5.2 Attended Sound Survey Results

The results of the attended noise surveys undertaken in March 2025 are summarised in Table 5.2 below.

TABLE 5.2: ATTENDED ENVIRONMENTAL NOISE SURVEY RESULTS

Date	Position	Start Time	Duration *T* (mins)	Measured Sound Levels, dB [1)]		Notes / Observations
				$L_{Aeq,T}$	L_{AFmax}	
Thurs 13/03	A-P1	10:30	15	55	80	*Cars entering and leaving industrial estate. Food truck playing music (70 dBA). Passing train (45 dBA) Brief revving of car engine Luton Van entering (51 dBA) HGV pulling away Loud seagulls (60 dBA) Propellor plane (48 dBA)*
		10:45	15	46	72	
		11:00	15	49	74	
		11:15	15	45	61	
		11:30	15	44	59	
		11:45	15	48	70	
Fri 14/03	A-P2	08:00	15	50	68	*Highest levels attributable to cars entering industrial estate (60 – 70 dB L_{Amax}) Traffic on Manor Hall Road generally around 45 – 55 dBA. Loud motorbike 60 dBA. Pedestrians talking loudly Car alarm (55 dBA) Luton Van (70 dBA)*
		08:15	15	52	71	
		08:30	15	53	73	
		08:45	15	56	81	
Thurs 20/03	A-P1	15:45	15	48	72	*Cars entering / leaving industrial estate HGV reversing (55 dBA) Wheel gun (47 dBA) intermittently. Trains (45 – 48 dBA) Car engine start Distant birdsong*
		16:00	15	46	66	
		16:15	15	43	56	
	A-P2	16:30	15	54	80	*Pedestrians walking along alleyway Motorbike (58 dBA) Van accelerating away (70 dBA)*
		16:45	15	48	72	

Notes:
1) free-field sound levels dB re $2x10^{-5}$ Pa

The observations made during the attended surveys indicated that the ambient ($L_{Aeq,T}$) and maximum ($L_{Amax,F}$) noise levels at the site were governed by vehicles entering and leaving the industrial estate, most commonly cars and vans and occasionally HGVs. The vehicles were accessing a number of different premises within the estate rather than being weighted toward any one business.

The levels of passing vehicles were higher at A-P2 representing the front façade of the proposed dwelling, located closer to the access road. More distant road traffic along Manor Hall Road was also subjectively audible, including occasional motorbikes or modified cars.

The aforementioned catering truck playing a short burst of music upon arrival was noted as being the sound source producing the highest sound levels associated with the industrial estate itself.

Sound breakout from the industrial units was observed to be a minimal contributor to the overall levels ($L_{Aeq,T}$ / $L_{Amax,F}$) during all the site visits, despite many units having their doors open. Occasionally a wheel gun or engine revving was audible, although these sources were subjectively much lower in level than passing cars and were masked heavily by the residual noise.

Other environmental sound sources included light aircraft overhead, birdsong and seagulls, distant trains and pedestrian conversation.

Electricity Substation

The electricity substation opposite the site was subjectively inaudible when observed in proximity during all site visits.

5.3 Environmental Noise Assessment Levels

The measured noise levels at A-P2 have been compared with the levels obtained at the fixed position U-P1 for the corresponding time periods. The analysis showed that daytime noise levels ($L_{Aeq,15min}$) are on average 6 dB higher at A-P2 representing the front façade of the proposed dwelling, due to the proximity of vehicles passing by the site along the access road. This is a worse-case level difference which has been established based on traffic levels during the busier periods aligning with the start and end of the day.

It is not expected that this level difference would occur during the night-time (23:00 – 07:00 hrs) as most vehicle traffic along the access road is confined to the daytime hours.

The results of the noise survey at U-P1 have been used to determine the average daytime and night-time environmental noise assessment levels affecting the front and rear of the proposed dwelling, with a + 6 dB correction applied to the daytime noise levels for rooms at the front of the building.

A summary of the free-field environmental noise levels affecting the dwelling is shown In Table 5.3.

TABLE 5.3: SUMMARY OF ENVIRONMENTAL NOISE ASSESSMENT LEVELS

Room	Time Period	Noise Parameter	Correction to U-P1 Level (dB)	External Level (free-field) (dB)
Living Room	Daytime	$L_{Aeq,16hr}$	+ 6	54
Kitchen Dining Room	Daytime	$L_{Aeq,16hr}$	0	48
Bedroom 1 (Front)	Daytime	$L_{Aeq,16hr}$	+ 6	54
	Night	$L_{Aeq,8hr}$	0	43
	Night	$L_{Amax,F}$	0	60
Bedroom 2 (Rear)	Daytime	$L_{Aeq,16hr}$	0	48
	Night	$L_{Aeq,8hr}$	0	43
	Night	$L_{Amax,F}$	0	60

6. Environmental Noise Assessment

6.1 Assessment Criteria

The observations made during the attended surveys across different times of the day and the results of the unattended sound monitoring both indicated that the main source of sound associated with the industrial estate is vehicles entering and leaving via the access road. Whilst small items of equipment such as a wheel gun are occasionally subjectively audible, they are heavily masked by the residual noise.

The survey has therefore demonstrated that the noise climate at the site is governed by anonymous noise sources, rather than any specific industrial or commercial sound source attributable to individual businesses. As a result, there is no basis on which to carry out any BS 4142:2014+A1:2019 type assessment and the appropriate assessment criteria are the internal and external noise targets of BS 8233:2014 and ProPG: Planning & Noise (2017).

6.2 ProPG: Initial Noise Risk Assessment

The daytime ambient noise levels affecting the front and rear of the dwelling are 54 dB and 48 dB ($L_{Aeq,16hr}$) respectively whilst the night-time levels are 43 dB $L_{Aeq,8hr}$. Individual noise events are expected to not normally exceed 60 dB $L_{Amax,F}$ in bedrooms at night based on the survey data.

These levels are classed as a ‘Low Risk’ using the initial noise risk assessment tool of ProPG: Planning & Noise (2017). For low-risk sites the guidance states:

“At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development.”

6.3 BS 8233 Noise Assessment

The simple calculation method in Annex G of BS 8233:2014 has been used to estimate internal noise levels within a sample of habitable rooms, based on the measured environmental noise levels.

The windows, and any trickle ventilators, are normally the weakest part of a façade acoustically. BS 8233 indicates that the sound reduction of a brick and block façade with a closed window is around 33 dB. If partially open windows are relied upon for background ventilation, the sound insulation is reduced to approximately 15 dB.

An assessment of internal noise levels in habitable rooms is presented in Table 6.1, which considers both windows-open and windows-closed scenarios.

TABLE 6.1: BS 8233 INTERNAL NOISE LEVEL ASSESSMENT

Room	Time Period	Noise Parameter	External Level (free-field) (dB)	Target Internal Level (dB)	Internal Noise Level (dB)		Target Noise Criterion Achieved?	
					Windows Open [A]	Windows Closed [B]	Windows Open	Windows Closed
Living Room	Daytime	$L_{Aeq,16hr}$	54	35	39	21	No	Yes
Kitchen / Dining Room	Daytime	$L_{Aeq,16hr}$	48	40	33	15	Yes	Yes
Bedroom 1 (Front)	Daytime	$L_{Aeq,16hr}$	54	35	39	21	No	Yes
	Night	$L_{Aeq,8hr}$	43	30	28	10	Yes	Yes
	Night	$L_{Amax,F}$	60	45 [C]	45	27	Yes	Yes
Bedroom 2 (Rear)	Daytime	$L_{Aeq,16hr}$	48	35	33	15	Yes	Yes
	Night	$L_{Aeq,8hr}$	43	30	28	10	Yes	Yes
	Night	$L_{Amax,F}$	60	45 [C]	45	27	Yes	Yes

Notes:
[A] based on an assumed sound reduction of 15 dB for a façade with an open window.
[B] based on an assumed sound reduction of 33 dB for a façade with closed windows.
[C] 45 dB L_{AFmax} not to be normally exceeded more than 10 times per night.

6.4 BS 8233 Assessment Outcomes

Living & Dining Areas

The assessment presented in Table 6.1 demonstrates that the Living Room would achieve the desirable internal noise criteria of BS 8233 with windows closed, with daytime noise levels reduced to ≤35 dB $L_{Aeq,16hr.}$ This criterion would not be met with the front windows open for long periods, although the exceedance of the criterion is relatively small (within + 5 dB).

The dining area is predicted to achieve the BS 8233 desirable noise criterion with windows open or closed.

It should also be noted that the layout of the ground-floor is semi open-plan and so it is expected that ventilation could be achieved within the Living Room without the need to open the windows at the front of the dwelling.

Bedrooms

The bedrooms are expected to achieve the desirable internal noise criteria of BS 8233 with daytime noise levels reduced to ≤35 dB $L_{Aeq,16hr}$ and night-time levels reduced to below ≤30 dB $L_{Aeq,8hr}$. These criteria would be achieved with windows open or closed except for the daytime noise criterion in Bedroom 1 (front) where a relatively small exceedance of the 35 dBA criterion is predicted with windows open for ventilation.

With windows open or closed, maximum noise levels of individual noise events will normally be limited to no more than 10 exceedances of 45 dB L_{AFmax} inside bedrooms at night in accordance with ProPG: Planning & Noise (2017).

7. Acoustic Design Statement (ADS)

7.1 Façade Sound Insulation

The assessment presented in Section 6 has demonstrated that it is only the windows at the front of the dwelling that are likely to be relied upon for noise control purposes and the degree of sound insulation required is likely to be minimal.

Standard double-glazed units (e.g. 4/16/4mm) providing a minimum sound reduction of **24 dB Rw+Ctr** are likely to be more than sufficient for noise control purposes throughout all habitable rooms of the dwelling.

Where any background ventilators are utilised, these should have a minimum sound reduction of **30 dB $D_{ne,w}$** in their open position. This requirement can likely be achieved using standard (non-acoustic) trickle ventilators.

7.2 Ventilation and Overheating

The assessment has demonstrated that in most instances the dwelling will achieve the relevant BS 8233 and ProPG: Planning & Noise criteria with windows open.

It is therefore expected that sufficient ventilation rates should be achievable throughout the dwelling using natural ventilation without causing internal noise levels to exceed the target criteria.

7.3 Noise Levels in External Amenity Spaces

BS 8233:2014 recommends a guideline desirable limit of 50 dB $L_{Aeq,T}$ in traditional external areas used for amenity space, such as gardens, with a guideline upper limit of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments.

Based on the noise survey results, daytime noise levels in the external amenity area will be 48 dB $L_{Aeq,16hr,}$ therefore falling within the ‘desirable’ guideline limit of BS 8233. The results also show a drop-off in noise levels after 18:00 hrs weekdays and also slightly lower levels on weekends when use of the garden area may be expected to be greater. The 48 dBA average figure is therefore likely to represent a relatively worse-case scenario.

Based on the above considerations, no specific mitigation of noise in the external areas is required.

8. Summary and Conclusions

A Noise Assessment has been undertaken for the proposed new dwelling at 212 Manor Hall Road, Southwick.

A noise survey consisting of attended and unattended noise monitoring has been carried out to establish the prevailing ambient ($L_{Aeq,T}$) and maximum ($L_{Amax,F}$) noise levels affecting the site. The attended surveys were carried out at different times of the day and the unattended portion of the noise survey was supported by audio event recordings to assist in identifying the sources of noise in the vicinity of the site.

The surveys indicated that the primary source of noise affecting the site is vehicles, primarily cars, entering and leaving the industrial estate. Any sound of an industrial or commercial nature was insignificant in comparison to the residual noise of road traffic. Furthermore, the electricity substation adjacent to the site was observed to be inaudible during all site visits.

Accordingly, the appropriate criteria to assess noise levels at the site are those contained within BS 8233:2014 and ProPG: Planning & Noise (2017).

The daytime and night-time noise levels fall within the 'Low Risk' category of ProPG based on an initial site noise risk assessment.

Internal noise levels in habitable rooms have been calculated based on external levels using methods outlined in BS 8233. The assessment confirms that noise levels within these rooms will meet the desirable internal ambient noise criteria of BS 8233. In most cases, this criterion is achieved with windows open, except for the daytime noise target in rooms at the front of the dwelling. However, this is considered an acceptable compromise, as the predicted exceedance is small (< 5 dB) and the rear façade is less exposed to noise, allowing rear-facing windows to be used for natural ventilation.

In accordance with ProPG: Planning & Noise 2017, individual noise events exceeding 45 dB $L_{Amax,F}$ inside bedrooms will be limited to no more than 10 instances per night with windows open.

Finally, levels in the external amenity area fall within the guideline desirable limit of BS 8233:2014.

Basic recommendations for the sound insulation of the dwelling are provided in Section 7.

In conclusion, the proposed development aligns with the objectives of the National Planning Policy Framework (NPPF) [3] regarding noise by minimising adverse impacts from road traffic and industrial or commercial noise sources.

[3] UK Government. National Planning Policy Framework. 2021.

Appendix A – Summary of National Noise Policy & Planning Guidelines

Presented in below is a brief overview of national noise policy, planning guidelines and other relevant guidance on noise. The full texts are accessible online.

National Planning Policy Framework (NPPF)

The National Planning Policy Framework sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally-prepared plans for housing and other development can be produced. The guidance advises on how planning can manage potential noise impacts in new development.

In paragraph 170 the guidance states:

"Planning policies and decisions should contribute to and enhance the natural and 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…"

Within paragraph 180 the guidance goes on to state that new development should be appropriate for its location, having regard to pollution on health, living conditions and the natural environment as well as the sensitivity of the site or wider area. In doing so, the guidance sets out the following aims in relation to noise:

"Mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;

identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason…"

Noise Policy Statement for England (NPSE)

The Noise Policy Statement for England (NPSE) provides context for the NPPF and sets out the long-term vision of Government noise policy, which is to: *"Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development."* This long-term vision is supported by the following aims:

- *"Avoid significant adverse impacts on health and quality of life;*
- *Mitigate and minimise adverse impacts on health and quality of life; and*
- *Where possible, contribute to the improvement of health and quality of life."*

The NPSE adopts the concept of Effect Levels to express whether noise is likely to have impact on health and quality of life:

NOEL – No Observed Effect Level	This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to noise.
LOAEL – Lowest Observed Adverse Effect Level	This is the level above which adverse effects on health and quality of life can be detected.
SOAEL – Significant Observed Adverse Effect Level	This is the level above which significant adverse effects on health and quality of life occur.

The NPSE acknowledges that it is not possible to have a single objective noise-based measure that defines SOAEL, as this is likely to be different depending on the noise sources, receptor sensitivities or other factors.

Planning Practice Guidance (PPG)

Planning Practice Guidance (PPG) on noise is a form of web-based guidance and was last updated in July 2019. The guidance advises local planning authorities to take into account the acoustic environment during the planning process:

"Plan-making and decision making need to 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."*

The PPG recognises that the subjective nature of noise means that there is not a simple relationship between noise levels and its impact on those affected. The guidance provides various examples of contextual factors influencing the likelihood of noise having an adverse impact.

The PPG also includes a noise exposure hierarchy table which provides examples of outcomes corresponding to increasing effect levels of noise along with recommended actions.

With reference to outdoor sound the PPG guidance states:

"*Where external amenity spaces are an intrinsic part of the overall design, the acoustic environment of those spaces should be considered so that they can be enjoyed as intended*."

Appendix B – Figures

Figure B1: Site Location

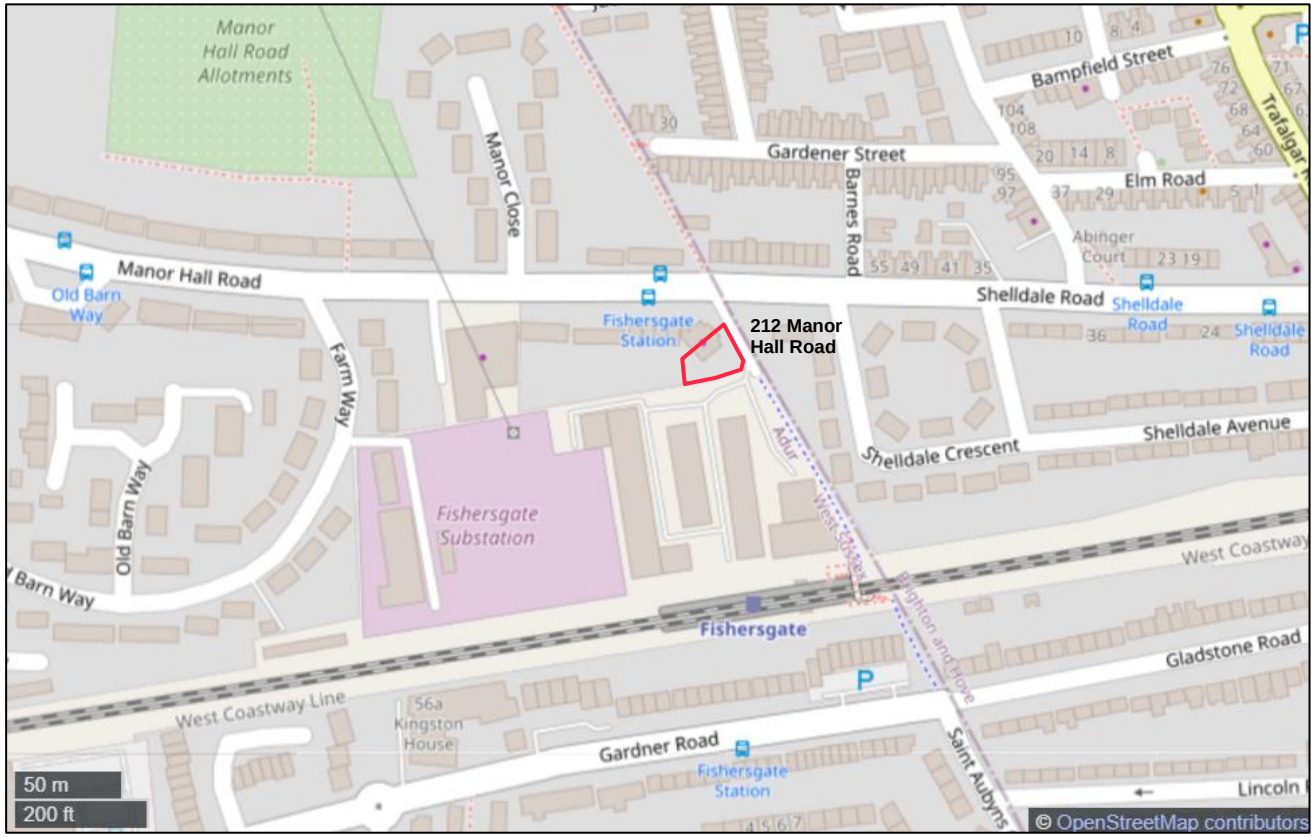


Figure B2: Proposed Plans and Elevations

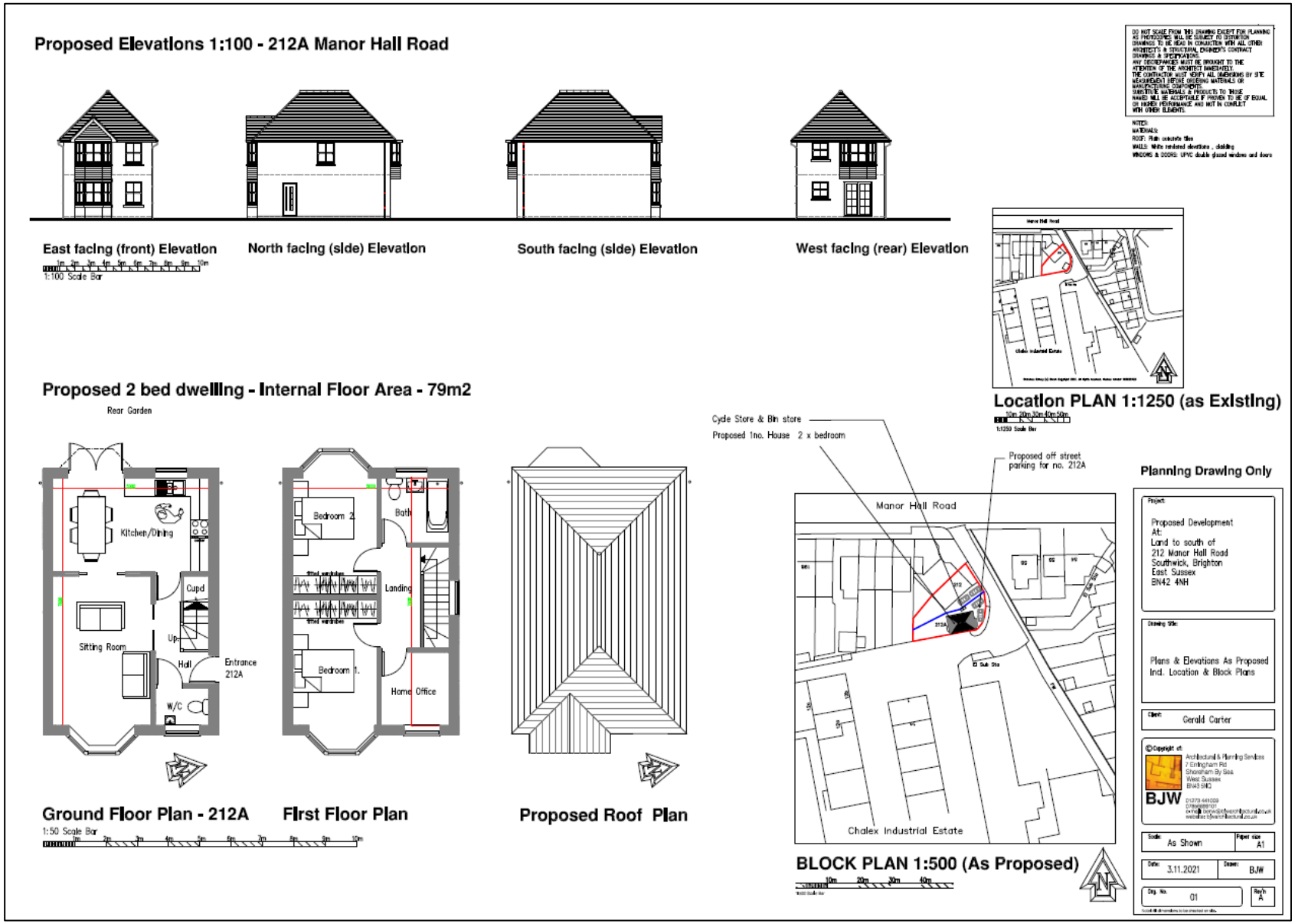


Figure B3: Site Aerial View and Monitoring Positions

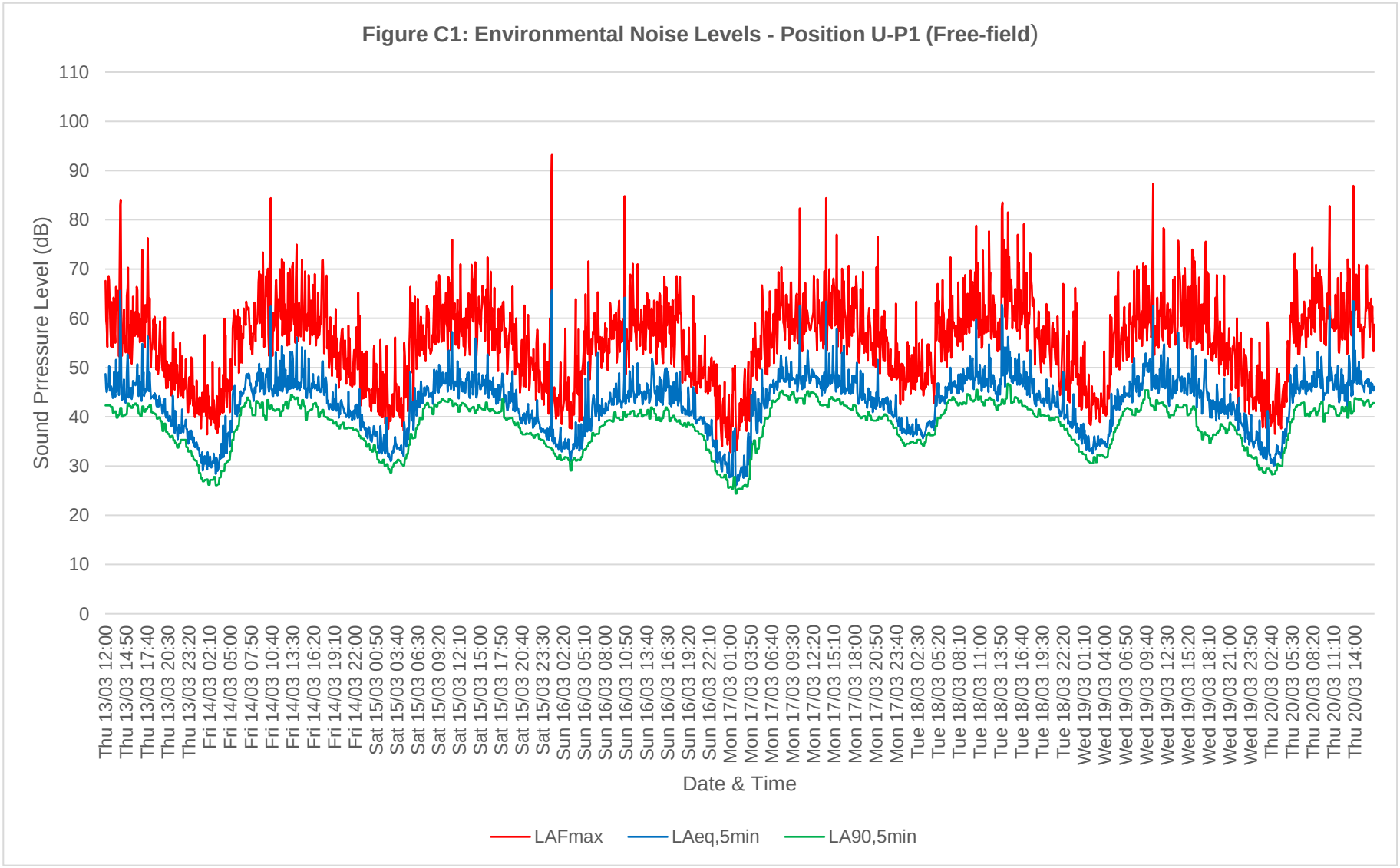


Key

Attended Noise Monitoring Position

Fixed Unattended Noise Monitoring Position

Appendix C – Noise Survey Time History Graph



Appendix D – Weather Record

Day	Date	Temperature, (°C) Avg (Range)	Wind Speed (ms^{-1}) Avg (Range)	Rel. Humidity	Precipitation Total
Thurs	13-Mar-25	4.7 (13.1 / 1.2)	0.4 (2.1 / 0)	81 %	0.00 mm
Fri	14-Mar-25	4.0 (13.2 / -2.8)	0.2 (2.1 / 0)	77 %	0.00 mm
Sat	15-Mar-25	4.6 (11.4 / 0.7)	0.7 (3 / 0)	68 %	0.00 mm
Sun	16-Mar-25	6.1 (14.1 / 0.3)	0.6 (2.4 / 0)	67 %	0.00 mm
Mon	17-Mar-25	6.2 (8.6 / 4.3)	0.6 (2 / 0)	79 %	0.00 mm
Tues	18-Mar-25	7.4 (15.3 / 2.1)	0.5 (1.9 / 0)	64 %	0.00 mm
Weds	19-Mar-25	8.8 (18.1 / 1.7)	0.2 (1.7 / 0)	74 %	0.00 mm
Thurs	20-Mar-25	13.3 (21.0 / 6.1)	0.3 (1.6 / 0)	68 %	0.00 mm