

**59 Crockhamwell Road
Woodley
Reading
RG5 3JP**

**Environmental Noise Survey and
Noise Impact Assessment
Report**

31590/NIA1-R1

4 July 2024

For:
The Riverlow Group
Unit 4 Fountayne Business Centre
Broad Lane
London
N15 4AG



Hann Tucker Associates
Consultants in Acoustics Noise & Vibration

Head Office: Duke House, 1-2 Duke Street, Woking, Surrey, GU21 5BA (t) +44 (0) 1483 770 595
Manchester Office: First Floor, 346 Deansgate, Manchester, M3 4LY (t) +44 (0) 161 832 7041
(w) hanntucker.co.uk (e) enquiries@hanntucker.co.uk



Environmental Noise Survey and Noise Impact Assessment Report 31590/NIA1-R1

Document Control

Rev	Date	Comment	Prepared by	Reviewed by	Approved by
1	04/07/2024	Report and assessment revised to reflect change in general arrangement.			
			Kyungmin Kim Consultant BMus(Hons), PGDip, AMIOA	Kyle Donald Senior Consultant BSc(Hons), AMIOA	
0	13/06/2024				
			Kyungmin Kim Consultant BMus(Hons), PGDip, AMIOA	Kyle Donald Senior Consultant BSc(Hons), AMIOA	Firas Farhan Associate BA(Hons), MIOA



Environmental Noise Survey and Noise Impact Assessment Report 31590/NIA1-R1

Contents	Page
1.0 Introduction	1
2.0 Objectives	1
3.0 Acoustic Terminology	1
4.0 Site Description	2
5.0 Proposed Development	3
6.0 Planning Policy, Standards & Guidance	6
7.0 Baseline Noise Surveys	10
8.0 Incident Noise Levels	16
9.0 Target Internal Noise Levels	17
10.0 Existing Commercial Plant Noise Impact	18
11.0 Assessment of Noise from Commercial Activities	20
12.0 External Amenity Area	24
13.0 Conclusions	25

Attachments

Appendix A – Acoustic Terminology

Appendix B – Relevant Planning Policies and Guidance

Appendix C – Time History Graphs



1.0 Introduction

Hann Tucker Associates Limited (Hann Tucker) has been commissioned by The Riverlow Group to undertake a noise assessment for a site in Woodley, as part of a Permitted Development (Class MA) Planning Application for the scheme.

The proposals are for redevelopment of Unit 2, and 3 located on the first floor of existing building on 59 Crockhamwell Road, into 3No. mixed-use residential dwellings under Permitted Development Rights as well as a shared residential amenity space on existing first floor roof terrace.

Permitted development rights allow certain changes to be made to a building without the need to apply for full planning permission. Notwithstanding, noise from commercial premises near to the site needs to be considered, however, it is assumed that there is no mandatory requirement to consider noise from other sources (i.e. transport).

Hann Tucker has therefore been commissioned to undertake an environmental noise survey and noise impact assessment to assess potential noise impact from existing commercial premises on the occupiers of the development.

2.0 Objectives

To undertake an environmental noise survey and noise impact assessment to assess potential noise impact from commercial premises on the occupiers of the proposed development.

3.0 Acoustic Terminology

For an explanation of the acoustic terminology used in this report please refer to Appendix A enclosed.

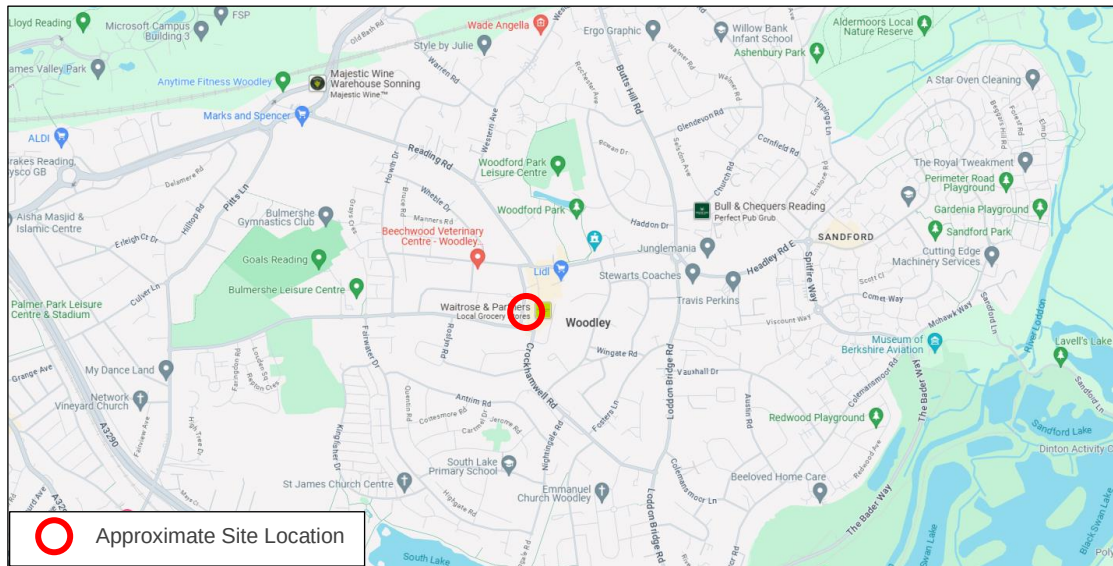


4.0 Site Description

4.1 Location

The site is located on 59 Crockhamwell Road, Woodley, Reading, RG5 3JP.

The location is shown in the Location Map below.



Location Map (Map data © 2024 Google)

The site falls within the jurisdiction of Wokingham Borough Council (WBC from herein).

4.2 Description

The site is a ground floor plus 1-storey terraced building split into 3 No. retail units 1, 2, and 3, with front commercial premises and rear and first floor storage areas. We understand Unit 1 is currently occupied by Robert Dyas while Unit 2 and 3 are currently vacant.

The site is adjoined by Bosco Lounge towards south and La De Kitchen towards north. To the immediate west (rear) of the site at ground floor level is a car park to serve deliveries and nearby retail units. The developments beyond the car park to further west are residential. To the east (front) of the site is Crockhamwell Rd, which is pedestrianised, and Waitrose, which is located approximately 7m from the front façade. There is also Crockhamwell car park located approximately 20 metres to the east of the site.

The rest of the immediate surrounding developments are predominantly ground floor commercial units that extends vertically at a similar height or slightly taller in stature (by 1 or 2-



storeys) than 59 Crockhamwell Road.

The site is bounded by Lytham Road to the west, Woodlands Ave to the south and Crockhamwell Rd to the East.

See Site Plan below.

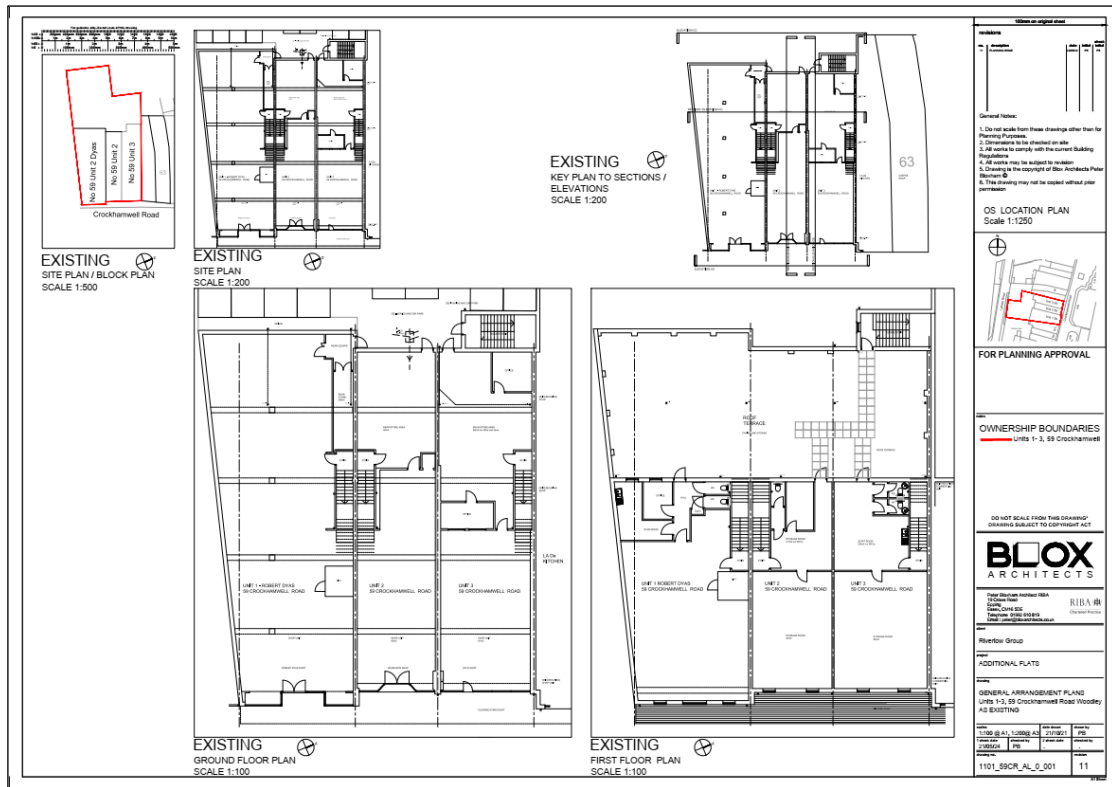


Site Plan (Map Data © 2024 Google)

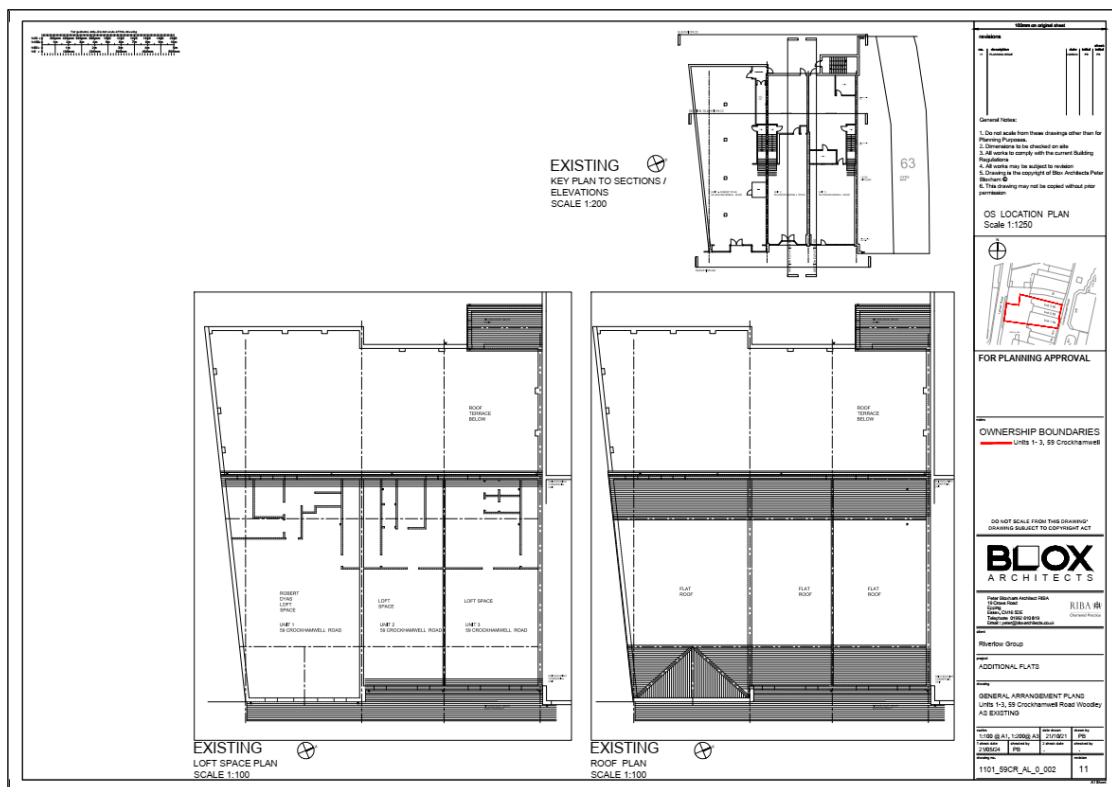
5.0 Proposed Development

5.1 Drawings Reviewed

All acoustic analyses reported herein has been based on the following drawings by Creative Blox Architects.



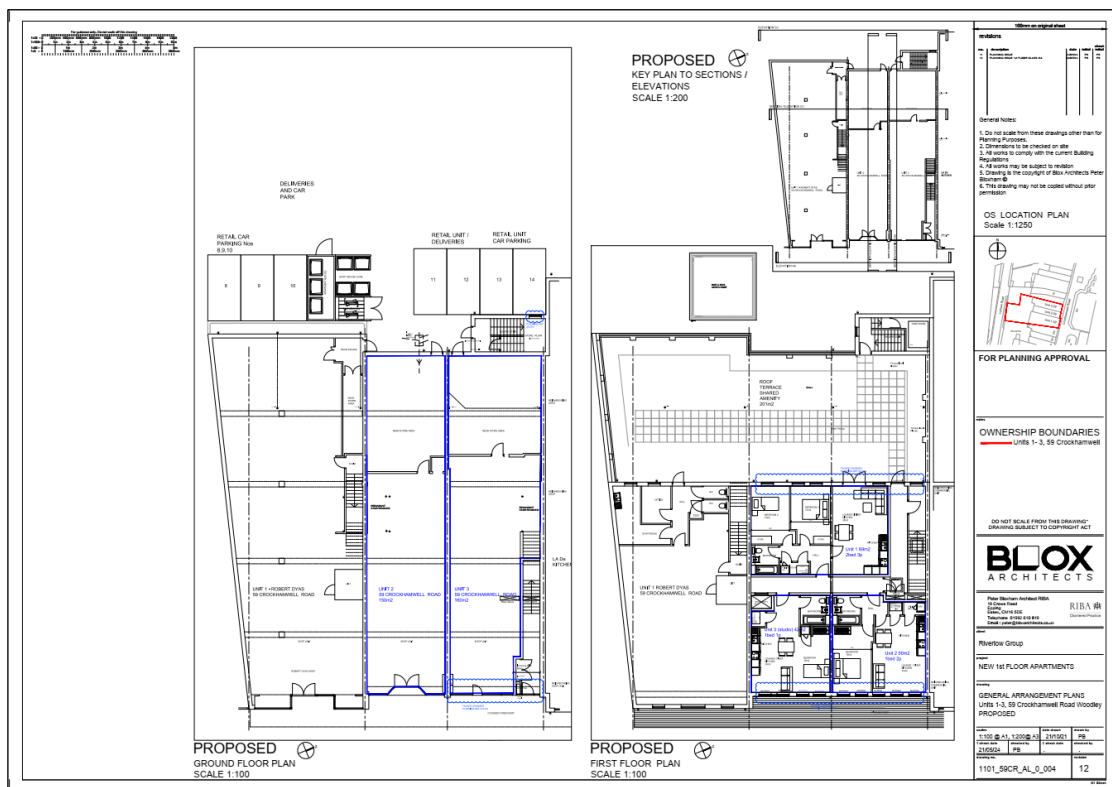
Existing General Arrangement Plans (Ground and First Floor) – Drawing ref. 1101_59CR_AL_0_001 Rev11 Dated 22/05/2024



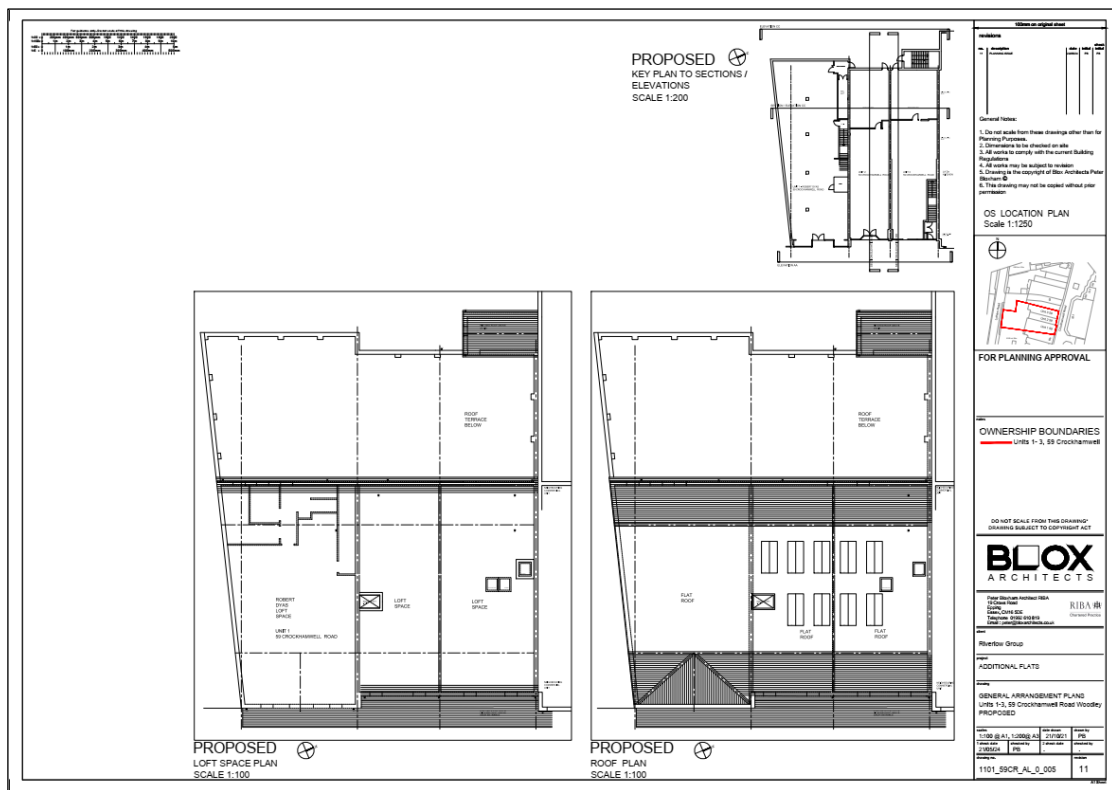
Existing General Arrangement Plans (Loft and Roof) – Drawing ref. 1101_59CR_AL_0_002 Rev11 Dated 22/05/2024



Existing General Arrangement Elevations – Drawing ref. 1101_59CR_AL_0_003 Rev11 Dated 22/05/2024



Proposed General Arrangement Plans (Ground and First Floor) – Drawing ref. 1101_59CR_AL_0_004 Rev12 Dated 02/07/2024



Proposed General Arrangement Plans (Loft and Roof) – Drawing ref. 1101_59CR_AL_0_005 Rev11
Dated 22/05/2024

6.0 Planning Policy, Standards & Guidance

6.1 Permitted Development Rights

Permitted development rights allow certain changes to be made to a building without the need to apply for planning permission. These derive from a general planning permission granted by Parliament, rather than by the local planning authority. The updated Town and Country Planning General Permitted Development (England) (Amendment) Order 2021 (GPDO).

Class MA in Part 3 of Schedule 2 relates to development consisting of a change of use of a building and any land within its curtilage from a use falling within Class E (commercial, business and service) of Schedule 2 to the Use Classes Order to a use falling within Class C3 (dwellinghouses) of Schedule 1 to that Order.

“MA.2. — (1) states Development under Class MA is permitted subject to the following conditions... (d) impacts of noise from commercial premises on the intended occupiers of the development”.

As such, for this proposal noise from commercial premises needs to be considered, however, it is assumed that there is no mandatory requirement to consider noise from other sources.



6.2 National Planning Policies

In order to provide a suitable assessment a number of national planning policies have been considered, including:

- The National Planning Policy Framework (NPPF), 2023
- The Noise Policy Statement for England (NPSE), 2010
- Planning Practice Guidance – Noise (PPGN), 2019

The above documents highlight the importance of considering the potential noise effects on any new residential development and provide a qualitative approach to assessment. However, each of the above does not provide any quantitative guidance. As such, all quantitative guidance used to form a noise impact assessment is taken from various other standards and guidance as detailed in the following sections.

A detailed summary of each of the above National Planning Policies is provided in Appendix B for reference.

6.3 Standards & Guides

6.3.1 ProPG: Planning & Noise

ProPG: Planning & Noise 'Professional Practice Guidance on Planning & Noise' was issued in May 2017 with the primary goal of assisting the delivery of sustainable residential development by promoting good health and well-being through the effective management of noise. It seeks to do that through encouraging a good acoustic design process in and around proposed new residential development having regard to national policy on planning and noise.

It is applicable to noise from existing transport sources (noting that good professional practice should have regard to any reasonably foreseeable changes in existing and/or new sources of noise). The recommended approach is also considered suitable where some industrial or commercial noise contributes to the acoustic environment provided that is "not dominant".

ProPG advocates a systematic, proportionate, risk based, 2-stage, approach. The approach encourages early consideration of noise issues, facilitates straightforward accelerated decision making for lower risk sites, and assists proper consideration of noise issues where the acoustic environment is challenging.

The two sequential stages of the overall approach are:



- **Stage 1** – an initial noise risk assessment of the proposed development site; and
- **Stage 2** – a systematic consideration of four key elements.
 - Element 1 – demonstrating a “Good Acoustic Design Process”;
 - Element 2 – observing internal “Noise Level Guidelines”;
 - Element 3 – undertaking an “External Amenity Area Noise Assessment”; and
 - Element 4 – consideration of “Other Relevant Issues”.

The ProPG considers suitable guidance on internal noise levels found in BS 8233 (see below) with the addition of an $L_{Amax,f}$ requirement for bedrooms at night, as below.

“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. In most circumstances in noise-sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45 dB $L_{Amax,F}$ more than 10 times a night. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only on the maximum noise levels but also on factors such as the source, number, distribution, predictability and regularity of noise events.”

6.3.2 BS 8233:2014

British Standard 8233: 2014 “Sound insulation and noise reduction for buildings” recommends design criteria for internal ambient noise levels for dwellings providing a reasonable or good level of protection from external noise. It states that it is desirable that ambient noise levels do not exceed the following guidelines:

Activity	Location	Desirable Internal Ambient Noise Levels	
		07:00 – 23:00	23:00 – 07:00
Resting	Living Rooms	35 dB $L_{Aeq,16hour}$	-
Dining	Dining Room/Area	40 dB $L_{Aeq,16hour}$	-
Sleeping (Daytime Resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$

Note 1: the above provides recommended levels for overall noise in the design of a building. However, ground borne noise is assessed separately and is not included as part of these targets, as human response to ground borne noise varies with many factors such as level, character, timing, occupant expectation and sensitivity

Note 2: If relying on closed windows to meet the guide values, there needs to be an appropriate alternative ventilation that does not compromise the façade insulation or the resulting noise level.

Note 3: 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.

Note 4: The levels detailed in the table above are based on the existing guidelines issued by the WHO and assume normal diurnal fluctuations in external noise and are not appropriate in all locations. Where atypical external noise levels are measured (ie high levels of traffic during certain times of the night) an appropriate alternative assessment period (eg 1 hour) and an assessment of individual night time events in terms of SEL or $L_{Amax,F}$ may be more suitable.



For outdoor living spaces, BS 8233 states “For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable and 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.”

Other locations, such as balconies, roof gardens and terraces, are also important in residential buildings where normal external amenity space might be limited or not available, i.e. in flats, apartment blocks, etc. In these locations, specification of noise limits is not necessarily appropriate. Small balconies may be included for uses such as drying washing or growing pot plants, and noise limits should not be necessary for these uses.

6.4 Local Planning Guidance

Wokingham Borough Council provide the following advice regarding noise pollution in the Managing Development Delivery Local Plan:

“Policy CC06: Noise

1. *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.*
2. *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.*
3. *Where there is an adverse effect (Lowest Observed Adverse Effect Level to Significant Observed Adverse Effect Level), then*
 - a. *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.*



- b. 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.*
- c. 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.*
- d. 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.”*

7.0 Baseline Noise Surveys

7.1 Procedure

Unattended noise monitoring was undertaken around the site over a 24-hour period to establish full daytime and night-time noise levels over a typical weekday period.

The monitoring was carried out between 11:30 hours on Thursday 02 December 2021 and 12:00 hours on Friday 03 December 2021 with equipment set up to record broadband and spectral (octave band) sound pressure levels over discrete 15-minute periods.

Additional attended measurements were undertaken between 11:00 hours and 12:00 hours on Friday 03 December 2021 and between 15:30 and 17:00 hours with the purpose of establishing specific noise levels associated with the operation of nearby commercial units.

The surveys conducted in December 2021 were performed by James Hardacre BEng(Hons) AMIOA and the attended surveys conducted in June 2024 were conducted by Kyungmin Kim BMus (Hons) PgDip AMIOA.

All measurements were collated in general accordance with BS 7445-1:2003 *Description and Measurement of Environmental Noise*.

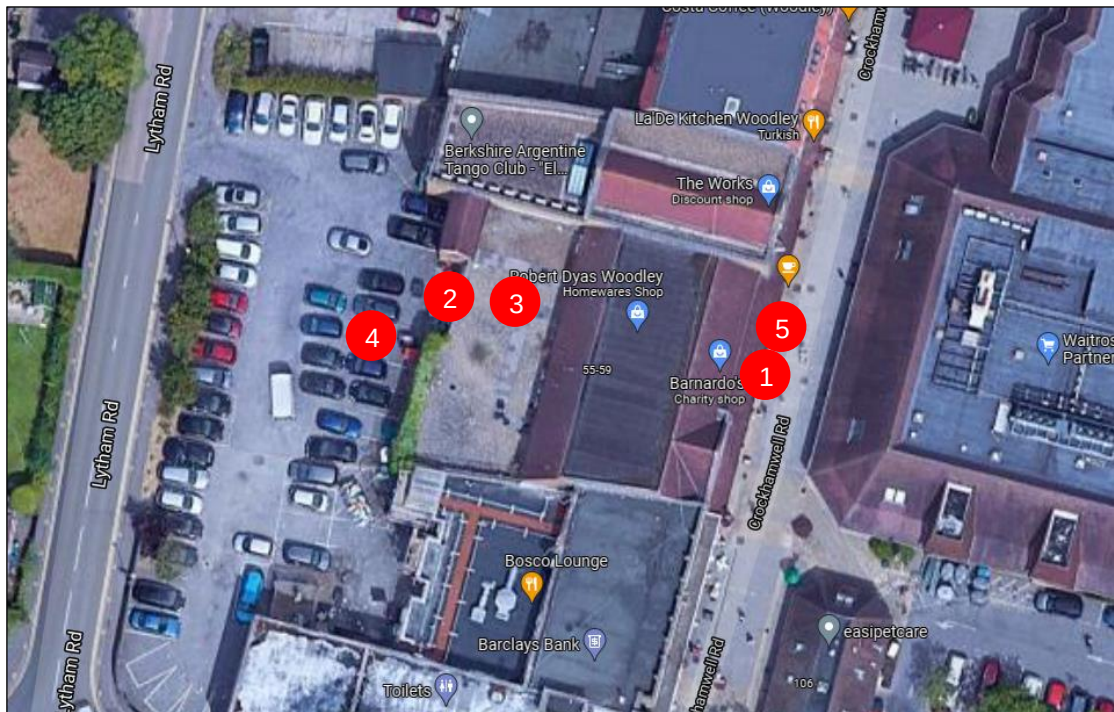


7.2 Measurement Positions

7.2.1 December 2021 Survey

The measurement positions from our unattended and attended surveys conducted between 03 and 04 December 2021 were as described and illustrated below.

Position	Type	Description
1	Unattended	The microphone was placed out a window at façade level overlooking the pedestrian area in front of the commercial units. The microphone was approximately 4 m above ground level.
2	Unattended	The microphone was placed in the free field overlooking the car park and loading bays at the rear of the unit. The microphone was approximately 4m above ground level.
3	Attended	The microphone was located on the rear terrace area at the rear of the property, approximately 1.5m above first floor roof level.
4	Attended	The microphone was located in the rear car park/loading area servicing the existing commercial units, approximately 1.5m above ground level
5	Attended	The microphone was located outside the front of the commercial unit approximately 1.5m above ground level



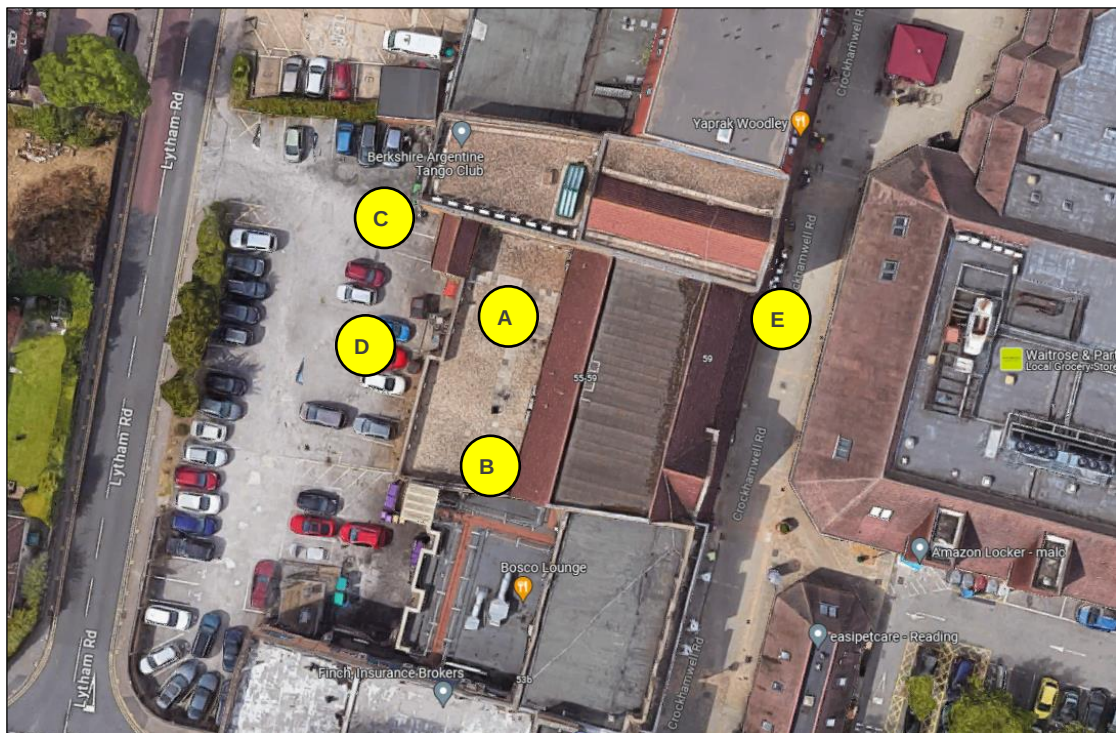
Site Plan Imagery © 2021 Getmapping plc, Infoterra Ltd & Bluesky, Maxar Technologies, The GeoInformation Group, Map data © 2021 Google)



7.2.2 June 2024 Survey

The measurement positions from our attended surveys conducted on 07 June 2024 were as described and illustrated below.

Position	Type	Description
A	Attended	The microphone was located on the rear terrace area at the rear of the property, approximately 1.5m above first floor roof level. The survey position was chosen to replicate attended measurement position 3 from our previous survey dated 04 December 2021.
B	Attended	The microphone was located on the rear terrace area at the rear of the property, approximately 1.5m above first floor roof level and 7m from the atmospheric terminal of extract fan located on the roof of Bosco Lounge
C	Attended	The microphone was located in the rear car park/loading area, approximately 1.5m above ground level and 8m from the atmospheric terminal of extract fan located on the rear façade of La De Kitchen.
D	Attended	The microphone was located in the rear car park/loading area servicing the existing commercial units, approximately 1.5m above ground level. The survey position was chosen to replicate attended measurement position 4 from our previous survey dated 04 December 2021.
E	Attended	The microphone was located outside the front of the commercial unit approximately 1.5m above ground level. The survey position was chosen to replicate attended measurement position 5 from our previous survey dated 04 December 2021.



Site Plan Imagery © 2024 (Map data © 2024 Google)



7.3 Weather Conditions

For the unattended survey between Thursday 02 December 2021 and Friday 03 December 2021, local weather reports indicated no notable periods of prolonged rainfall. During our time on site, skies were overcast, wind conditions were calm and road surfaces were largely dry.

During the attended survey on Friday 03 December 2021, the weather was generally overcast with periods of light rainfall and calm wind conditions.

During the attended survey on Friday 07 June 2024, the weather was generally clear with patchy cloud covers with no rainfall and calm wind conditions.

Weather conditions were deemed suitable for obtaining representative noise readings.

7.4 Instrumentation

The instrumentation used during the surveys conducted between 03 and 04 December 2021 are presented in the table below:

Position	Description	Manufacturer	Type	Serial Number	Last Calibration at the Time of Survey
1	Type 1 ½" Condenser Microphone	ACO Pacific	7052E	75073	Calibration on 03/11/2021
	Preamp	Svantek	SV18	82324	Calibration on 03/11/2021
	Type 1 Data Logging Sound Level Meter	Svantek	971	84050	Calibration on 03/11/2021
2	Type 1 ½" Condenser Microphone	ACO Pacific	7052E	67976	Calibration on 07/10/2021
	Preamp	Svantek	SV18	71473	Calibration on 07/10/2021
	Type 1 Data Logging Sound Level Meter	Svantek	971	80232	Calibration on 07/10/2021
3, 4, 5	Type 1 Data Logging Sound Level Meter	Bruel & Kjaer	2250	3025204	Calibration on 06/07/2021
	Type 1 ½" Condenser Microphone	Bruel & Kjaer	4189	3148322	Calibration on 06/07/2021
	Preamp	Bruel & Kjaer	ZC0032	27881	Calibration on 06/07/2021



The instrumentation used during the attended survey conducted on 07 June 2024 is presented in the table below:

Description	Manufacturer	Type	Serial Number	Calibration
Type 1 ½" Condenser Microphone	ACO Pacific	7052E	59147	Calibration on 24/01/2024
Preamp	Svantek	SV12L	42465	Calibration on 24/01/2024
Type 1 Data Logging Sound Level Meter	Svantek	977	36448	Calibration on 24/01/2024

Each unattended sound level meter was housed in a weatherproof case with the microphone connected via an extension cable.

Attended measurements were taken with handheld sound level meters mounted onto a tripod. The microphones were fitted with a windshield.

Each sound level meter was calibrated prior to and on completion of the surveys. No significant deviations occurred (not more than 0.3 dB).

7.5 Results

7.5.1 Unattended Survey (03 – 04 December 2021)

The results of the unattended survey have been plotted on Time History Graphs 29257/TH1-2 enclosed. The graphs presents the 15 minute A-weighted (dBA) L_{90} , L_{eq} and L_{max} levels at Positions 1 and 2 throughout the duration of the survey.

A summary of the results, as used to inform subsequent assessments against current guidelines, is presented in the table below. The L_{A90} values presented are the 'representative' levels determined through statistical analysis of the 15-minute readings, in line with BS 4142. L_{AFmax} values are the '10th highest' 2-minute value.

Position	Daytime (07:00 – 23:00 hrs)		Night-time (23:00 – 07:00 hrs)		
	$L_{Aeq,16hr}$	L_{A90}	$L_{Aeq,8hr}$	L_{A90}	L_{Amax}
1	58	43	47	34	63
2	58	44	49	38	64

¹External L_{AFmax} noise level not normally exceeded more than 10 times a night. This is considered to be the ventilation design case.



7.5.2 Attended Survey (04 December 2021)

The following table summarises noise levels recorded at each of the attended measurement positions from our survey conducted on 04 December 2021.

Position	Date	Period	Sound Pressure Level (dB)		
			$L_{Aeq,T}$	$L_{A90,T}$	$L_{Amax,T}$
3	2/12/2021	11:00 – 11:15	52	48	64
4	2/12/2021	11:15 – 11:30	60	50	91
5	2/12/2021	11:30 – 11:45	61	52	79

7.5.3 Attended Survey (07 June 2024)

The following table summarises noise levels recorded at each of the attended measurement positions from our survey conducted on 07 June 2024.

Position	Date	Period	Sound Pressure Level (dB)		
			$L_{Aeq,T}$	$L_{A90,T}$	$L_{Amax,T}$
A	07/06/2024	15:34 – 15:49	54	52	69
B*	07/06/2024	16:00 – 16:01	64	63	67
C*	07/06/2024	16:03 – 16:04	55	53	61
D	07/06/2024	16:07 – 16:22	54	51	66
E	07/06/2024	16:29 – 16:45	60	52	74

*Spot measurement of Plant Item (1-minute duration)

7.6 Discussion of Noise Climate

7.6.1 December 2021 Survey

During the periods we were on site the dominant noise sources were noted to be road noise from the local traffic network and to a lesser extent, commercial noise from the loading/unloading of vans to the existing commercial units and general pedestrian noise (conversations, trolleys on brickwork, etc.).

7.6.2 June 2024 Survey

During the periods we were on site, at measurement positions A, B, C, and D, the dominant noise sources were noted to be road traffic noise from Lytham Road and noise from commercial plant items serving Bosco Lounge and La De Restaurant, and to a lesser extent, commercial noise from the loading/unloading of vans to the existing surrounding commercial units.

Due to screening by the adjoining building, noise from plant item serving La De Restaurant was not perceptible over prevailing ambient noise level at façade facing west. Contrastingly, noise



from plant item serving Bosco Lounge was perceptible over the prevailing ambient noise at the façade.

At position E, the dominant noise source was general pedestrian noise (conversations, trolleys on brickwork, etc.).

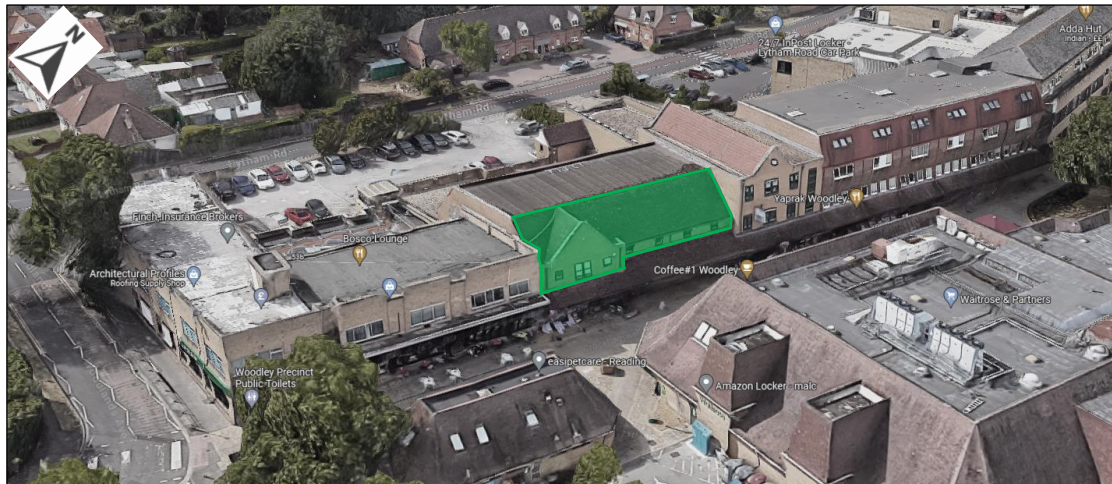
8.0 Incident Noise Levels

Façade zones outlined in the table overleaf have been determined by the unattended survey results. The following incident noise levels have been used in our calculations, associated with nearby commercial operations to the site, as required to be considered under the General Permitted Development (England) (Amendment) Order 2021.

Incident noise levels are presented in the following table.

Façade	Calculated Incident Noise Levels (dB)		
	Daytime $L_{Aeq,16h}$	Night-time $L_{Aeq,8h}$	10th Highest Max $L_{AFmax,2min}$
East	55	44	60
West	58	49	61

See marks-ups below for incident noise levels:



Façade Zone Mark-Ups – Façade Facing East (Map data © 2024 Google)



Façade Zone Mark-Ups – Façade Facing West (Map data © 2024 Google)

It is understood that existing glazing is to be retained on the building through Permitted Development Rights, and in addition, additional glazing is proposed to be installed to provide extra daylighting to upper floors as well as new entrance at ground level in Unit 3.

The assessment of noise ingress has been carried out based on existing glazing, noted to be standard double glazing (exact configuration and acoustic performance unknown) from our on-site observations.

9.0 Target Internal Noise Levels

With reference to the acoustic standards and guidelines as reviewed in Section 6.0, the following internal noise levels are considered to be reasonable design targets for the proposed habitable rooms.

Activity	Location	Desirable Ambient Criteria	
		07:00 – 23:00	23:00 – 07:00
Resting	Living Rooms	$L_{Aeq,16hour}$ 35 dB	-
Dining	Dining Room/Area	$L_{Aeq,16hour}$ 40 dB	-
Sleeping (Daytime Resting)	Bedroom	$L_{Aeq,16hour}$ 35 dB	$L_{Aeq,8hour}$ 30 dB L_{Amax} 45 dB*

* Not to be exceeded by more than 15 times per night-time period



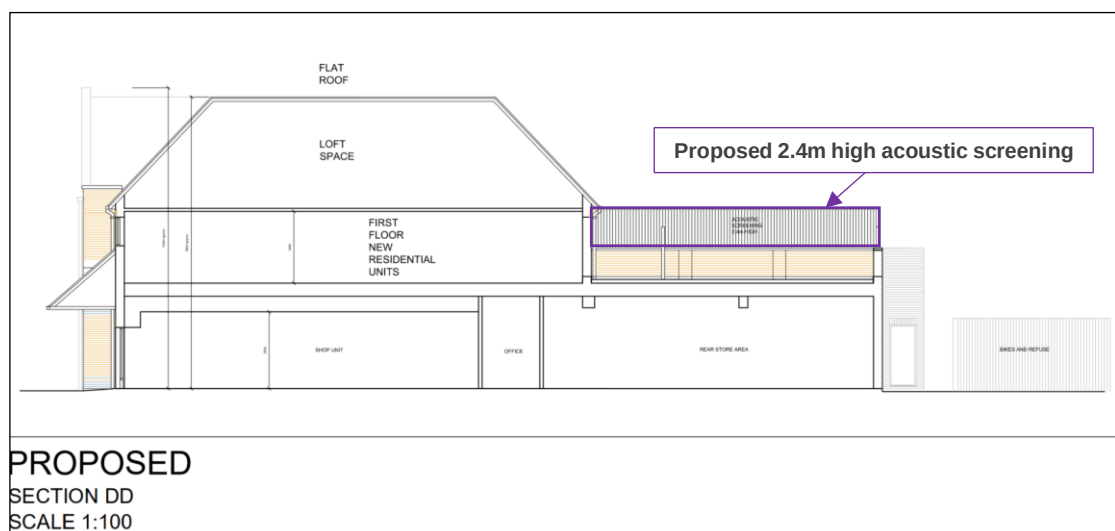
10.0 Existing Commercial Plant Noise Impact

10.1 Overview

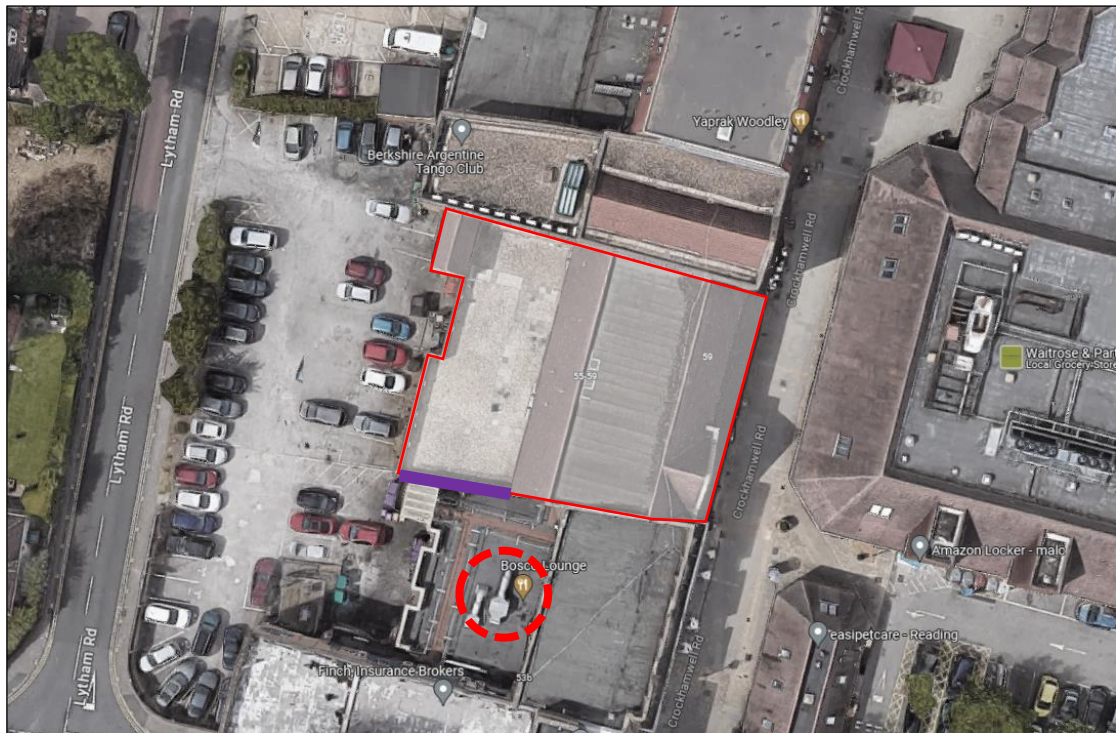
With reference to Section 7.6.2, existing extract fan item serving Bosco Lounge, although partially screened by the existing building (59 Crockhamwell Road), it was observed to be perceptible over the prevailing ambient noise at the façade.

As such, this section considers the potential noise impact of existing extract fan item serving Bosco Lounge on proposed residential receptors.

We understand as part of the proposal, there will be an acoustic screening incorporated at the boundary separating the site from the roof of adjacent commercial building as shown in below plans.



Proposed Elevation (Facing South) Indicating Proposed Acoustic Screening Location



Site Plan Indicating Proposed Acoustic Screening Location

Taking above proposal into consideration, our assessment has been carried out to the worst affected window of the proposed development, and is based on plant operating during daytime only, with no notable acoustic characteristics based on our objective and subjective assessment in accordance with BS4142:2014 + A1:2019.

10.2 Assessment

Based on the proposal, measured data, and observations made on site, the table below provides an initial BS4142:2014 assessment to determine the specific sound level.

Results		Relevant Clause	Commentary
Measured Ambient Level	64dB	7.3.2	Measured Ambient Level with Specific sound source on.
Assessment made during the daytime so reference period is 1 hour		7.2	
On-time Correction	0 dB	7.3.15	Correction for total on-time during assessment period. (ie $10\log(60/60)$)
Screening Loss	-18dB		Proposed Acoustic Screening Barrier Loss (ISO9613-2)
Specific Sound Level	46dB	7.3.8 7.3.9 7.3.10	Specific level of source corrected for residual level and on-time.



Based on the above calculated specific sound level, the table below provides our BS4142:2014 assessment from the commercial activities (extract fan) to the receptor.

Results		Relevant Clause	Commentary
Specific Sound Level	46dB	7.3.8 7.3.9 7.3.10	Specific level of source corrected for residual level and on-time.
Acoustic feature correction	0	9.2	No acoustic features were present
Rating level	46dB	9.2	Calculated by adding acoustic feature corrections to the specific sound level.
Background sound level	44dB	8.1.1 8.1.3 8.3	Background sound level measured at the proposed development site during the day.
Excess of rating over background sound level	(47 – 44) = +2dB	11	
Assessment indicates likelihood of a significant adverse impact to residents without noise mitigation measures.		11	The excess of the rating level over the background level is +2dB. Due to on-site limitation, the plant could not be switched off. As such, specific source level includes residual noise level. Based on this 2dB exceedance is marginal therefore it is concluded to be low impact
Uncertainty of the assessment	Low	10	The background sound level is based on repeatable measurements made over the duration of a day. The measurements of noise from the industrial remained consistent throughout measurement period and was subjectively dominant above road/rail/aircraft sources at proposed development site.

With reference to BS: 4142:2014+A1:2019, above assessment, in conjunction with proposed acoustic screen, indicates excess of the rating level over the daytime (07:00 – 23:00) background sound level is +2dB. Based on the wider context, this exceedance can be considered marginal and concluded to be low impact.

11.0 Assessment of Noise from Commercial Activities

11.1 Overview

In relation to the change of use from offices to dwellings/houses, the General Permitted Development (England) (Amendment) Order 2021 (GPDO) states that “**impacts of noise from commercial premises on the intended occupiers of the development**”

As discussed in Section 7.6.1, the unattended survey noise climate includes noise from commercial units below and neighbouring 59 Crockhamwell Road. As such, it is assumed that the noise data from unattended measurement positions 1 and 2 is inclusive of the commercial operational activities, with incident noise levels presented in Section 8.08.0. During our previous assessment, it was found that these commercial noise sources were not influencing the results above road traffic noise, indicating that the impact of noise from commercial premises is low.

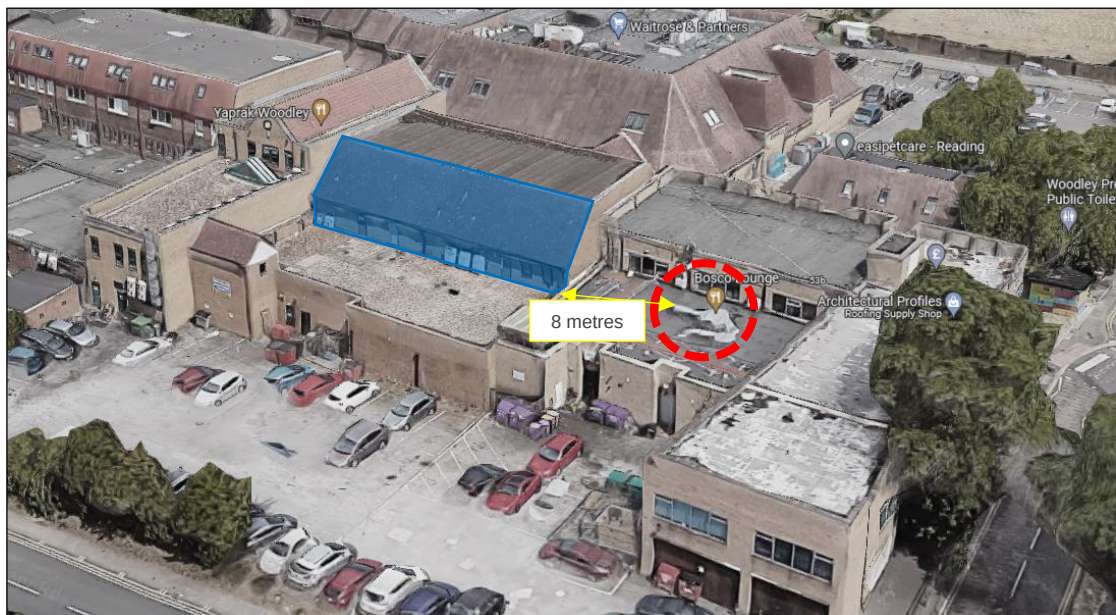


For reference of comparison, additional attended survey was carried out on 07 June 2024, replicating attended measurement positions 3, 4, and 5 from 04 December 2021, in order to determine the potential change in prevailing ambient noise level inclusive of noise from nearby commercial activities. Based on objective comparison of the results from our most recent attended noise survey (position A, D, and E) and that from our previous attended noise survey (position 3, 4, and 5), the measured noise levels at the replicate positions were equal to or below that from previous attended survey.

Notwithstanding the above, during our attended noise survey conducted 07 June 2024, it was observed that noise from the extract flue located on the roof of Bosco Lounge was perceptible over the prevailing ambient noise at attended measurement position A (corresponding to position 3 from 04 December 2021).

As such, additional spot measurement was carried out as close as reasonably possible to the extract flue – measurement position B.

The extract flue (opening) is located approximately 8m away at right angle from the nearest site boundary at 59 Crockhamwell Road. See plan below.



West-Facing Façade and Nearby Commercial Plant Item Mark-Up (Map data © 2024 Google)

As such, the impact of noise from commercial premises has been considered and assessed in line with BS 8233:2014 annex G.2.1, using the worst-case room and glazing dimensions based on the proposed plan drawings provided and our on-site observations.



11.1.1 Outline Façade Specifications

Noise incident has been undertaken for a typical bedroom, which typically are the worst affected habitable areas due to smaller room volumes. Our assessment has been based on the following assumptions:

West Facing

- Non-Glazed Element of Façade to be 103mm brick + plaster = 45dB $R_w + C_{tr}$;
- Existing Glazed Element of Façade to be equivalent having 27 dB $R_w + C_{tr}$
- Worst Case Bedroom dimensions (typical $W = 3.0m \times H = 2.5m \times D = 4.3m$);
- Façade dimensions (assumed to be $7.5m^2$);
- Glazing dimensions (assumed to be $2m^2$);
- A reverberation time of 0.5 seconds;
- Ventilation provided by openable window (based on on-site observations).

East Facing

- Non-Glazed Element of Façade to be 103mm brick + plaster = 45dB $R_w + C_{tr}$;
- Existing Glazed Element of Façade to be equivalent having 27 dB $R_w + C_{tr}$
- Worst Case Bedroom dimensions (typical $W = 3.0m \times H = 2.5m \times D = 5.0m$);
- Façade dimensions (assumed to be $7.5m^2$);
- Glazing dimensions (assumed to be $4.5m^2$);
- A reverberation time of 0.5 second;
- Ventilation provided by openable window (based on on-site observations).

11.2 Internal Noise Levels within Apartments

Our on site observations suggest that the existing building (Units 1, 2, and 3) is currently ventilated by openable windows. When assuming a 15dB loss through a partially open window (BS8233:2014 annex G.1), this would result in ambient noise levels of 40 dB $L_{Aeq,16hour}$ and 29 dB $L_{Aeq,8hour}$ for daytime and night-time, respectively within east facing rooms, and 43 dB $L_{Aeq,16hour}$ and 35 dB $L_{Aeq,8hour}$ for daytime and night-time, respectively within west facing rooms.

A partially opened window would also result in an internal maximum noise level of 45dB L_{AFmax} and 46dB L_{AFmax} during the night-time for east facing and west facing rooms respectively.

Based on the above, the daytime $L_{Aeq,16hour}$ and night-time $L_{Aeq,8hour}$ internal noise level criteria are likely to be exceeded, when assuming ventilation through partially opened windows.



We recommend provision of either whole house mechanical ventilation or 1no. ventilator as specified in the section below.

11.3 Mitigation Measures

11.3.1 Whole House Ventilation (MVHR)

If existing glazing is to be retained as part of the Permitted Development, it is required to provide an alternative means of ventilation to meet Building Regulations Part F:2021 – Volume 1: Dwellings. This can be achieved by installing MVHR to the habitable rooms of individual apartments, with the intention of keeping windows closed to meet the requirements for internal noise, as specified in Section 9.0.

The assumed performance of existing glazing for the purpose of predictive calculations has been based on a system performance of circa $R_w + C_{tr}$ 27dB. This is equivalent to a conventional double-glazed system, as observed on-site.

The resultant internal noise levels in the worst-affected bedrooms with above mitigation measure in place are shown in the table below.

Façade Zone	Calculated Incident Noise Levels (dB)			Resultant Internal Noise Level (dB)		
	$L_{Aeq,16h}$	$L_{Aeq,8h}$	$L_{AF,max}$	$L_{Aeq,16h}$	$L_{Aeq,8h}$	$L_{AF,max}$
East	55	44	60	25	15	30
West	58	49	61	27	18	27

The above predictions demonstrate that with mechanical ventilation, internal noise level criteria should be achievable.

11.3.2 Acoustic Trickle Vents

An alternative approach to mechanical ventilation is to provide openings in the façade (ie trickle ventilators or in-wall ventilators) that allow windows to be shut (not sealed) and ventilation to meet Part F minimum ventilation to still be provided (subject to review/guidance by others).

If windows are to be retained as part of the Permitted Development scheme, the minimum performance of trickle ventilators would be required to meet or show a betterment on the performance requirements tabulated below.



Façade Zone	Example Ventilation	$D_{new} + C_{tr}$
East	Trickle vent such as 'SF3300'	33
West	Trickle vent such as 'Greenwood 2500EA'	40

The resultant internal noise levels in the worst-affected bedrooms with above mitigation measure in place are shown in the table below.

Façade Zone	Calculated Incident Noise Levels (dB)			Resultant Internal Noise Level (dB)		
	$L_{Aeq,16h}$	$L_{Aeq,8h}$	$L_{AF,max}$	$L_{Aeq,16h}$	$L_{Aeq,8h}$	$L_{AF,max}$
East	55	44	60	27	18	32
West	58	49	61	28	19	28

The above predictions demonstrate that with suitably specified acoustic trickle vents, internal noise level criteria should be achievable.

It should be noted that the minimum sound insulation performance requirement for trickle ventilators outlined above assume that one ventilator is required in each room to meet the whole dwelling ventilation rates from ADF of the Building Regulations. Should additional ventilators be required, the minimum sound insulation performance of each ventilator is required to increase as per the values in the table below.

The specification of the required number of ventilators to achieve compliance with ADF requirements is beyond the scope of this report and should be confirmed by the project Mechanical and Electrical Engineers.

Number of Ventilators Required per Room	Additional Performance Required per Ventilator (dB)
1	0
2	+3
3	+5
4	+6

12.0 External Amenity Area

The development is to include a roof terrace as a shared amenity.

Noise levels in external amenity areas should ideally not be above the range of 50-55dB $L_{Aeq,16hr}$, as stated in BS8233:2014.



Based on our measured noise levels on existing roof terrace, in conjunction with the proposed acoustic screening, the noise levels should be below/within the range of 50-55dB $L_{Aeq,16hr}$ as stated in BS8233:2014, thus suitable noise levels should be achievable within the shared external amenity area in line with BS8233:2014.

13.0 Conclusions

A detailed attended noise survey has been undertaken to establish the noise levels from nearby commercial activities.

The noise impact upon the proposed dwellings has been assessed in the context of building regulations, and national and local planning policies.

Appropriate target internal noise levels have been proposed based on a detailed environmental noise survey previously conducted by Hann Tucker Associates. These are demonstrated to be achievable using conventional mitigation measures.

Noise emanating from commercial units has been assessed. It was found that, in conjunction with proposed acoustic screening, that commercial noise sources should not impact the proposals more than road traffic noise, indicating that the impact of noise from commercial premises would be low.

Furthermore, the upper floors of the adjacent properties on Crockhamwell Road (as well as other nearby properties) are already residential. Therefore, the inclusion of residential at 59 Crockhamwell Road would not alter the existing mix of uses in the area. It is therefore considered that the conversion of 59 Crockhamwell Road should not fetter the operation of the existing nearby commercial activities.

The separating floor construction must be designed to achieve a minimum on-site sound insulation performance of $45 \text{ dB } D_{nT,w} + C_{tr}$, in line with the requirements of the Building Regulations. Depending on the tenants of the ground floor commercial areas a higher performance may be required to provide suitable acoustic separation.

This assessment shows noise should not be a planning issue.

Appendix A

Acoustic Terminology

The acoustic terms used in this report are defined as follows:

dB Decibel - Used as a measurement of sound level. Decibels are not an absolute unit of measurement but an expression of ratio between two quantities expressed in logarithmic form. The relationships between Decibel levels do not work in the same way that non-logarithmic (linear) numbers work (e.g. 30dB + 30dB = 33dB, not 60dB).

dBA The human ear is more susceptible to mid-frequency noise than the high and low frequencies. The 'A'-weighting scale approximates this response and allows sound levels to be expressed as an overall single figure value in dBA. The _A subscript is applied to an acoustical parameter to indicate the stated noise level is A-weighted

It should be noted that levels in dBA do not have a linear relationship to each other; for similar noises, a change in noise level of 10dBA represents a doubling or halving of subjective loudness. A change of 3dBA is just perceptible.

L_{90,T} L₉₀ is the noise level exceeded for 90% of the period *T* (i.e. the quietest 10% of the measurement) and is often used to describe the background noise level.

L_{eq,T} L_{eq,T} is the equivalent continuous sound pressure level. It is an average of the total sound energy measured over a specified time period, *T*.

L_{max} L_{max} is the maximum sound pressure level recorded over the period stated. L_{max} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the L_{eq} noise level.

L_p Sound Pressure Level (SPL) is the sound pressure relative to a standard reference pressure of 2×10^{-5} Pa. This level varies for a given source according to a number of factors (including but not limited to: distance from the source; positioning; screening and meteorological effects).

L_w Sound Power Level (SWL) is the total amount of sound energy inherent in a particular sound source, independent of its environment. It is a logarithmic measure of the sound power in comparison to a specified reference level (usually 10^{-12} W).

Appendix B

Planning Policies, Standards & Guidance

B.1 Noise Policy Statement for England

The Noise Policy Statement for England (NPSE) was published in March 2010 (i.e. before the NPPF). The NPSE is the overarching statement of noise policy for England and applies to all forms of noise other than occupational noise, setting 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.”

That vision is supported by the following NPSE noise policy aims which are reflected in three of the four aims of planning policies and decisions in paragraph 123 of the NPPF (see paragraph 8.2 (b) below):

“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.”*

The Explanatory Note to the NPSE has three concepts for the assessment of noise in this country:

NOEL – No Observed Effect Level

This is the level below which no effect can be detected and below which there is no detectable effect on health and quality of life due to noise.

LOAEL – Lowest Observable 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.

None of these three levels are defined numerically and for the SOAEL the NPSE makes it clear that the noise level is likely to vary depending upon the noise source, the receptor and the time of day/day of the week, etc. The need for more research to investigate what may represent an SOAEL for noise is acknowledged in the NPSE and the NPSE asserts that not stating specific SOAEL levels provides policy flexibility in the period until there is further evidence and guidance.

The NPSE concludes by explaining in a little more detail how the LOAEL and SOAEL relate to the three NPSE noise policy aims listed above. It starts with the aim of avoiding significant adverse effects on health and quality of life, then addresses the situation where the noise impact falls between the LOAEL and the SOAEL when *“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.”* The final aim envisages pro-active management of noise to improve health and quality of life, again taking into account the guiding principles of sustainable development which include the need to minimise travel distance between housing and employment uses in an area.

B.2 National Planning Policy Framework (NPPF)

The following paragraphs are from the NPPF (published December 2023):

191. 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.

193. Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or ‘agent of change’) should be required to provide suitable mitigation before the development has been completed.”

Paragraph 185 also references the Noise Policy Statement for England (NPSE). This document does not refer to specific noise levels but instead sets out three aims:

- “Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.
- Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.
- Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.”

B.3 Planning Practice Guidance on Noise

Planning Practice Guidance (PPG) under the NPPF has been published by the Government as a web based resource at <http://planningguidance.planningportal.gov.uk/blog/guidance/>. This includes specific guidance on Noise although, like the NPPF and NPSE the PPG does not provide any quantitative advice. It seeks to illustrate a range of effect levels in terms of examples of outcomes as set out in the following table:

Perception	Examples of Outcomes	Increasing effect level	Action
Not noticeable	No effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
		Lowest Observed Adverse Effect Level	

Perception	Examples of Outcomes	Increasing effect level	Action
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance.	Observed Adverse Effect	Mitigate and reduce to a minimum
		Significant Observed Adverse Effect Level	
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable hard, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

B.4 British Standard BS8233: 2014

British Standard 8233: 2014 “Guidance on sound insulation and noise reduction for buildings” provides guidance for the control of noise in and around buildings.

Internal Areas

BS8233:2014 Section 7.7.2 titled “Internal ambient noise levels for dwellings” states:

“In general for steady external noise sources, it is desirable that internal ambient noise levels do not exceed the following guideline values:

Activity	Location	Desirable Internal Ambient Criteria	
		07:00 – 23:00	23:00 to 07:00
Resting	Living Rooms	35 dB $L_{Aeq,16hour}$	-
Dining	Dining Room/Area	40 dB $L_{Aeq,16hour}$	-
Sleeping (Daytime Resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$

Note 1 The above table 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 the above table 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 the above table.

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 façade 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.

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."

External Amenity Areas

BS8233:2014 Section 7.7.3.2 titled "Design criteria for external noise" states:

"For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}^1$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, 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.

Other locations, such as balconies, roof gardens and terraces, are also important in residential buildings where normal external amenity space might be limited or not available, i.e. in flats, apartment blocks, etc. In these locations, specification of noise limits is not necessarily appropriate. Small balconies may be included for uses such as drying washing or growing pot plants, and noise limits should not be necessary

for these uses. However, the general guidance on noise in amenity space is still appropriate for larger balconies, roof gardens, and terraces, which might be intended to be used for relaxation. In high-noise areas consideration should be given to protecting these areas by screening or building design to achieve the lowest practicable levels. Achieving levels of 55dB $L_{Aeq,T}$ or less might not be possible at the outer edge of these areas, but should be achievable in some areas of the space.”

B.5 ProPG : Planning & Noise : 2017

The primary goal of the ProPG is to assist the delivery of sustainable development by promoting good health and well-being through the effective management of noise. It seeks to do that through encouraging a good acoustic design process in and around proposed new residential development having regard to national policy on planning and noise. It is applicable to noise from existing transport sources (noting that good professional practice should have regard to any reasonably foreseeable changes in existing and/or new sources of noise). The recommended approach is also considered suitable where some industrial or commercial noise contributes to the acoustic environment provided that is “not dominant”.

This ProPG advocates a systematic, proportionate, risk based, 2-stage, approach. The approach encourages early consideration of noise issues, facilitates straightforward accelerated decision making for lower risk sites, and assists proper consideration of noise issues where the acoustic environment is challenging.

The two sequential stages of the overall approach are:

- Stage 1 – an initial noise risk assessment of the proposed development site; and
- Stage 2 – a systematic consideration of four key elements.

The four key elements to be undertaken in parallel during Stage 2 of the recommended approach are:

- Element 1 – demonstrating a “Good Acoustic Design Process”;
- Element 2 – observing internal “Noise Level Guidelines”;
- Element 3 – undertaking an “External Amenity Area Noise Assessment”; and
- Element 4 – consideration of “Other Relevant Issues”.

The ProPG considers suitable guidance on internal noise levels found in “BS8233:2014: Guidance on sound insulation and noise reduction for buildings”. Table 4 in Section 7.7.2 of the standard suggests that “in general, for steady external noise sources, it is desirable that the internal ambient noise level does not exceed the guideline values”. The standard states

(Section 7.7.1) that “occupants are usually more tolerant of noise without a specific character” and only noise without such character is considered in Table 4 of the standard.

Activity	Location	07:00 – 23:00 Hours	23:00 – 07:00 Hours
Resting	Living Room	35dB $L_{Aeq,16hr}$	-
Dining	Dining Room / Area	40dB $L_{Aeq,16hr}$	-
Sleeping (daytime resting)	Bedroom	35dB $L_{Aeq,16hr}$	30dB $L_{Aeq,16hr}$ 45dB $L_{Amax,F}$

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

NOTE 2 The internal L_{Aeq} target levels shown in the Table 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 L_{Aeq} target levels recommended in the Table.

NOTE 3 These internal L_{Aeq} target 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. In most circumstances in noise-sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45dB $L_{Amax,F}$ more than 10 times a night. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only on the maximum noise levels but also on factors such as the source, number, distribution, predictability and regularity of noise events (see Appendix A).

NOTE 5 Designing the site layout and the dwellings so that the internal target levels can be achieved with open windows in as many properties as possible demonstrates good acoustic design. Where it is not possible to meet internal target levels with windows open, internal noise

levels can be assessed with windows closed, however any façade openings used to provide whole dwelling ventilation (e.g. trickle ventilators) should be assessed in the “open” position and, in this scenario, the internal L_{Aeq} target levels should not normally be exceeded, subject to the further advice in Note 7.

NOTE 6 Attention is drawn to the requirements of the Building Regulations.

NOTE 7 Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal L_{Aeq} target levels may be relaxed by up to 5dB and reasonable internal conditions still achieved. The more often internal L_{Aeq} levels start to exceed the internal L_{Aeq} target levels by more than 5dB, the more that most people are likely to regard them as “unreasonable”. Where such exceedances are predicted, applicants should be required to show how the relevant number of rooms affected has been kept to a minimum. Once internal L_{Aeq} levels exceed the target levels by more than 10dB, they are likely to be regarded as “unacceptable” by most people, particularly if such levels occur more than occasionally. Every effort should be made to avoid relevant rooms experiencing “unacceptable” noise levels at all and where such levels are likely to occur frequently, the development should be prevented in its proposed form (See Section 3.D).

B.6 British Standard 4142:2014 + A1:2019

When setting plant noise emission criteria reference is commonly made to BS 4142:2014 “Methods for rating and assessing industrial and commercial sound”.

The procedure contained in BS 4142:2014 provides an assessment of the likely effects of sound on people when comparing the specific noise levels from the source with representative background noise levels. Where the noise contains “a tone, impulse or other characteristic” then various corrections can be added to the specific (source) noise level to obtain the “rating level”.

BS 4142 states that: “The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs”. An estimation of the impact of the specific noise can be obtained by the difference of the rating noise level and the background noise level and considering the following:

- “Typically, the greater this difference, the greater the magnitude of the impact.”
- “A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.”

- *“A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.”*

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

The determination of the “rating level” and the “background level” are both open to interpretation, depending on the context.

Appendix C

Time History Graphs

59 Crockhamwell Road

Position 1

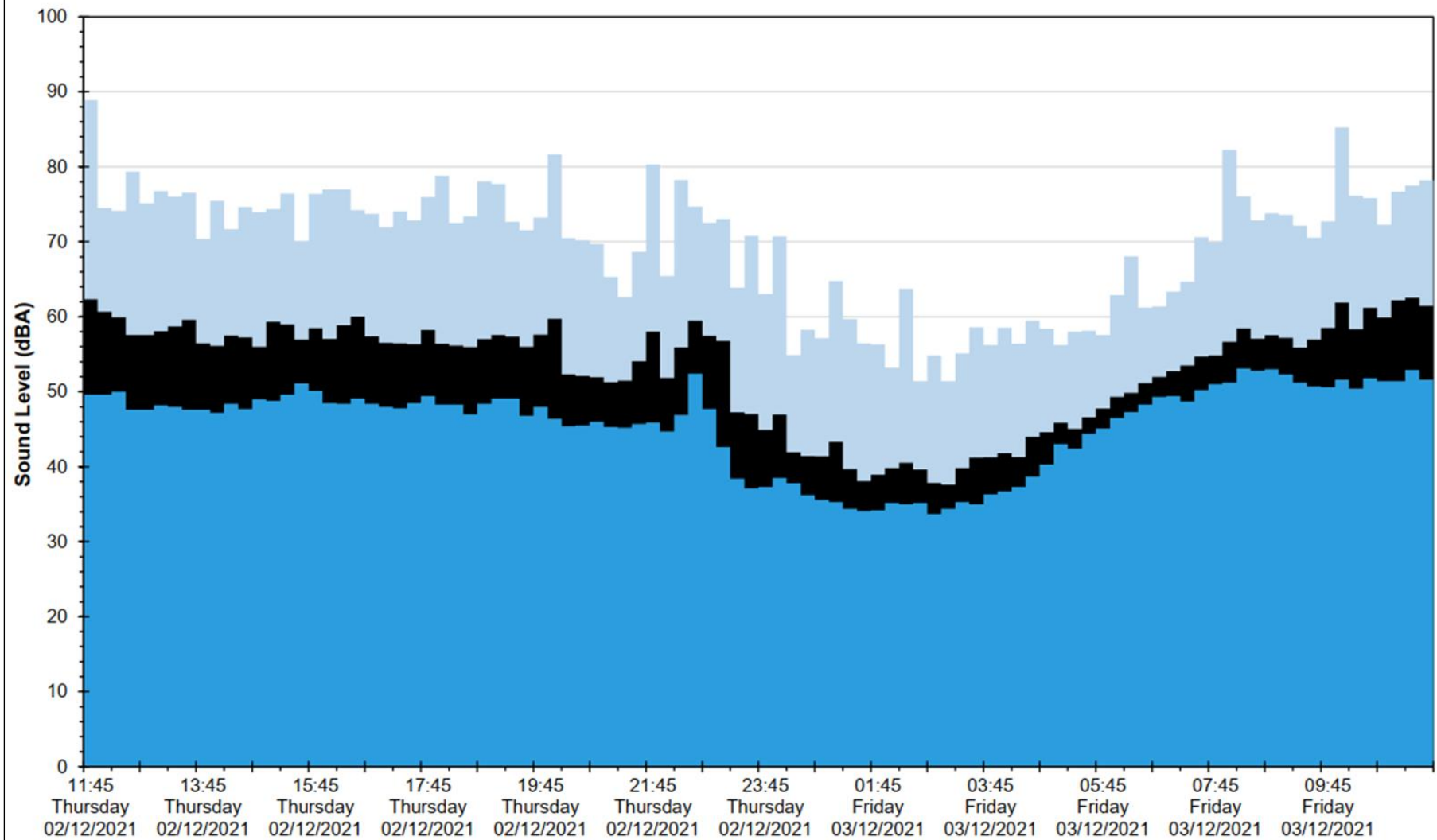
L_{eq} , L_{max} and L_{90} Noise Levels

Thursday 2 December 2021 to Friday 3 December 2021

■ L_{max}

■ L_{eq}

■ L_{90}



Date and Time

29257/TH1

59 Crockhamwell Road

Position 2

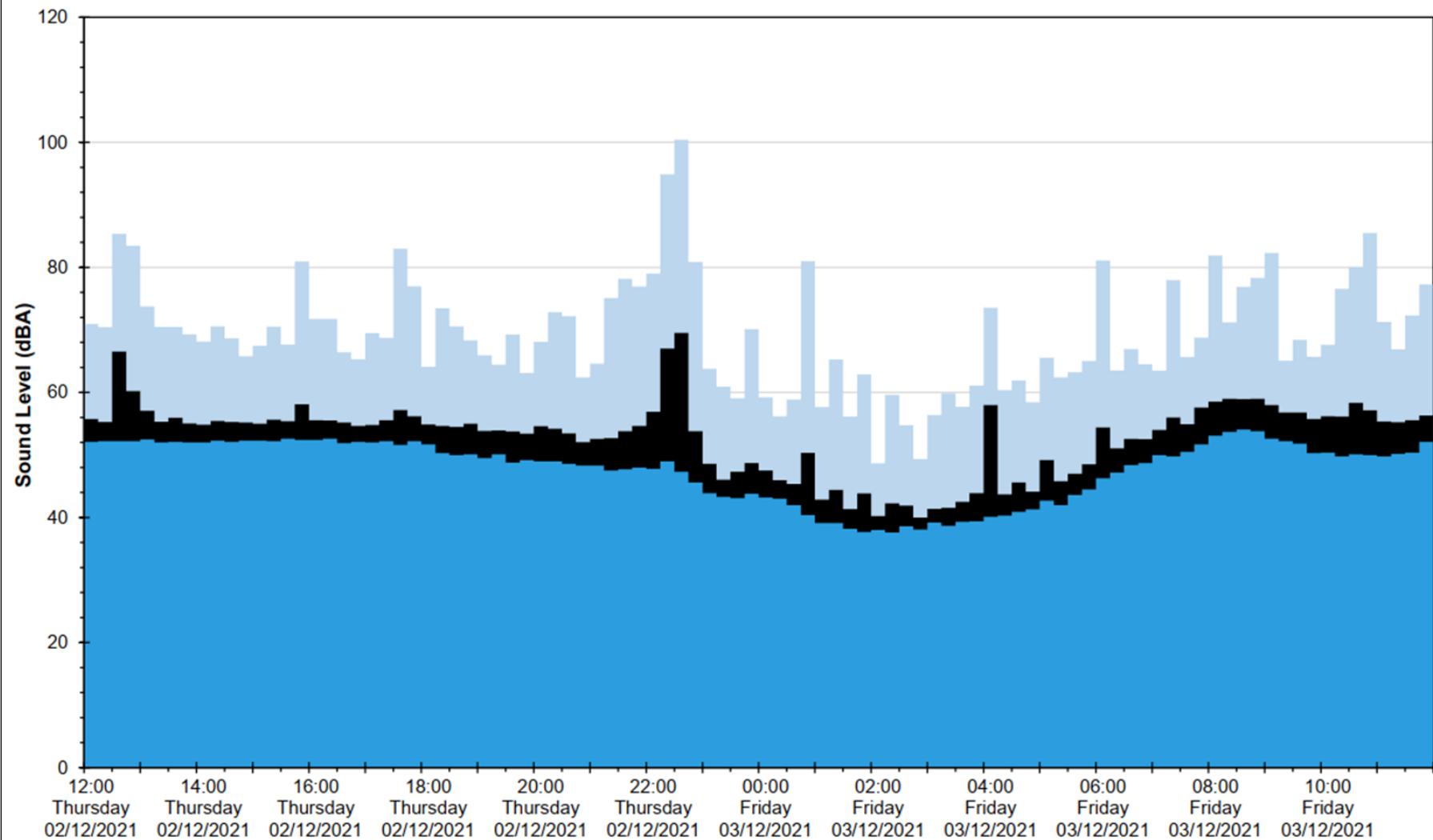
L_{eq} , L_{max} and L_{90} Noise Levels

Thursday 2 December 2021 to Friday 3 December 2021

■ L_{max}

■ L_{eq}

■ L_{90}



Date and Time

29257/TH2