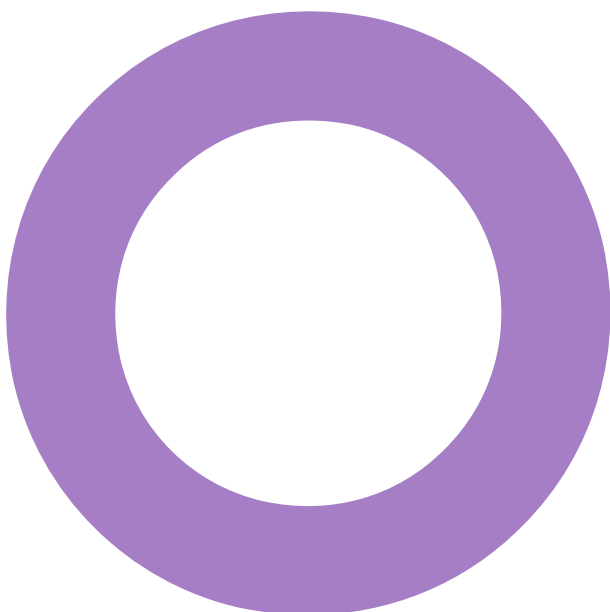


BUILDING 810.
Winnersh.
Fraser's Property.

ACOUSTICS
ENVIRONMENTAL NOISE SURVEY

REVISION 01 – 12 AUGUST 2025



Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
00	08/08/2025	First issue	BD	BD/TH	BD
01	12/08/2025	Second issue	BD	BD	BD

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Project number: 10/16236

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Executive summary.

Hoare Lea has conducted an environmental noise survey to support a planning application for the proposed development of Building 810, Winnersh Triangle, Reading.

The proposal comprises the construction of a new steel structure fabricated building flexibly used within use class B2, B8 and E(g).

The survey comprised six-days of unattended automatic noise measurements at a single position with a further 6 locations for attended noise measurement. Measurements at the single location consisted of 15-minute samples of ambient noise levels ($L_{Aeq,15min}$ in dB), maximum noise levels ($L_{Amax,15min}$ in dB) and background noise levels ($L_{A90,15min}$ in dB) between Thursday 7th July 2022 and Tuesday 12th July 2022.

Noise levels at the proposed development site were typically in the range 52-58 dB $L_{Aeq,16hr}$ during the day, 49-51 dB $L_{Aeq,8hr}$ during the night. Background noise levels were in the range 39-47 dB $L_{A90,15min}$ during the day, 33-36 dB $L_{A90,15min}$ during the night.

For the purposes of building façade design an allowance regarding façade sound insulation should be based on a daytime external noise level typically no higher than 58 dB $L_{Aeq,16hr}$. To put this in perspective, a good standard of double-glazing systems would provide sufficient noise reduction to office areas. The outline building fabric sound insulation values would typically be:

- Walls and roof to warehouse to achieve minimum 25 dB R_w
- Walls, roof and windows to office to achieve minimum 30 dB R_w
- Access doors rated as 30 dB R_w
- Roller shutter doors or similar rated as 25 dB R_w

The proposed building services noise emission limits should not exceed the following noise limits.

Period	Noise emission limit (Crown Plaza Hotel) $L_{A,T,r}$ dB	Noise emission limit (Commercial) $L_{A,T,r}$ dB
Daytime (0700 to 2300)	35	50
Night-Time (2300 to 0700)	30	

Table 1: Building services noise emission limits.

A validation of the above noise survey was undertaken with an attended noise survey in July 2025. The survey consisted of attended short-term noise level measurements and observations which confirmed the previous noise survey remains valid in respect of the ambient noise levels impacting on the proposed development. Given the nature of the business park this is no surprise.

1. Introduction.

Hoare Lea has been appointed by Frasers Property to provide a report considering the environmental noise at the proposed development site to support a planning application at Building 810, Winnersh Triangle Business Park, Reading.

The proposal comprises the construction of a new steel structure fabricated building flexibly used within use class B2, B8 and E(g).

An environmental noise survey is required to quantify the existing ambient and background noise levels at the site to establish the building fabric design constraints and noise emissions from the operation of building services plant.

This report provides a description of the results from the noise survey undertaken, an assessment to determine the external noise limits for building services plant required to meet the Local Authority's general noise emission limits.

To aid in the understanding of the assessment, definitions of technical terms used have been included in Appendix A.

2. Site description.

2.1 Existing site.

The development site is located on land within the Winnersh Triangle Business Park known as Building 810. Winnersh Triangle is situated south of the A329(M) and to the north of Wharfedale Road.

The proposal comprises the construction of a new steel structure fabricated building flexibly used within use class B2, B8 and E(g).

The proposed site (indicative only) is identified in Figure 1.

2.2 Local noise environment.

The surrounding noise climate is predominantly formed of road traffic noise from the immediate road network around the site, in particular the A329(M) to the north as well as vehicles serving the Business Park on Eskdale Road and Wharfedale Road. Contributions from air traffic were also audible.

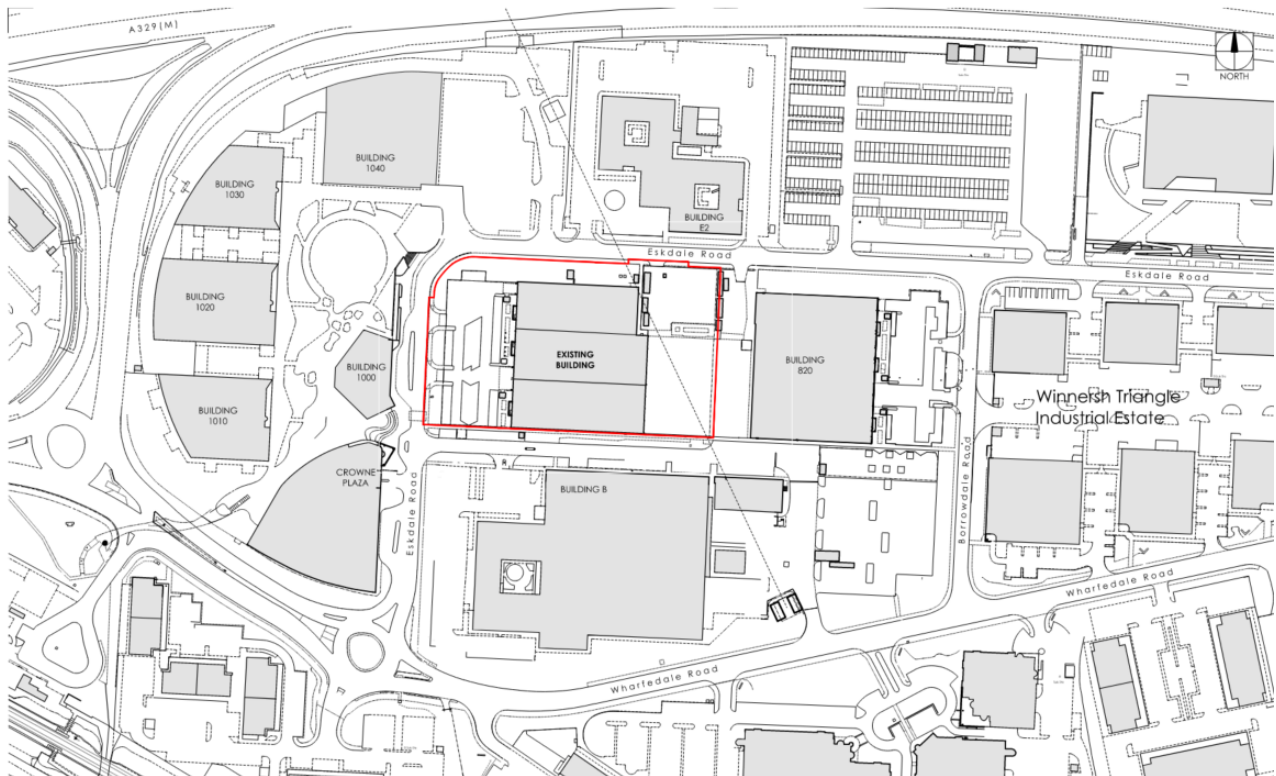


Figure 1: Existing site (red line boundary indicative only).

3. Basis of assessment.

3.1 National planning policy framework (NPPF): 2024.

The revised National Planning Policy Framework (7) published in December 2024 sets out the Government's current planning policies for England and how these are expected to be applied. The NPPF supersedes the previous NPPF published in December 2023.

With regards to local noise and vibration, paragraph 198 states:

“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 the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- a) 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;*
- b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and*
- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.”*

Reference is made to the DEFRA Noise Policy Statement for England 2010 (NPSfE). This latter document is intended to apply to all forms of noise other than that which occurs in the workplace and includes environmental noise and neighbourhood noise in all forms.

The NPSfE advises that the impact of noise should be assessed on the basis of adverse and significant effect but does not provide any specific guidance on assessment methods or limit sound levels. Moreover, the document advises that it is not possible to have *“a single objective noise-based measure...that is applicable to all sources of noise in all situations”*. It further advises that the sound level at which an adverse effect occurs is *“likely to be different for different noise sources, for different receptors and at different times”*.

In the absence of specific guidance for assessment of environmental noise within the NPPF and the NPSfE, it is considered appropriate to base assessment on current British Standards and national guidance. These are considered to be Local Authority guidance, BS 4142 (1), BS 8233 (2) and the World Health Organisations (3) (WHO) guidelines.

3.2 BS 4142: 2014 + A1: 2019 – Methods for rating & assessing industrial & commercial sound.

Current Government advice to Local Planning Authorities in both England and Wales makes reference to BS 4142 as being the appropriate guidance for assessing commercial operations and fixed building services plant noise. This British Standard provides an objective method for rating the likelihood of complaint from industrial and commercial operations. It also describes means of determining noise levels from fixed plant installations and determining the background noise levels that prevail on a site.

The assessment of impacts is based on the subtraction of the measured background noise level from the rating level determined. The rating level is the source noise level (either measured or predicted) corrected for tone or character (if necessary). The difference is compared to the following criteria to evaluate the impact.

- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact.
- A difference of around +5 dB indicates is likely to be an indication of an adverse impact.
- Where the rating level does not exceed the background noise level, this is an indication of the specific sound source having a low impact.

This method is only applicable for external noise levels.

3.3 BS 8233: 2014 – Guidance on sound insulation and noise reduction for buildings.

BS 8233: 2014 provides guidance for control of noise in and around buildings and suggests appropriate criteria and limits for different situations. Tables 2 and 6 within BS 8233 provide internal ambient noise levels for spaces in non-domestic buildings when they are unoccupied. These are replicated below in Tables 2 and 3 respectively.

Objective	Typical Situations	Design Range $L_{Aeq,T}$ dB
Typical noise levels for acoustic privacy in shared spaces	Restaurant	40 – 55

Table 2: Indoor ambient noise levels in spaces when they are unoccupied, and privacy is also important.

Activity	Location	Design Range $L_{Aeq,T}$ dB
Speech or telephone communications	Department store	50-55
	Corridor, circulation space	45 – 55
Study and work requiring concentration	Staff / meeting room, training room	35 – 45
	Executive office	35 – 40

Table 3: Typical noise levels in non-domestic buildings.

3.4 Local planning policy.

3.4.1 Wokingham Borough Council

To satisfy the local authority, noise from plant and machinery at the site must be controlled so that noise at 1m from the nearest residential receptor is at least 5 dB less than that of the existing background noise level (and 10 dB(A) less if the noise is tonal in nature).

Policy CC06: Noise

- Proposals must demonstrate how they have addressed noise impacts to protect noise sensitive receptors (both existing and proposed) from noise impacts in line with Appendix 1 of the MDD.
- Noise impact of the development must be assessed. Where there is no adverse impact (No Observed Effect Level) then noise will not be a material consideration.
- Where there is an adverse effect (Lowest Observed Adverse Effect Level to Significant Observed Adverse Effect Level), then
 - The development layout must be reviewed. Where this results in there no longer being an adverse impact then design and mitigation measures should be incorporated accordingly.
 - Where there is still an adverse impact then internal layout must be reviewed. Where this results in there no longer being an adverse impact then design and measures should be incorporated accordingly.
 - Where there is still an adverse impact then physical mitigation measures such as barriers/mechanical ventilation must be reviewed. Where this results in there no longer being an adverse impact then design and mitigation measures should be incorporated accordingly.
 - Where there is still an adverse impact and the development falls within the significant observed adverse effect level then planning permission will normally be refused.

4. Basis of design.

This section sets out the proposed acoustic quality to be adopted in developing the design and specifications, which will need to be discussed with future operating tenants, reference to guidance and local authority, and experience of film studio design.

4.1 Internal sound level targets

The following outlines the expected internal sound targets.

Type of space	Internal sound level criteria
Office space	35 – 40 dB(A)
Corridors / services areas	40 dB(A)
Warehouse	45 dB(A)

Table 4: Typical noise levels in non-domestic buildings.

4.2 Building services noise

Noise generated by building services shall be designed such that the internal noise levels stated above are not exceeded. This will require noise control solutions to minimise both fan noise and air noise into and external to the proposed building.

Noise generated by building services shall be designed to not exceed 10 dB(A) below existing background noise levels at the nearest noise sensitive residential receptor (considered to be the Crowne Plaza Hotel) located to the southeast and approximately 90 metres from the centre of the development site.

A fixed noise limit is proposed at the site boundary with existing commercial / industrial buildings.

5. Environmental noise survey.

An acoustic survey has been carried out at the site to establish the prevailing environmental noise conditions local to the site. This will help determine the building services plant noise emission limits and to advise upon the building envelope acoustic design.

5.1 Methodology.

The survey comprised six-days of unattended automatic noise measurements at position ‘Logger’ and attended automatic noise measurements at positions A-F. Each measurement was positioned 1.5 metres above local ground level. The measurement locations are shown in Figure 2 below.

Measurements at position ‘Logger’ consisted of 15-minute samples of ambient noise levels ($L_{Aeq,15min}$ in dB), maximum noise levels ($L_{Amax,15min}$ in dB) and background noise levels ($L_{A90,15min}$ in dB) across a frequency spectrum between Thursday 7th July 2022 and Tuesday 12th July 2022.

Sample octave band measurements were also conducted at six positions at ground floor level during the daytime. The position of these measurements is shown in Figure 2 and were hand-held samples at a height of 1.5m above local ground floor level and considered “free-field”.

5.2 Results summary.

A time history of the L_{Aeq} , L_{A90} and L_{Amax} from the unattended measurements recorded is shown in Appendix C attached.

The results of the unattended measurements have been calculated into daytime ($L_{Aeq,16hr}$) and night-time ($L_{Aeq,8hr}$) equivalent levels, and are shown with the associated measured minimum background noise level ($L_{A90,T}$) and the maximum instantaneous measured noise level ($L_{Amax,T}$) in Tables 5&6.

It should be noted that the minimum daytime ($L_{A90,1hr}$) background noise level shown overleaf is the lowest arithmetic average of the measured background noise levels ($L_{A90,T}$) in a 15 minute period.

Date	Ambient sound pressure levels measured (dB) at position Logger	
	Day Time (07:00 - 23:00)	Night-time (23:00 - 07:00)
	$L_{Aeq,16hr}$	$L_{Aeq,8hr}$
07/07/2022	56	49
08/07/2022	58	51
09/07/2022	55	49
10/07/2022	52	49
11/07/2022	58	50
12/07/2022	55	#N/A

Table 5: Typical existing ambient noise levels

Date	Background sound pressure levels measured (dB) at position Logger	
	Daytime (07:00 - 23:00)	Night-time (23:00 - 07:00)
	Lowest $L_{A90,15min}$	Lowest $L_{A90,15min}$
07/07/2022	46	33
08/07/2022	46	35
09/07/2022	47	35
10/07/2022	39	36
11/07/2022	42	35
12/07/2022	46	#N/A

Table 6: Typical existing background noise levels

The range in L_{Amax} noise levels during the daytime were measured as 60-85 dB(A) and at night in the range 50-75 dB(A). The typical maximum noise level (L_{Amax}) is considered to be 79 dB(A).

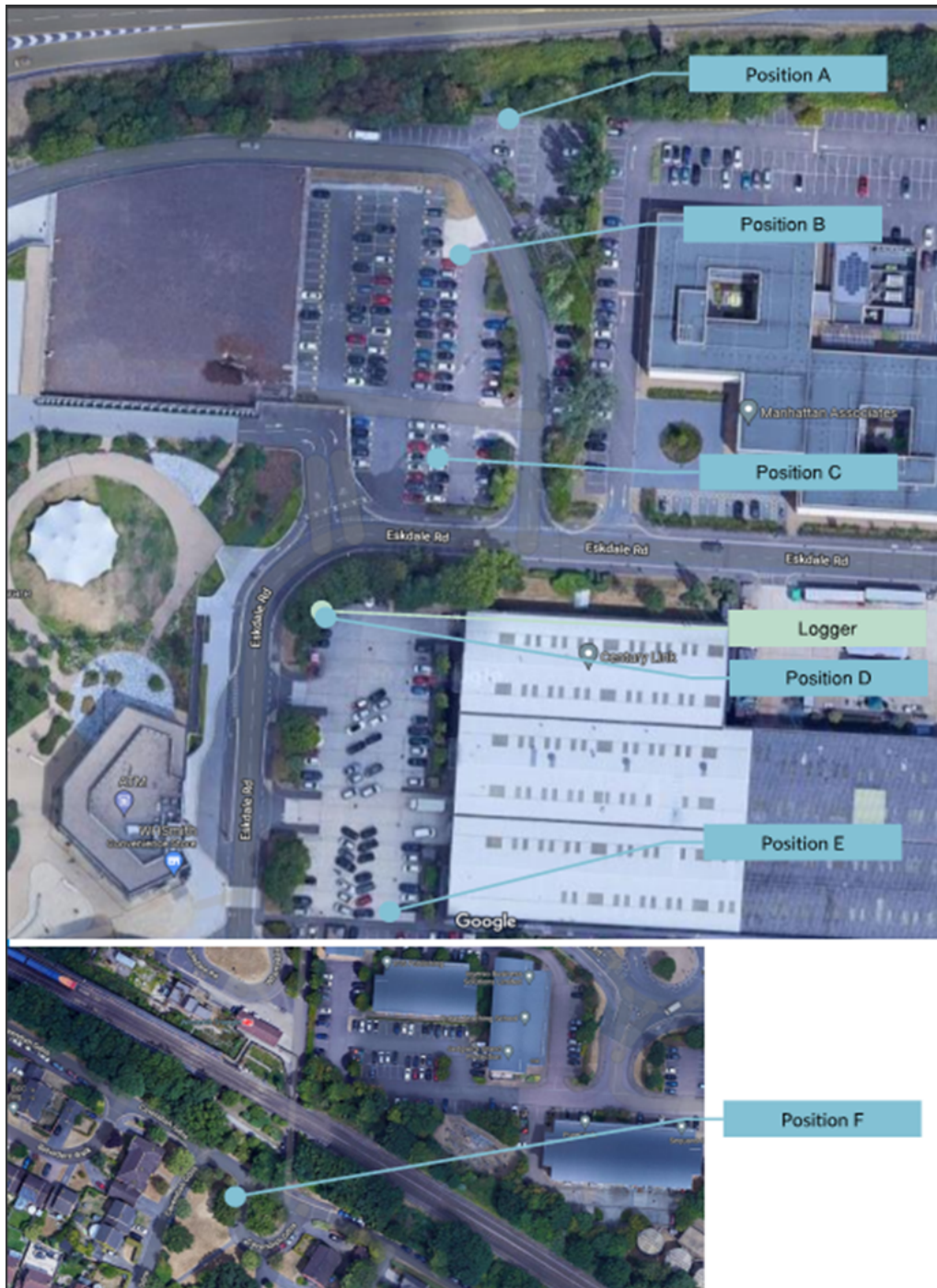


Figure 2: Measurement locations

© Google Earth.

=The measurement instrumentation used is listed in Appendix B attached and a general acoustic terminology is provided in Appendix A.

6. Noise sensitive receptors.

A noise sensitive receptor is defined as a landscape or building where the occupiers are likely to be sensitive to noise created by plant installed in the proposed development, including residential areas.

The nearest noise sensitive property are nearby commercial properties including a film stage/studio. There is also the Crown Plaza Hotel located approximately 90 metres to the southeast. Each of the nearest noise sensitive receptors are identified in Figure 3 below.



Figure 3: Nearest noise sensitive receptors (red line boundary indicative only)

© Google Earth.

7. Noise emissions of fixed plant.

7.1 Proposed site noise emission limit.

Noise levels due to building services serving the proposed development are advised to meet the following noise level criteria shown below in Table 7 one metre from the nearest noise sensitive area as identified in Section 6.

Period	Typical background noise level $L_{A90,T}$ dB	Noise emission limit (Crown Plaza Hotel) $L_{A,r,Tr}$ dB	Noise emission limit (Commercial) $L_{A,r,Tr}$ dB
Daytime (0700 to 2300)	40	35	50
Night-Time (2300 to 0700)	35	30	

Table 7: Building services noise emission limits.

7.2 Proposed site noise emission limit at commercial properties.

An absolute broadband limit (as a rating level including for corrections) of **50 dB $L_{A,r,Tr}$** is proposed at all commercial receptor locations during both daytime and night-time periods. This external limit is 5 dB below the typical ambient L_{Aeq} noise level during the day and equal to the typical ambient noise level at night.

8. Summary & conclusions.

Hoare Lea has conducted an environmental noise survey to support a planning application for the proposed development at Building 810, Winnersh Triangle, Reading.

Noise levels at the proposed development site were typically in the range 52-58 dB $L_{Aeq,16hr}$ during the day, 49-51 dB $L_{Aeq,8hr}$ during the night. Background noise levels were in the range 39-47 dB $L_{A90,15min}$ during the day, 33-36 dB $L_{A90,15min}$ during the night.

The proposed building services noise emission limits should not exceed the following noise limits.

Period	Noise emission limit (Crown Plaza Hotel) $L_{Ar,Tr}$ dB	Noise emission limit (Commercial) $L_{Ar,Tr}$ dB
Daytime (0700 to 2300)	35	50
Night-Time (2300 to 0700)	30	

Table 8: Building services noise emission limits.

9. References.

1. **BS 4142: 2014 + A1: 2019: 'Method for rating and assessing industrial and commercial sound'.**
2. **BS 8233: 2014, "Guidance on Sound Insulation and Noise Reduction for Buildings", BSI.**
3. **World Health Organisation (WHO) - Environmental Noise Guidelines for the European Region, 2018.**
4. **BS EN ISO 10848-2: 2006: 'Application to Light Elements when the Junction has a Small Influence'.**
5. **BS EN ISO 717-1: 2013. "Acoustics - Rating of Sound Insulation in Buildings and of Building Elements. Part 1: Airborne Sound Insulation."**
6. **ISO 10140-2: 2021, "Acoustics - Laboratory Measurement of Sound Insulation of Building Elements. Part 2: Measurement of Airborne Sound Insulation."**
7. **National Planning Policy Framework, Department for Communities and Local Government, December 2024.**

Appendix A – Acoustic terminology.

Sound

Sound is produced by mechanical vibration of a surface, which sets up rapid pressure fluctuations in the surrounding air.

The Sound Pressure

The Sound Pressure is the force (N) of sound on a surface area (m²) perpendicular to the direction of the sound. The SI-units for the Sound Pressure are Nm⁻² or Pa (Pascal).

Sound is measured with microphones responding proportionally to the sound pressure – p. The power is proportional to the square of the sound pressure.

The Sound Pressure Level

The human ear has an approximately logarithmic response to sound pressure over a very large dynamic range. The lowest audible sound pressure approximately 2×10^{-5} Pa (2 ten billionths of an atmosphere) and the highest is approximately 100 Pa.

It is therefore convenient to express the sound pressure as a logarithmic decibel scale related to this lowest human audible sound, where:

$$L_p = 10 \log \left(\frac{p^2}{p_{ref}^2} \right) = 10 \log \left(\frac{p}{p_{ref}} \right)^2 = 20 \log \left(\frac{p}{p_{ref}} \right)$$

Where:

L_p = sound pressure level (dB)

p = sound pressure (Pa)

p_{ref} = 2×10^{-5} – reference sound pressure (Pa)

In accordance with the logarithmic scale, doubling the sound pressure level gives an increase of 6 dB.

Decibel (dB)

The decibel is the unit used to quantify sound pressure levels as well as sound intensity and power levels.

In accordance with the logarithmic scale, an increase of 10 dB in sound pressure level is equivalent to an increase by a factor of 10 in the sound pressure level (measured in Pa). Subjectively, this increase would correspond to a doubling of the perceived loudness of the sound.

Sound Pressure Level of Some Common Sources

An indication of the range of sound levels commonly found in the environment is given in the following Table.

Source	Sound Pressure Level dB
Threshold of Hearing	0
Rustling Leaves	20
Quiet Whisper	30
Home	40
Quiet Street	50
Conversation	60
Inside a Car	70
Loud Singing	80
Motorcycle (10m)	90
Lawn Mower (1m)	100
Diesel Truck (1m)	110
Amplified Music (1m)	120
Jet Plane (1m)	130

Frequency

The rate at which the pressure fluctuations occur determines the pitch or frequency of the sound. The frequency is expressed in Hertz (Hz) or cycles per second.

Octave and Third Octave Bands

An octave is the interval between two points where the frequency at the second point is twice the frequency of the first.

There are many methods of describing the frequency content of a noise. The most common methods split the frequency range into defined bands, in which the mid-frequency is used as the band descriptor and in the case of octave bands is double that of the band lower. For example, two adjacent octave bands are 250 Hz and 500 Hz.

Third octave bands provided a fine resolution by dividing each octave band into three bands. For examples, third octave bands would be 160 Hz, 250 Hz and 315 Hz for the same 250 Hz octave band.

The human ear is sensitive to sound over a range of frequencies between approximately 20 Hz to 20 kHz and is generally more sensitive to medium and high frequency than to low frequencies within the range. This is the basis of the A-weighting.

A-Weighting

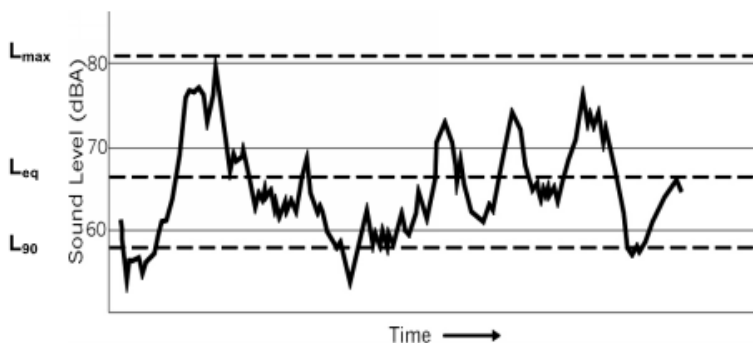
The A-weighting is a correction term applied to the frequency range in order to mimic the sensitivity of the human ear to noise. It is generally used to obtain an overall noise level from octave or third octave band frequencies.

An A weighted value would be written as dB(A) or including A within the parameter term.

Noise Units

In order to assess environmental noise, measurements are carried out by sampling over specific periods of time, such as five minutes, the statistically determined results being used to quantify various aspects of the noise.

The figure below shows an example of sound level varying with time. Because of this time variation the same period of noise can be described by several different levels. The most common of these are described below.



$L_{eq,T}$

The $L_{eq,T}$ is a parameter defined as the equivalent continuous sound pressure level over a defined time period 'T'. It is the sound pressure level equivalent to the acoustic energy of the fluctuating sound signal.

The $L_{eq,T}$ can be thought of as an 'average' sound pressure level over a given time period (although it is not an arithmetic average). Typically, the $L_{eq,T}$ will be an A-weighted noise level in dB(A) and is commonly used to describe all types of environmental noise sources.

$L_{01,T}$

The $L_{01,T}$ is a parameter defined as the sound pressure level exceeded for 1% of the measurement period 'T'.

It is a statistical parameter and cannot be directly combined to other acoustic parameters.

$L_{10,T}$

The $L_{10,T}$ is a parameter defined as the sound pressure level exceeded for 10% of the measurement period 'T'.

It is a statistical parameter and cannot be directly combined to other acoustic parameter and is generally used to describe road traffic noise.

$L_{90,T}$

The $L_{90,T}$ is a parameter defined as the sound pressure level exceeded for 90% of the measurement period 'T'.

It is a statistical parameter and cannot be directly combined to other acoustic parameter and is generally used to describe the prevailing background noise level.

$L_{max,T}$

The $L_{max,T}$ is a parameter defined as the maximum noise level measured during the specified period 'T'.

Specific Noise Level, $L_{Aeq,T,r}$

This is the equivalent continuous A-weighted sound pressure level at the assessment position due to a specific noise source operating over a given time interval.

Free Field

A measurement taken in the free field is at least 3.5m from reflecting vertical surfaces and 1.2m from the ground.

Façade

A measurement is influenced by the reflection of sound from the façade of a building within 3.5m. A façade measurement is made 1m in front of the vertical building surface.

R_w

A single-number quantity which characterizes the airborne sound insulation of a material or building element in the laboratory. See BS EN ISO 717-1: 1997.

Appendix B – List of measurement equipment.

Project name: Building 810, Winnersh Triangle, Wokingham

Project number: 10/14244 Engineer: Alex Gorrington

Survey Date: 07 - 12/07/2022

General Comments: Light breeze, hot, clear skies, humid but no precipitation.

Equipment	Type	Serial Number	Last Calibrated
Sound Level Meter	Rion NL-52	00832246	29/09/2021
Pre-amplifier	Rion NH-25	32274	29/09/2021
Microphone	Rion UC-59	05473	29/09/2021

Table B1 – Sound Level Meter 1 - unattended survey

Equipment	Type	Serial Number	Last Calibrated
Sound Level Meter	Rion NL-52	00331820	10/05/2021
Pre-amplifier	Rion NH-25	21771	10/05/2021
Microphone	Rion UC-59	04886	10/05/2021

Table B2 – Sound Level Meter 2 - attended survey

A field calibration was carried out at the start and end of the measurements, using

Equipment	Type	Serial Number	Last Calibrated
Calibrator	Rion NC-74	34172705	28/09/2020

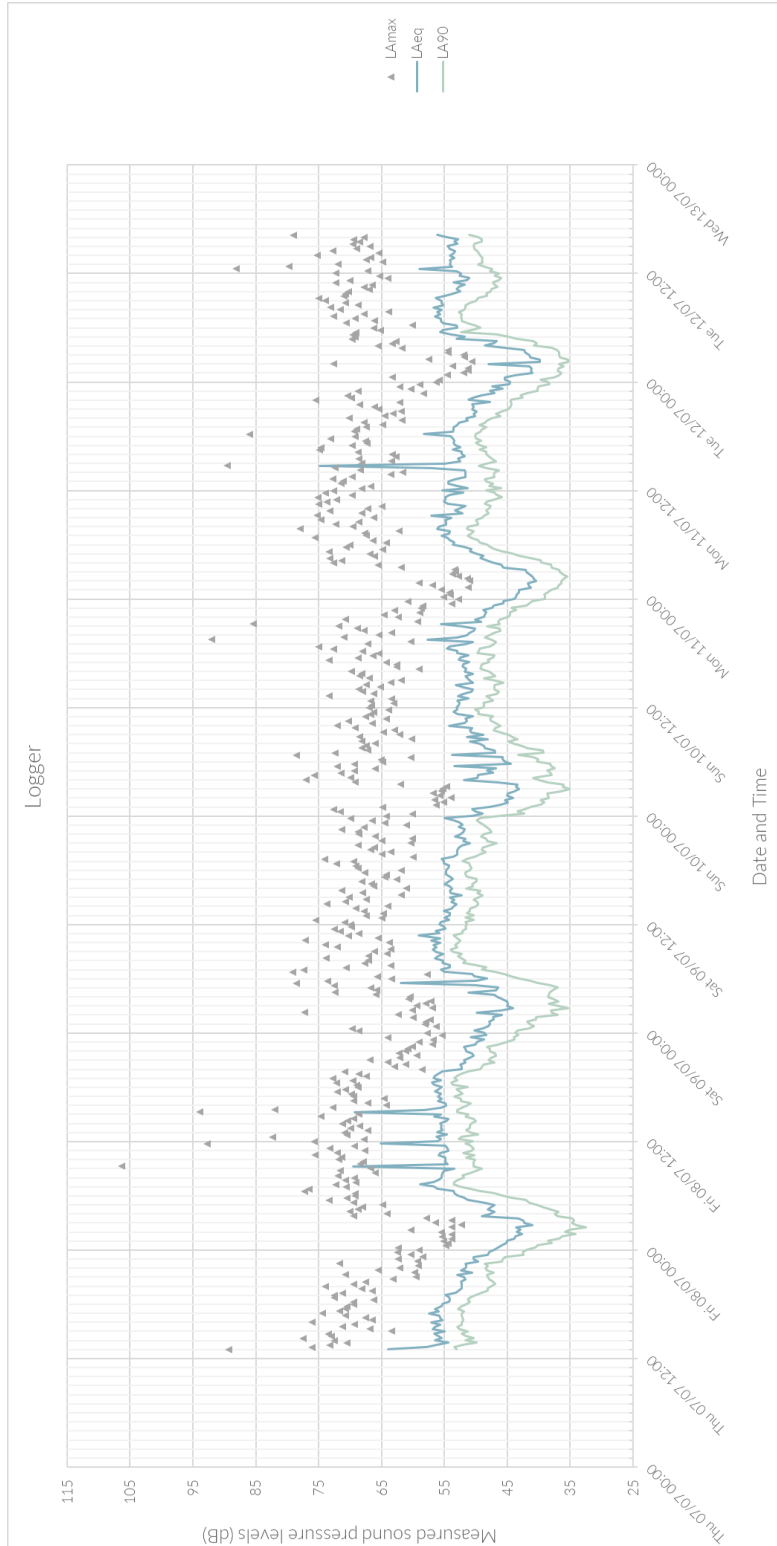
Table B3 - Calibrator



Figure B1 – Logger 1 – unattended (1 of 1)

Appendix C – Time history of unattended measurements.

Logger Position



Appendix D – Attended measurement positions.

Position	Start time	Duration	LAeq (dB)	LAmx (dB)	LA10 (dB)	LA90 (dB)	Observations
A	12/07/2022 13:45:00	15mins	61.6	71.9	64	57.4	Road traffic noise dominates (A329M) constant flow of traffic (58-65 dB).
Logger			53.4	66.7	56.1	48.9	HGV passes (63-65 dB), commercial aircraft plus traffic (62-67 dB).
B	12/07/2022 14:15:00	15mins	58.8	76.9	60.8	54.9	Road traffic noise dominates (A329M), LDVs (50-52 dB), HGVs (58-61 dB), quiet plane (54-57 dB), closer commercial aircraft (62-65 dB). Car passes within car park (51-54 dB). Max levels caused by loud motorcycle on motorway.
Logger			53.6	65.4	56.2	49.5	
C	12/07/2022 14:45:00	15mins	53.1	65	55.3	49.6	Road traffic noise (A329M) dominates (47-52 dB), HGVs (56-58 dB). Passing cars on Eskdale Rd (52-54 dB). Aircraft (52-54 dB).
Logger			54.2	69	56.4	50.2	
D	12/07/2022 16:00:00	15mins	57	84.9	57.4	49.4	Background (48-52dB), motorway traffic noise dominates alongside occasional car pass on Eskdale Road (58-60 dB) and commercial aircraft passes overhead (52-58 dB).
Logger			54.7	67.8	57.3	49.6	
E	12/07/2022 13:15:00	15mins	52.2	68.6	54.7	47.8	Background composed of road traffic noise heard along A329(M) in distance and Eskdale and Wharfedale Roads (47-50 dB). Additional noise includes; commercial aircraft passes (55-59 dB), non-commercial aircraft (54-61 dB) and passing cars on Eskdale Road (49-51 dB).
Logger			54	64.8	57.3	48.9	
F1	12/07/2022 15:15:00	15mins	51.8	74.7	51.2	44.8	Background composed of road traffic noise mostly from A3290 and A329/Reading Road (45-49 dB). Plane passes (47-53 dB). Train passes (52 dB average around 15:24:40 & 15:26:40). High speed train pass up to 70 dB.
Logger			52.9	69.6	55	50.2	
F2	12/07/2022 15:30:00	15mins	46.9	60.6	48.8	43.9	
Logger			53.4	68.5	55.7	49.1	

Table 9: Ambient levels measured at attended measurement positions.

Monitoring Position	Start time	Duration	Sub	Main	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz	
E	12/07/2022 13:15:00	00d 00:15:00.0	Leq		52.2	27	31.1	30.3	33.2	34.9	37.9	38.8	37.7	38.2	39.3	40.4	41.9	43.5	44.1	43.3	40.6	38	36.3	33.6	30.8	26.9	23.2	20.1	16
Within development Site			Lmax		68.6	26.3	36.6	38.9	37.3	45	47.1	46.9	41.1	41.3	56.8	54.4	51.8	57.9	59.5	61	61.8	60	59.1	53.5	45.5	35.3	22.8	11.3	8.1
			L10 (LN2)		54.7	30.5	33.5	33.1	35.6	36.8	38.7	40.6	40.4	41.2	41.5	43.1	44.5	46	46.6	45	42	39	36.9	34.8	32.9	28.6	27.2	23.5	18.8
			L90 (LN4)		47.8	19.1	22.8	24.7	25.2	28.6	29.8	29.9	31.2	32.5	32.7	34.1	36.5	39.4	40.3	38.1	35.3	31.6	29	25	17.7	18.3	14.6	11.7	7.5
A	12/07/2022 13:45:00	00d 00:15:00.0	Leq		61.6	31.5	34.2	37.4	39.5	40.4	40.1	41.4	43.9	45.4	46.6	49.3	51.9	54.7	55.8	53.1	49.7	45.4	41.4	38.2	34.9	31.3	27.6	24.4	19.0
~25m south of A329(M)			Lmax		71.9	50.8	47.9	48.1	49.9	54.8	56.8	50.5	58.4	66.6	58.9	61	59.9	60.4	62.6	61.5	59.3	54.7	55.1	51.8	49	46.7	41.7	34.4	30.8
			L10 (LN2)		64	34.3	37.1	40.5	42.2	42.9	43	44.2	47.2	48.4	49.6	52.3	55.1	57.5	58.3	55.4	52	47.7	43.7	40.6	37.7	34.1	30.7	27.8	23.9
			L90 (LN4)		57.4	24.7	27.8	30.4	32.3	34	34.8	36	37.4	38.1	39.1	41.6	45.3	49.8	51.7	49.4	46.1	41.7	37.2	33.5	29.7	25.4	20.7	15.7	10.6
B	12/07/2022 14:15:00	00d 00:15:00.0	Leq		58.8	30.4	33.8	35	37	38	38.8	40.7	47.4	44.5	45.8	46.5	47.3	50	52.2	50.7	48	44	39.6	36	32.3	28.9	27	22.1	15.3
~55m south of A329(M)			Lmax		76.9	36.8	39.3	37.9	40.5	42.9	39.6	53.5	76.5	63	50	62.6	54.7	55.5	57.4	56.3	55.7	53.3	50.1	47.7	48.4	43.3	36.4	28.8	19.3
			L10 (LN2)		60.8	33.6	36.8	38.3	39.8	41.1	40.9	43.3	47.3	47.4	48.8	49.5	49.9	52.4	54.4	52.9	50.2	46	41.7	38	34.1	31	29.1	24.2	15.6
			L90 (LN4)		54.9	23.9	26.8	28.3	29.4	31.2	31.2	33.2	35.9	35.9	37.5	39.6	42.3	46.3	49	47.4	44.6	40.3	35.7	31.7	27.4	22.6	17.7	12.7	8
C	12/07/2022 14:45:00	00d 00:15:00.0	Leq		53.1	27.1	30.3	31.7	31.5	32.8	33.8	37.1	38.3	38.6	37.8	39.6	41.9	45.3	46.9	45.5	41.7	37.6	34.5	31.8	30.1	29	25.8	20.5	15.1
~105m south of A329(M)			Lmax		65	39.1	44.4	39.7	35.8	40.3	38	42.5	49.9	49.6	46.4	44.5	45.8	53.8	56.3	51	50.6	55.5	56.9	56	56.9	52.3	52.8	46.4	33.3
			L10 (LN2)		55.3	30.2	33.4	34.4	34.3	35.6	36.8	40.3	41.3	41.6	41	42.6	44.7	47.6	49.3	47.6	43.5	39.2	36	33.3	31.7	29.4	26	22	16.3
			L90 (LN4)		49.6	20.5	24.7	25.7	25.8	27.5	28.5	31.3	32.2	32.7	32.3	34.4	37.4	41.4	43.1	42.3	38.5	34.1	30.4	27.3	23.8	20.3	16.3	12.7	8.3
F (1)	12/07/2022 15:15:00	00d 00:15:00.0	Leq		51.8	31.4	32.1	33	31.7	33.3	32.1	33	34.7	34.1	33.4	35.3	38	41.4	43.9	43.1	42.4	44.6	37.3	34	36.2	31.6	29.2	26.4	24.1
Nearest residential receptors			Lmax		74.7	28.6	27	30.8	32.1	34.8	40.9	43.5	55.1	55.5	56.3	61	59.4	63	57.2	62.7	60	63.6	67.5	60.9	66.2	66.4	63.4	60.2	58.9
			L10 (LN2)		51.2	26	29.7	29.5	29.2	29.5	32.4	35.1	35.2	36	34.8	35.8	38.2	41.8	44.2	42.7	40.7	37.8	35.5	33.8	32.4	31	27.9	26.6	23
			L90 (LN4)		44.8	15.4	19	17.7	17.5	18.1	20.4	24.2	25.9	26.3	26.4	28.7	32.4	36.4	38.9	37.2	34.1	30	26.2	22.8	20	17.6	15.1	15.3	11.4
F (2)	12/07/2022 15:30:00	00d 00:15:00.0	Leq		46.9	23.9	26.2	24.4	25.3	26.4	28	32.1	32.8	32.2	31.5	32.5	34.9	38.2	40.6	38.9	36.1	33	30.5	28.1	26	23.9	21.6	22.1	17.5
Repeat measurement - same location			Lmax		60.6	27.4	28	26.8	32.7	30.5	33.1	35.4	41.4	41.9	35.8	48.1	54.5	53.5	51.3	50.5	49.3	47.4	44.6	45.2	42.8	40.3	43.1	40.7	37
			L10 (LN2)		48.8	26.4	29.1	27.2	27.4	29.3	31.1	34.7	35.1	34.8	34.1	34.5	36.8	40	42.6	40.9	38.3	35.3	32.7	30.2	28.5	26.5	24.2	24.7	19.1
			L90 (LN4)		43.9	16.4	20.1	18.7	18.7	19.6	20.7	24.2	25.6	26.1	26.2	28	31.4	35.3	37.7	35.9	32.7	29.1	25.6	22	18.8	16	13.2	11.9	8.3
D	12/07/2022 16:00:00	00d 00:15:00.0	Leq		57	33	36.6	35	35.7	36.6	38.5	41.8	43.3	41.1	40.6	44.7	48.3	47	49.3	45.9	45.9	45	43.6	42.6	41	39.7	36.8	34.5	31.5
Next to Logger			Lmax		84.9	38.2	38.3	39.7	40.5	38.5	40.7	41.8	48.6	60.4	47.5	62.9	73.8	74.2	83.8	72	67.3	64.8	63.5	66.8	60.8	60.9	47	39.3	38.6
			L10 (LN2)		57.4	33.8	36.1	37.7	38.4	38.5	40	43.1	44	42.7	43.6	44.7	46.1	47.6	47.6	46.3	45	44.2	44	43.7	43.3	42.1	40.1	37.7	34.2
			L90 (LN4)		49.4	21.6	24.2	25.7	26.5	27.6	29.3	30.4	31.7	31.5	32.2	34.4	37	39.6	40.9	39.6	37.8	35.2	33	30.9	28.9	26.4	23.4	20.5	17

Table 10: Ambient levels measured at attended measurement positions.

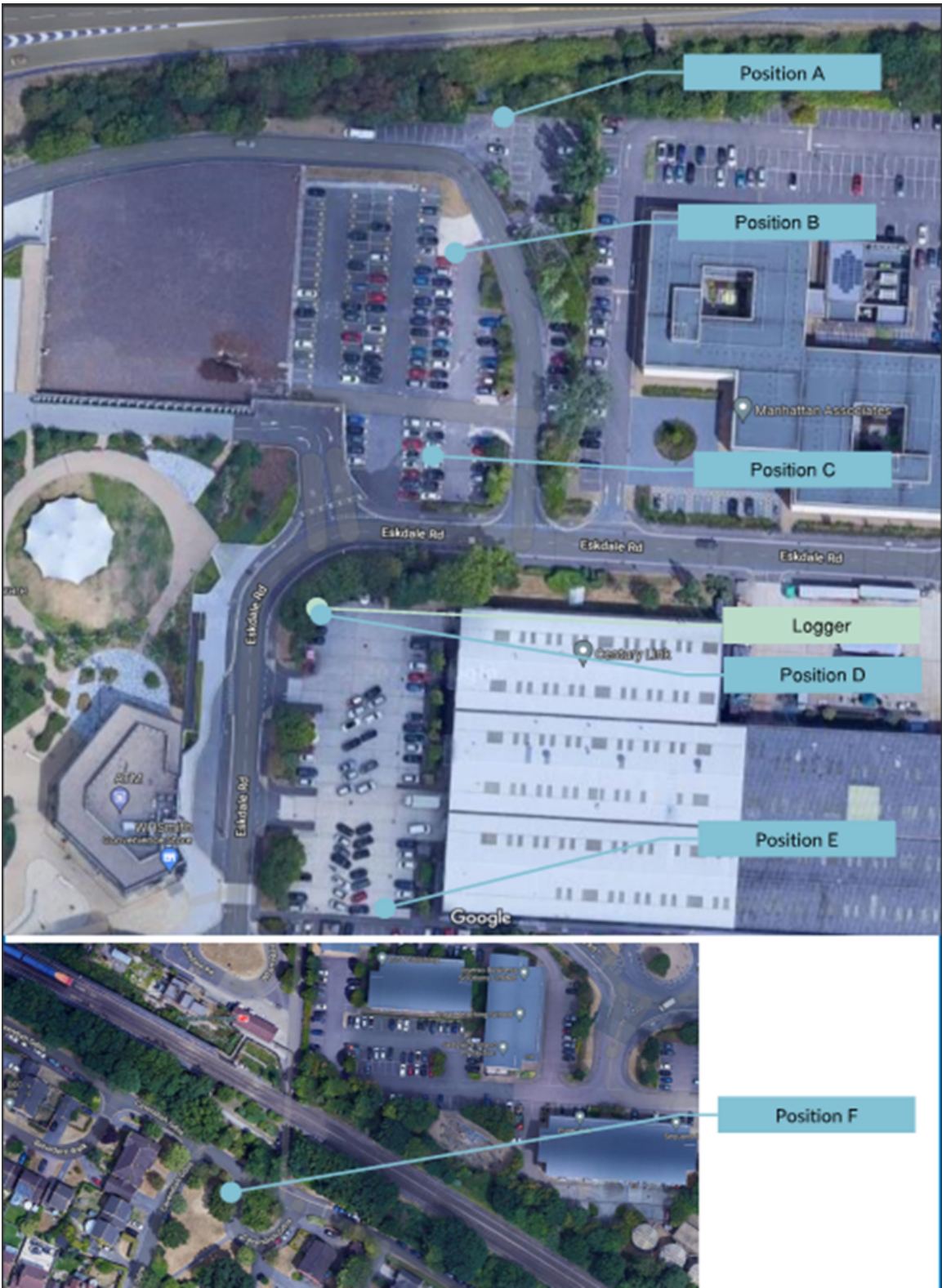


Table 11: Maximum levels measured at attended measurement positions.



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