Court House Farm, Residential Scheme

Residential Noise Assessment

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CONTENTS **PAGE**

1	Introduction	1
2	Site Location	2
3	Assessment Methodology	3
4	Environmental Noise Measurements	7
5	Noise Assessment	9
6	Mitigation	12
7	Conclusions	13
APPENDIX A – Introduction to noise		14
APPENDIX B – Figures		16

1 INTRODUCTION

1.1 Entran Ltd has been commissioned to undertake a noise assessment for a proposed residential development at Court House Farm in Copthorne, Mid Sussex.

1.2 The assessment has been undertaken to consider the noise levels at the proposed residential development and considers the existing ambient noise and the suitability of the site for residential use. This assessment pertains to residential impacts at proposed dwellings and impacts during construction are not considered.

1.3 The potential noise impacts are assessed in accordance with the most relevant national and local standards and guidelines.

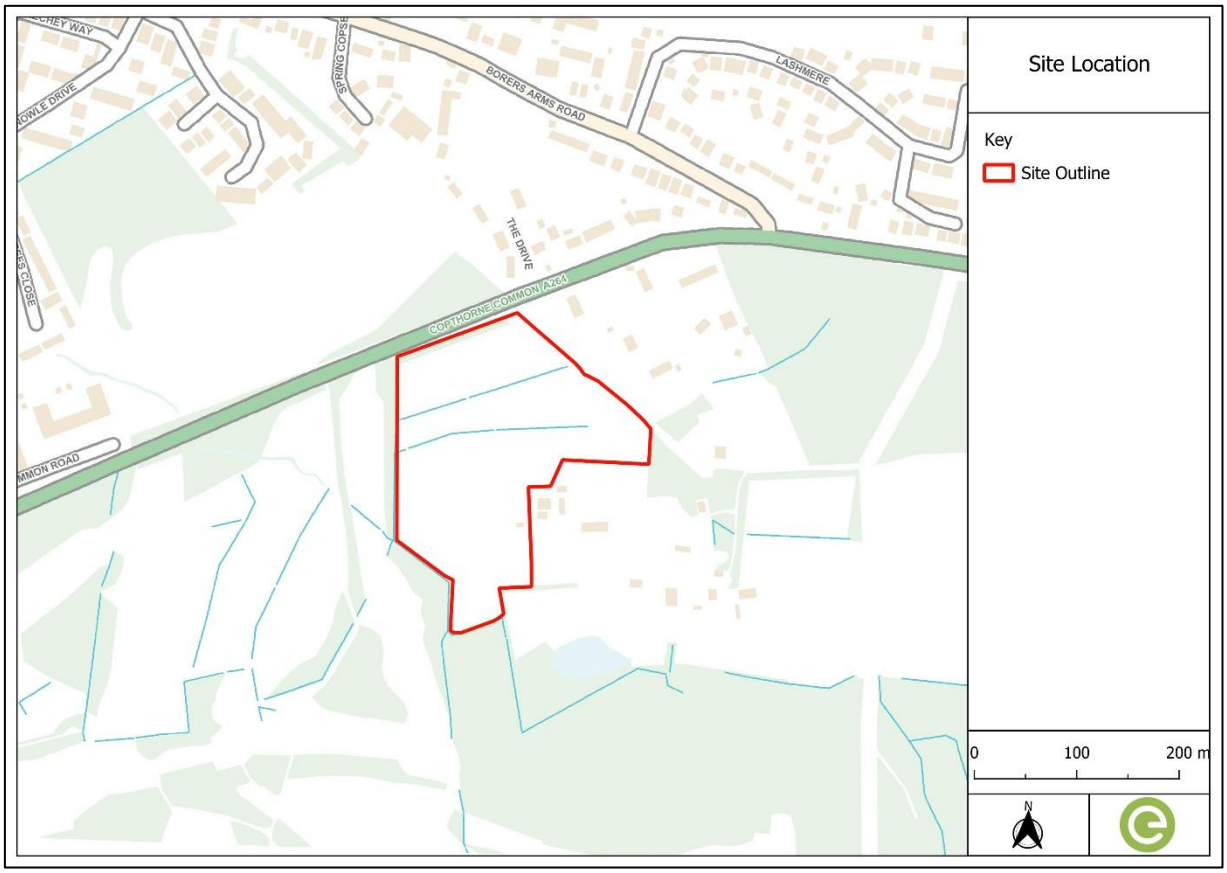
1.4 The noise levels are assessed using criteria provided within BS 8233:2014 and the WHO Guidelines. This report is necessarily technical in nature and contains terminology relating to acoustics and noise. Therefore, a glossary together with a brief introduction to the subject of noise has been provided in Appendix A.

2 SITE LOCATION

2.1 The site is situated south of the A264 Copthorne Common, which runs across the north of the site. The existing noise climate within the vicinity of the Proposed Development is dominated by road traffic on the A264.

2.2 The Proposed Development location and boundary are indicated in Figure 1.

Figure 1 – Site Location



3 ASSESSMENT METHODOLOGY

National Planning Policy Framework (NPPF) (Dec 2024)

3.1 The National Planning Policy Framework (NPPF) sets out the Government's economic, environmental and social planning policies for England. It attempts to summarise in a single document all previous national planning policy advice. Taken together, these policies articulate the Government's vision of sustainable development, which should be interpreted and applied locally to meet local aspirations.

3.2 Under Section 15; Conserving and enhancing the natural environment, the following is stated in paragraph 187:

"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…"

3.3 The NPPF goes on to state in paragraph 198 that:

"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

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 (March 2010)

3.4 The Government is committed to sustainable development and the Department for Environment Food and Rural Affairs (Defra) plays an important role in this by working to secure a healthy environment in which current and future generations can prosper. One

aspect of meeting these objectives is the need to manage noise for which Defra has the overall responsibility in England.

3.5 In March 2010, the Noise Policy Statement for England (NPSE) set out the long-term vision of Government noise policy as 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.'

3.6 The long-term vision is supported by the following aims:

'Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- *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.'*

3.7 The explanatory note to the policy statement emphasises that sustainable development is a core principle underpinning all government policy. In this respect, there is a need to integrate consideration of the economic and social benefit of the activity under examination with proper consideration of the adverse environmental effects.

3.8 To achieve these objectives the NPSE sets out three noise conditions to be determined by the assessor:

NOEL - No Observed Effect Level

3.9 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 the noise.

LOAEL - Lowest Observed Adverse Effect Level

3.10 This is the level above which adverse effects on health and quality of life can be detected.

SOAEL - Significant Observed Adverse Effect Level

3.11 This is the level above which significant adverse effects on health and quality of life occur.

3.12 The NPSE considers that noise levels above the SOAEL would be seen to have, by definition, significant adverse effects and would be considered unacceptable.

3.13 Where the assessed noise levels fall between the LOAEL and the SOAEL noise levels, the NPSE requires that:

'All reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development…. This does not mean that such adverse effects cannot occur.'

3.14 No objective values are offered within the NPSE, as the document does indicate that each site should be considered on its own merits. Consequently, consideration of the observed effects is made through an assessment methodology as detailed below.

British Standard BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings (2014)

3.15 The scope of BS 8233 is the provision of recommendations for the control of noise in and around buildings. It suggests appropriate criteria and limits for different situations, which are primarily intended to guide the design of new or refurbished buildings undergoing a change of use rather than to assess the effect of changes in the external noise climate.

3.16 This Standard suggests suitable internal noise levels within different types of buildings, including residential dwellings. It suggests that an internal noise level of 30 dB $L_{Aeq, T}$ within bedrooms is a 'desirable' standard. For living areas during the daytime, the standard recommends 35 dB $L_{Aeq, T}$ as a desirable standard for resting.

3.17 Whilst BS 8233 recognises that a guideline value may be set in terms of SEL or L_{AFmax} for the assessment of regular individual noise events that can cause sleep disturbance during the night-time, a specific criterion is not stipulated. Accordingly, reference has been made in this assessment to the World Health Organisation (WHO) 1999: *Guidelines for Community Noise*.

3.18 The Standard also states that "*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*."

The Institute of Environmental Management & Assessment (IEMA) Guidelines for Environmental Noise Impact Assessment (2014)

3.19 The Institute of Environmental Management and Assessment (IEMA) published the '*Guidelines for Environmental Noise Impact Assessment*'. The guidelines are applicable to noise impact assessment for any scale of development proposal, including core principles to achieve effectively integration with the EIA, and provide advice on the issues that need to be

considered in a noise impact assessment and whether the appropriate conclusions are being reached. The factors include:

- The appropriateness of the noise parameters used for the situation;
- The reference time period used in making the assessment;
- The level, character and frequency content of the noise sources under investigation; and,
- How the predicted noise levels relate to relevant Standards and guidelines.

3.20 The guidelines also recommend that the assessor should determine the degree of impact based on evidence derived from the assessment.

The Professional Practice Guidance on Planning and Noise (2017)

3.21 The '*Professional Practice Guidance on Planning and Noise'* (ProPG) was produced by a Working Group consisting of representatives of the Association of Noise Consultants (ANC), Institute of Acoustics (IOA) and Chartered Institute of Environmental Health (CIEH) to provide acoustical practitioners with guidance on the management of noise within the planning system in England.

3.22 The reparation of the ProPG acknowledges and reflects the Government's overarching NPSE, the NPPF and Planning Practice Guidance (including PPG-Noise), as well as other authoritative sources of guidance. It provides advice for Local Planning Authorities (LPAs) and developers, and their respective professional advisers which complements Government planning and noise policy and guidance and, in particular, aims to:

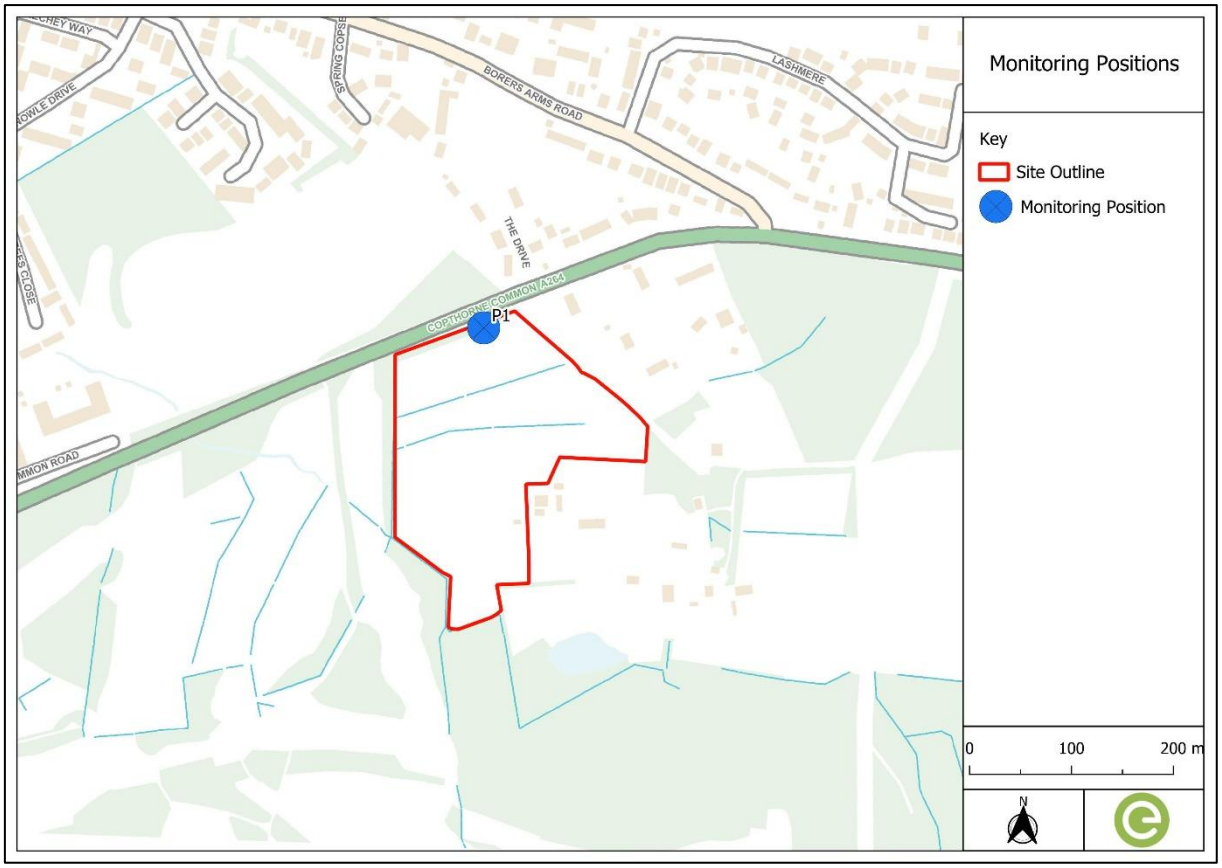
- advocate full consideration of the acoustic environment from the earliest possible stage of the development control process;
- encourage the process of good acoustic design in and around new residential developments;
- outline what should be taken into account in deciding planning applications for new noise-sensitive developments;
- promote appropriate noise exposure standards; and,
- assist the delivery of sustainable development.

4 ENVIRONMENTAL NOISE MEASUREMENTS

4.1 Noise conditions in the vicinity of the Proposed Development have been determined by an environmental noise survey conducted between 2nd and 6th October 2025.

4.2 The monitoring position is indicated in Figure 2. The monitor was situated to the north of the site, overlooking Copthorne Common Road. The monitor was positioned at a height of approximately 2 m above local ground level.

Figure 2 – Monitoring Locations



4.3 A summary of the unattended survey is provided in Table 1 and graphical representation of the unattended results is presented in Figure B1 of Appendix B.

Table 1: Summary of Noise Survey

Position	Measured Free-Field Sound Pressure Level, dB re. $2x10^{-5}$ Pa.					
	Day Time (07:00 - 23:00)			Night-time (23:00 - 07:00)		
	$L_{Amax,F}$	$L_{Aeq,T}$	$L_{A90,T}$	$L_{Amax,F}$	$L_{Aeq,T}$	$L_{A90,T}$
02/10/2025	93.4	65.7	56.7	78.7	62.0	44.4
03/10/2025	90.6	67.7	61.9	76.4	61.8	51.6
04/10/2025	92.0	66.4	58.8	81.0	57.3	46.4
05/10/2025	97.0	66.3	56.2	85.1	62.0	44.4
06/10/2025	85.8	66.7	60.6	-	-	-

Maximum levels represent the highest $L_{Amax,F}$ sound level during the given period.
The period $L_{Aeq,T}$ is obtained from the logarithmic average of measured sound levels.
The period $L_{A90,T}$ is obtained from the average of the measured sound levels.

4.4 The unattended noise monitoring was undertaken to inform a computer noise model and to inform identification of façade mitigation requirements in accordance with BS 8233; to determine the level of glazing/ventilation required to achieve the required criteria.

4.5 All noise measurements were undertaken by competent individuals with experience in environmental noise monitoring. Measurements were obtained in accordance with the principles of BS 7445: 2003: '*Description and measurement of environmental noise*'.

4.6 All acoustic measurement equipment used during the noise surveys conformed to Type 1 specification of British Standard 61672: 2003: *Electroacoustics. Sound level meters. Part 1 Specifications*. The microphones were fitted with a protective windshield and the sound level meters were situated in a weatherproof case. The noise measurement equipment used during the survey was calibrated at the start and end of the measurement period. There was no significant drift in calibration measurements observed during the survey period.

5 NOISE ASSESSMENT

Computer Noise Model

5.1 Noise emission levels affecting the Proposed Development have been calculated using noise modelling software (CadnaA). The results of the ambient noise survey have been used in conjunction with AAWT road traffic flows to calculate the noise emissions from road traffic.

5.2 Vehicles on Copthorne Common were modelled based on 18-hour AAWT flows as presented in Table 2. Ambient noise levels were used to validate the modelled noise emissions from the nearby road.

5.3 The AAWT road traffic flows have been used in conjunction with the results of the ambient noise survey to calculate the noise emissions from the nearby road.

5.4 The AAWT flows, HGV% and mean road speed is presented in Table 2.

Table 2: Road Traffic Flows

Scenario	AAWT	HGV%	Speed, kmh
Baseline 2025	25419	12	46
Future, 2027	26309	12	46

5.5 Following verification of the modelling, the proposed residential buildings have been modelled to allow identification of the level of mitigation required to achieve the BS 8233 criterion values. The noise levels have been calculated to obtain representative values at the proposed buildings.

Ambient Noise Levels

5.6 Noise levels across the development have been modelled using the indicative masterplan to obtain representative values at the proposed buildings and to identify the level of mitigation required to achieve the BS 8233 criterion values.

5.7 Noise propagation contours have been calculated across the site at a height of 1.5m above ground level for day and night-time periods. The calculated day and night-time noise contours are presented in Figures B2 and B3.

5.8 The typical façade reduction afforded by insulated double glazing and attenuated trickle ventilation is given within BS 8233 as 33 dB. For partially open windows the reduction is

given as 15 dB. Facades where the residential criteria are calculated to be exceeded with partially open windows are presented in Figure B3.

5.9 The required reduction at each façade has been calculated and is presented in Figure B3. The reductions provided within BS 8233 indicate that typical insulated double glazing and attenuated trickle ventilation would provide adequate attenuation at the Proposed Development to mitigate ambient noise levels. Ambient noise levels across the development are sufficiently low and no specific mitigation consideration is required to achieve the BS 8233 criteria.

5.1 Notwithstanding the above, it would be prudent that glazing and ventilation should be appropriately specified at facades at the north of the site, overlooking the A264 to ensure noise levels are adequately mitigated. The proposed residential dwellings should be specified with reference to the values presented in Figure B3.

5.2 To ensure the R_W values take account of possible low frequency noise, the sound reduction index of each element should achieve the identified reduction after correction for the C_{tr} urban traffic noise spectrum. The ventilation should achieve this value when open, to allow ventilation to the dwelling. Additionally, the glazing and ventilation installation must maintain the integrity of the façade with regards to noise insulation.

5.3 The WHO Guidelines states that indoor noise levels should not exceed approximately 45 dB $L_{Amax,F}$ more than 10-15 times a night to ensure there are no negative health effects related to sleep disturbance. With consideration to maximum levels obtained over 2-minute periods, the façade reduction due to typical insulated double glazing and attenuated trickle ventilation would be adequate to ensure maximum noise levels do not exceed the threshold number of events.

5.4 Calculated daytime ambient noise levels indicate that noise levels will exceed the upper guideline value of 55 dB $L_{Aeq,16hr}$ at external garden areas overlooking the A264.

5.5 BS 8233 recognises that the *"guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas … a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited."*

5.6 Accordingly, suitable mitigation or boundary walls/fencing should be adopted to ensure ambient noise is mitigated as far as practicable.

5.7 Consideration of the layout, including incorporation of suitable screening, should be made throughout the detailed design process.

5.8 Any screening should be adequately specified to reduce ambient noise levels within garden areas as far as practicable. For example, a suitable wooden fence should comprise suitably dense close-boarded solid timber fencing, which should have a mass per unit of surface area in excess of 12 Kg/m^2 and be of a continuous/close-boarded construction with a minimum thickness of 15 mm. Fences should be suitably treated to prevent warping and rot due to weathering.

6 MITIGATION

6.1 Ambient noise levels are considered to satisfy the criteria provided within BS 8233 and WHO with the incorporation of suitable glazing and attenuated ventilation. With consideration to the proposed layout and the frequency of night-time maximum events, no specific mitigation requirements are identified.

6.2 Notwithstanding this, glazing and ventilation at facades overlooking the A264 should be specified to achieve the R_W+C_{tr} values identified within Figure B3 as a minimum; to ensure suitable habitable noise levels are attained. Selected items should include correction for the C_{tr} urban road traffic spectrum.

6.3 Any ventilation should achieve this value when open, to allow ventilation to the dwelling. Additionally, the glazing and ventilation installation must maintain the integrity of the façade with regard to noise insulation. Windows are not required to be sealed and may remain openable to be used at the discretion of occupants.

6.4 External amenity areas directly adjacent to the road should be screened to reduce noise levels as far as practicable. The proposed layout may be subject to change during detailed design and gardens should be sited away from roads as far as practicable.

6.5 Where screening is installed, any barrier material should have a mass per unit of surface area in excess of 12 Kg/m^2 and be of a continuous/close-boarded construction with a minimum thickness of 15 mm. Any wooden fence should also be suitably treated to prevent warping and rot due to weathering.

7 CONCLUSIONS

7.1 An assessment of the potential noise impacts attributable to the ambient environment has been undertaken for the Proposed Development at Court House Farm in Copthorne, Mid Sussex.

7.2 The assessment has been based on a computer noise model, informed and validated using a combination of AAWT road traffic data and ambient noise measurements undertaken during an unattended noise survey. Ambient noise levels have been calculated to identify the mitigation required to achieve the criteria provided within BS 8233:2014 and the WHO Guidelines for Community Noise.

7.3 Typical insulated double glazing and attenuated trickle ventilation is calculated to be sufficient across the site. Whilst specific mitigation is not required, it would be prudent to ensure that glazing and ventilation at facades to the north of the site should be selected to achieve the reductions presented in Figure B3 as a minimum. Windows are not required to be sealed and may remain openable for rapid or purge ventilation or to be opened at the occupant's discretion.

7.4 Consideration of the layout and subsequent consideration of suitable screening should be made during detailed design; to reduce ambient noise levels within garden areas as far as practicable.

APPENDIX A – INTRODUCTION TO NOISE

In order to assist the understanding of acoustic terminology and the relative change in noise, the following background information is provided.

The human ear can detect a very wide range of pressure fluctuations, which are perceived as sound. In order to express these fluctuations in a manageable way, a logarithmic scale called the decibel, or dB scale is used. The decibel scale typically ranges from 0 dB (the threshold of hearing) to over 120 dB.

The ear is less sensitive to some frequencies than to others. The A-weighting scale is used to approximate the frequency response of the ear. Levels weighted using this scale are commonly identified by the notation dB(A).

A noise impact on a community is deemed to occur when a new noise is introduced that is out of character with the area, or when a significant increase above the pre-existing ambient noise level occurs. For levels of noise that vary with time, it is necessary to employ a statistical index that allows for this variation. These statistical indices are expressed as the sound level that is exceeded for a percentage of the time period of interest.

In the UK, traffic noise is measured as the L_{A10}, the noise level exceeded for 10% of the measurement period. The L_{A90} is the level exceeded for 90% of the time and has been adopted to represent the background noise level in the absence of discrete events. An alternative way of assessing the time varying noise levels is to use the equivalent continuous sound level, L_{Aeq}. This is a notional steady level that would, over a given period of time, deliver the same sound energy as the actual fluctuating sound.

To put these quantities into context, where a receiver is predominantly affected by continuous flows of road traffic, a doubling or halving of the flows would result in a just perceptible change of 3dB, while an increase of more than 25%, or a decrease of more than 20%, in traffic flows represent changes of 1dB in traffic noise levels (assuming no alteration in the mix of traffic or flow speeds).

Note that the time constant and the period of the noise measurement should be specified. For example, BS 4142 specifies background noise measurement periods of 1 hour during the day and 5 minutes during the night. The noise levels are commonly symbolised as $_{A90(1hour)}$ and $L_{A90(5mins)}$. The noise measurement should be recorded using a 'FAST' time response equivalent to 0.125 ms.

Table A1: Glossary of Terms

Term	Definition
Decibel (dB)	A scale for comparing the ratios of two quantities, including sound pressure and sound power. The difference in level between two sounds s1 and s2 is given by 20 log10 (s1/s2). The decibel can also be used to measure absolute quantities by specifying a reference value that fixes one point on the scale. For sound pressure, the reference value is 20μPa.
A-weighting, dB(A)	The unit of sound level, weighted according to the A-scale, which takes into account the increased sensitivity of the human ear at some frequencies.
Noise Level Indices	Noise levels usually fluctuate over time, so it is often necessary to consider an average or statistical noise level. This can be done in several ways, so a number of different noise indices have been defined, according to how the averaging or statistics are carried out.
$L_{eq,T}$	A noise level index called the equivalent continuous noise level over the time period T. This is the level of a notional steady sound that would contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded.
$L_{max,F}$	A noise level index defined as the maximum noise level during the period T. L_{max} is sometimes used for the assessment of occasional loud noises, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
$L_{90,T}$	A noise level index. The noise level exceeded for 90% of the time over the period T. L_{90} can be considered to be the 'average minimum' noise level and is often used to describe the background noise.
Free-Field	Far from the presence of sound reflecting objects (except the ground), usually taken to mean at least 3.5m
Ambient Noise Level	The totally encompassing sound in a given situation at a given time, usually composed of a sound from many sources both distant and near ($L_{Aeq,T}$).
Residual Noise Level	The ambient noise remaining at a given position in a given situation when specified sources are suppressed to a degree such that they do not contribute to the ambient noise level ($L_{Aeq,T}$)
Specific Noise Level	The equivalent continuous A-weighted sound pressure level at the assessment position produced by the specific noise source (the noise source under investigation) over a given time interval ($L_{Aeq,T}$)
Rating Noise Level	The specific noise level plus any adjustment for the characteristic features of the noise ($L_{Ar,Tr}$).

APPENDIX B – FIGURES

Figure B1: Unattended Survey Results at Position 1

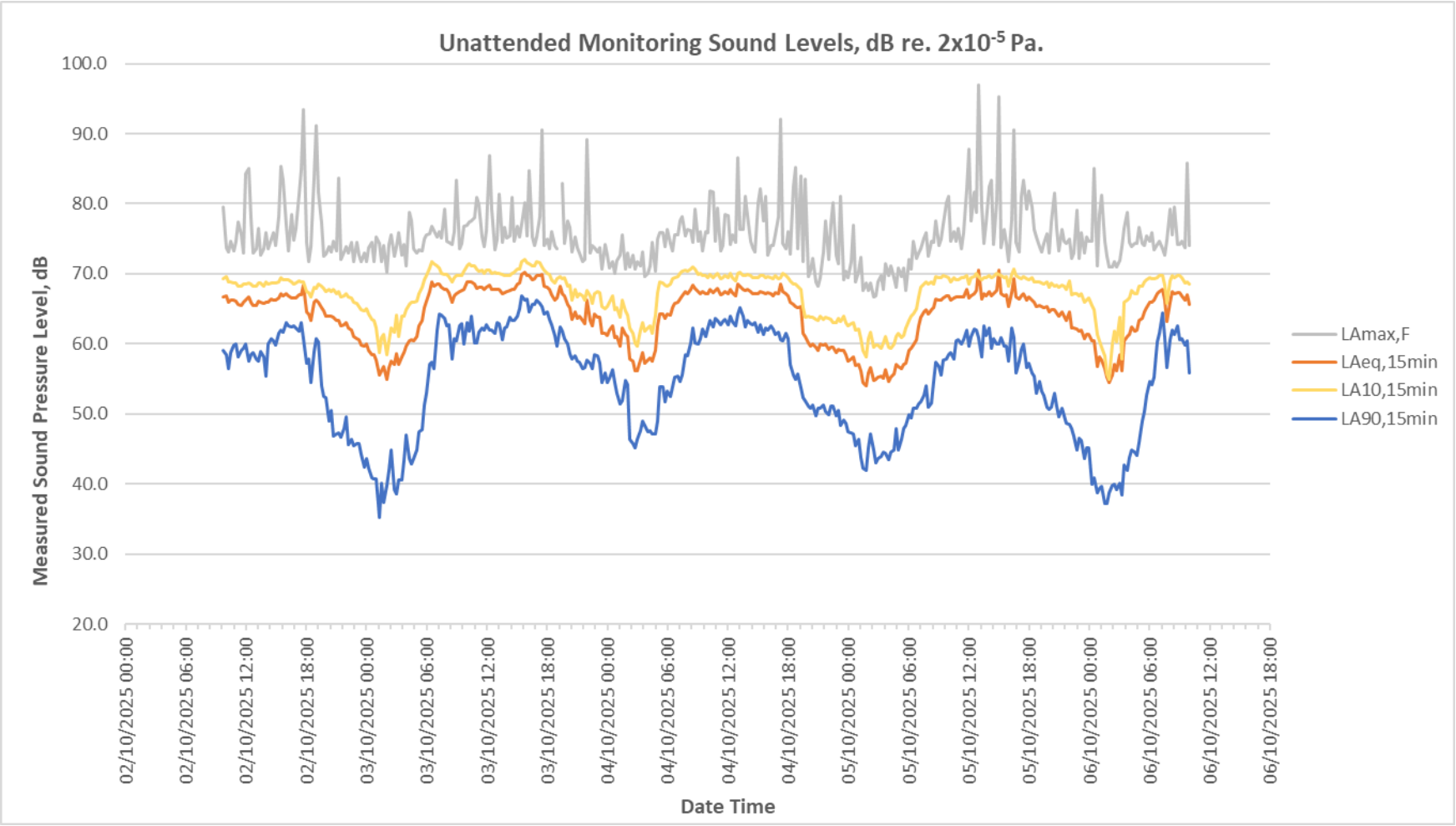


Figure B2: Daytime Noise Contour, 1.5m

Figure B3: Night-time Noise Contour, 1.5m

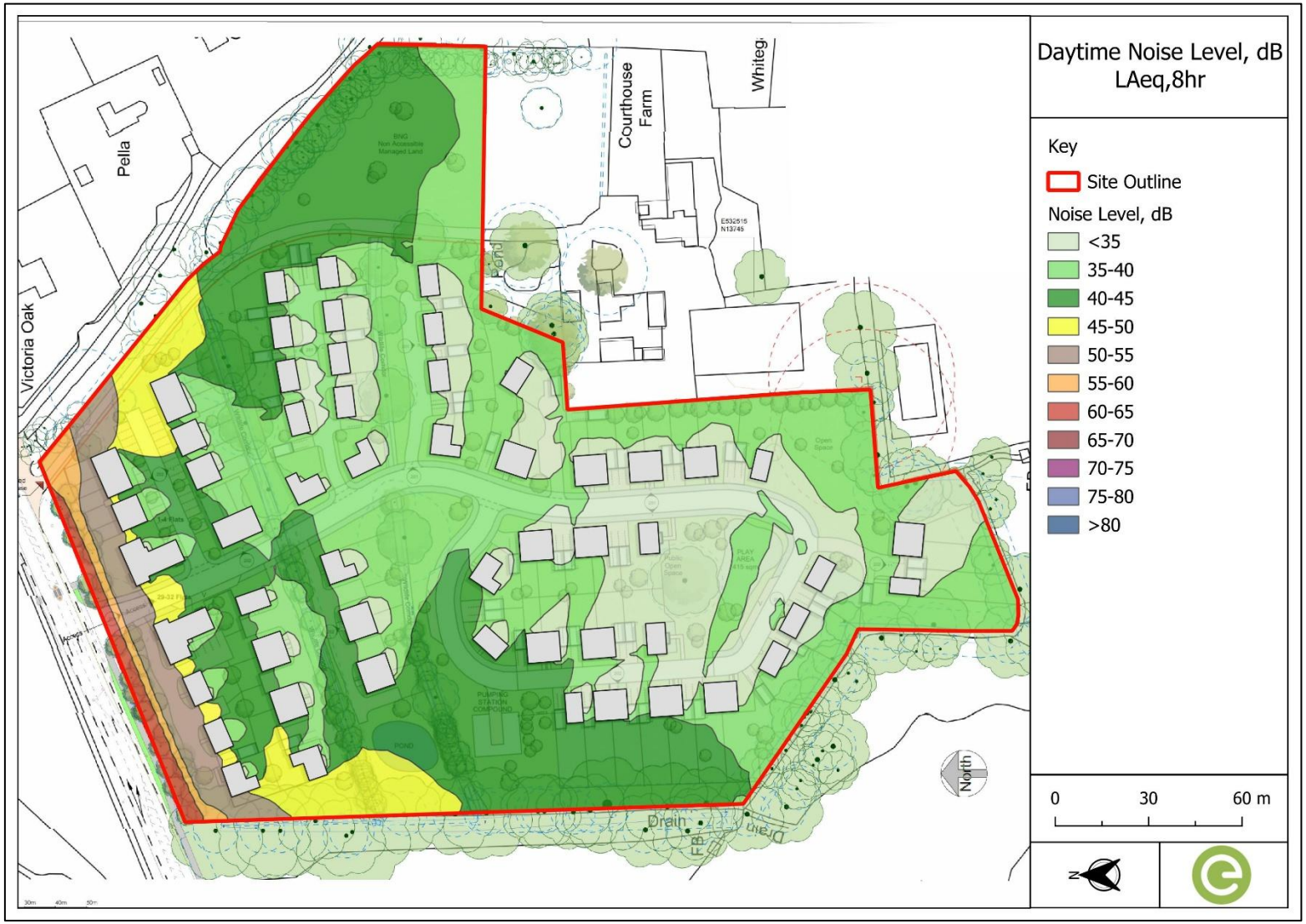


Figure B4: Calculated Façade Mitigation Requirements