7-9 ST GEORGES SQUARE LLP

26 DITCHLING ROAD, BRIGHTON, BN1 4SF

Noise Quality Assessments

October 2023

eas ltd
Environmental Assessment Services Ltd

REPORT DATA SHEET

Requirement	Data
Report Ref	644/7-9 StGeorges/26DitchlingRoad/Noise
Date	October 2023
Client	7-9 St Georges Square LLP
Report type	Noise Impact Assessment
Purpose	Planning
Revisions	-
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Noise Impact Assessment

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Noise Impact Assessment

October 2023

1. THE SITE AND BACKGROUND

1.1 The site comprises a plot of land located immediately adjacent to the junction of Viaduct Road, Ditchling Road and Upper Lewes Road 1 km north of the centre of Brighton. The site contains a single three-storey (two storeys plus a large attic space) detached building, most recently used as offices on the ground floor and residential flats on the upper two floors, with parking and access from Upper Lewes Road. The OS map reference for the site is TQ 31516 05347. The approximate site elevation is +27 m OD. See Appendix A, Figure 1 Site Location.

1.2 The surrounding land uses comprise a mix of residential and commercial, with residential flats lying to the north of the site, on the opposite side of the Upper Lewes Road, and houses lying to the east (rear), fronting Rose Hill, and to the south, fronting Ditchling Road. Offices occupy a building to the northeast of the site, on the opposite side of Ditchling Road.

1.3 The principal noise source at the site is considered to be the road traffic on Viaduct Road, Ditchling Road and Upper Lewes Road. Vehicle speeds are generally slow around the site due to traffic flow being frequently interrupted by traffic lights at the junction and a 20 mph speed limit applying in this area. The rear of the site is quieter, with the principal noise sources still being the nearby traffic. The present fenestration of building's façades is double glazed sash style windows. It is not known whether the double glazing is a basic thermal type or includes a higher acoustic rating.

1.4 A noise impact assessment has been carried out in accordance with Professional Practice Guidance (ProPg): Planning & Noise (May 2017) and with reference to the recommendations given in the *National Planning Policy Framework* (NPPF) March 2012 and *Noise Policy Statement for England* (NPSE) 2010. Reference has been made to the British Standard Guidance on Sound Insulation and Noise Reduction for Buildings (BS 8233:2014) and the World Health Organisation publications Night Noise Guidelines for Europe 2009 and Community Noise Guidelines 1999. The site was visited on 4 October 2023 and revisited on 10 October 2023.

2. DEFINITIONS

2.1 Noise assessment terms used in the report are defined and described below:

$dB_{(A)}$ – the unit of noise measurement that expresses the loudness in terms of decibels (dB) weighted by frequency for human sensitivity to sound (A).

$L_{(A)90}$ – A-weighted sound pressure level exceeded for 90 % of the measured time; defined as 'background noise level'.

$L_{(A)eq}$ – equivalent continuous A-weighted sound pressure level over a given period of time; defined as 'average noise level'.

$L_{(A)max}$ – equivalent maximum A-weighted sound pressure level over a given period of time; defined as 'maximum sound level'.

$L_{(A)i0}$ – A-weighted sound pressure level exceeded for 10 % of the measured time; a measure frequently referred to relating to traffic noise.

3. THE ASSESSMENT

3.1 The assessment comprised:

The selection of suitable noise monitoring stations reasonably representative of the exposure of the proposed residential receptors.

The installation of the noise monitoring apparatus for suitable monitoring periods.

Additional short-term noise monitoring around the site.

General observations of factors affecting noise around the site.

A review of the results of the monitoring.

Recommendations regarding noise attenuation options, where indicated.

3.2 The monitoring was carried out at the site between Wednesday 4 October and Tuesday 10 October 2023. Noise levels at the site during the monitoring were considered to be reasonably representative of the ambient noise climate at the site.

3.3 Continuous noise monitoring was carried out at the western façade of the building, overlooking Ditchling Road and the junction with Viaduct Road and Upper Lewes Road, deemed to be exposed to the most traffic noise. Additional short-term noise monitoring was carried out at the northern façade, overlooking Upper Lewes Road and in the southeast corner of the site. See Figure 2 for monitoring locations.

3.4 The monitoring was carried out using a CEL (Casella) Type 490C Precision Sound Level Meter (SLM) and CEL-110/1 field calibrator (calibrated to national standards on 31 March 2016 – see certificate in Appendix B). The SLM was field calibrated before and after each monitoring session and no measurable drift was observed. Calibration readings before and after the monitoring sessions were all 113.9 dB.

4. RESULTS OF THE MONITORING

4.1 During the continuous monitoring, the SLM microphone boom was mounted on the front edge of the property on the western border of the site, fronting on to Ditchling Road at the junction of Ditchling Road and Upper Lewes Road. The microphone boom was located at the front of a sparse yew hedge that borders the property and the junction. The foliage present may have contributed to some very minor deadening of the ambient noise recorded; however this would be negligible when compared with the noise level exposure at the site.

4.2 The short-term monitoring was carried out with the SLM mounted on a tripod 1.5 m above ground level, some 3 m from the nearest façade.

4.3 The results of the noise monitoring are summarised in Tables 4.1 and 4.2 below:

TABLE 4.1
AMBIENT DAYTIME NOISE LEVELS

Date	$L_{(A)eq}$ $dB_{(A)}$	$L_{(A)90}$ $dB_{(A)}$	$L_{(A)10}$ $dB_{(A)}$	$L_{(A)max}$ $dB_{(A)}$
Wednesday 4 Oct 2023	69.5	58.1	71.2	107.1
Thursday 5 Oct 2023	69.1	57.9	71.5	103.7
Friday 6 Oct 2023	68.9	58.6	71.4	100.1
Saturday 7 Oct 2023	68.2	57.3	70.6	101.8
Sunday 8 Oct 2023	68.7	55.8	70.1	105.8
Monday 9 Oct 2023	69.8	57	70.9	111.2
Tuesday 10 Oct 2023	69.3	58.5	72.0	99.5

4.4 Professional Practice Guidance (ProPg): Planning & Noise Note 1 gives an initial noise risk assessment *risk of adverse effects* value in the range Negligible to High based on the daytime $L_{(A)eq\ 16hr}$ and night-time $L_{(A)eq\ 8hr}$ exposures recorded at the site. From the results in Table 4.1 above and Table 4.2 below, the initial noise risk assessment value for the exposure at the site is Medium to High. This indicates that good acoustic design process should be followed for residential properties at this site.

TABLE 4.2
AMBIENT NIGHT-TIME NOISE LEVELS

Date	$L_{(A)eq}$ $dB_{(A)}$	$L_{(A)90}$ $dB_{(A)}$	$L_{(A)10}$ $dB_{(A)}$	$L_{(A)max}$ $dB_{(A)}$
Wed/Thurs 4/5 Oct 2023	61.7	46.4	46.4	86.9
Thurs/Fri 5/6 Oct2023	61.4	47.4	47.4	87.9
Fri/Sat 6/7 Oct 2023	62.0	48.6	48.6	93.8
Sat/Sun 7/8 Oct 2023	62.7	48.3	48.3	103.7
Sun/Mon 8/9 Oct 2023	60.5	45.9	45.8	85.0
Mon/Tue 9/10 Oct 2023	61.2	46.4	46.4	95.3

TABLE 4.3
ADDITIONAL SHORT-TERM NOISE MONITORING

MONITORING LOCATION	2. Northern façade overlooking Upper Lewes Road, microphone on tripod			
PERIOD	10 October 2023			
NOISE LEVELS $dB_{(A)}$	$L_{(A)eq}$	$L_{(A)90}$	$L_{(A)10}$	$L_{(A)max}$
	61.7	52.1	64.8	72.0
WEATHER	Light winds, generally dry			
PRINCIPAL NOISE SOURCES	Traffic at Viaduct Road, Ditchling Road and Upper Lewes Road junction			

MONITORING LOCATION	3. Southeast corner, microphone on tripod			
PERIOD	10 October 2023			
NOISE LEVELS $dB_{(A)}$	$L_{(A)eq}$	$L_{(A)90}$	$L_{(A)10}$	$L_{(A)max}$
	54.3	50.0	56.5	62.7
WEATHER	Light winds, dry			
PRINCIPAL NOISE SOURCES	Traffic at Viaduct Road, Ditchling Road and Upper Lewes Road junction			

4.5 The traces from the continuous monitoring at monitoring location 1 and frequency data are given in Appendix C.

5. INTERPRETATION OF THE RESULTS

5.1 The meteorological conditions at the site throughout the monitoring period were generally quiescent, dry and warm, therefore no allowance for weather conditions was considered necessary.

5.2 The results confirm that the site is exposed to high levels of noise, therefore noise attenuation measures will be required in order to achieve an appropriate internal noise level suitable for a residential use. The rear (east) of the site is considerably quieter than the front (west), with $L_{(A)eq}$ values some 14 $dB_{(A)}$ lower. The north façade noise exposure appears to be around 10 $dB_{(A)}$ quieter than the west façade.

6. NOISE IMPACT ASSESSMENT

6.1 Internal Noise Level Guidelines (Stage 2, Element 2)

6.1.1 The World Health Organisation (WHO) recommends no more than 30 $dB_{(A)}$ $L_{(A)eq}$ to permit restful sleep. The same night-time guideline is given in BS 8233:2014. Night time is classed as 23:00 - 07:00 hours. The permitted maximum daytime internal $L_{(A)eq}$ is given as 35 $dB_{(A)}$ in the British Standard (BS). In order to meet these guideline values for the windows on the west façade, some 34 $dB_{(A)}$ of attenuation will be necessary. For the northern façade, some 28 $dB_{(A)}$ of attenuation will be necessary. The windows on the rear of the building will be required to provide some 22 $dB_{(A)}$ of attenuation. The required attenuation for the west and north façades could be achieved by the existing fenestration, if it could be confirmed that this is rated to provide >34 $dB_{(A)}$ of attenuation at traffic noise frequencies. No special acoustic glazing will be required for the windows at the rear of the building as standard thermal double glazing should be more than adequate.

6.1.2 The external walls appear to be brick, rendered on the north facade. The English bond brickwork visible on the west facade suggests that the walls are solid, probably with a rendered and wet plaster interior finish. BS 8233 suggests that this structure would provide 50 - 55 dB of attenuation.

6.1.3 There is a double front door on the Ditchling Road façade. This appears to be tight fitting modern type with double-glazed high-level windows and leads into a commercial foyer. It does not appear to represent a significant weak spot in the acoustic attenuation of this façade. There is a door on the northern facade providing access to the flats on the first and second floors. This appears to be a solid modern door and benefits from being shielded from noise on Upper Lewes Road by the adjacent 1.8 m high brick and flint boundary wall.

6.1.4 The roof structure originally comprised clay tiles on 12 mm thick boards supported on timber rafters. However, it is understood that the roof has undergone renovation, including the installation of new insulation. The attenuation provided by the roof structure is likely to be >35 $dB_{(A)}$.

6.1.5 Opening windows to permit cooling on hot days or nights will tend to result in internal noise levels exceeding the WHO and BS standards as an open window will only provide 12 - 15 $dB_{(A)}$ of attenuation. It will be necessary to install acoustic ventilation with the same attenuation rating as the windows to provide an alternative to opening windows for room ventilation. In order to provide adequate cooling airflow through the acoustic vents, the affected rooms will also require powered extract ventilation. The outlet for powered extract ventilation will have to be attenuated or located on, say, the roof, where no attenuation should be necessary. There may be air quality considerations which would prevent pulling air in from the western and northern façades, although discharging air through these façades may be practicable. An alternative would be a "whole house" ventilation system with heat recovery. The system inlets should be located on the rear façade to reduce both noise and air quality impacts.

6.1.6 The WHO guidance states that the number of individual night-time noise events ($L_{(A)max}$) exceeding 45 $dB_{(A)}$ within a bedroom should be limited. This is generally taken as not more than eight exceedances during a single night. From the $L_{(A)max}$ trace for the night-time period, it is apparent that $L_{(A)max}$ individual events of 80 $dB_{(A)}$ were recorded on average just less than eight times per night. This suggests that an attenuation of 35 $dB_{(A)}$ would be required in order to limit internal exceedances of 45 $dB_{(A)}$ night-time noise events to less than eight. This also suggests that the attenuation levels calculated in 6.1.1 above should be increased by 1 $dB_{(A)}$.

6.2 External Noise Level Guidelines and Amenity Area Assessment (Stage 2 Element 3).

6.2.1 For external areas, the World Health Organisation (WHO) community noise guidelines suggest 55 $dB_{(A)}$ $L_{(A)eq}$ as the threshold for annoyance, with the BS 8233:2014 stating that noise which does not exceed 50 $dB_{(A)}$ $L_{(A)eq}$ to be "desirable". Less than 55 $dB_{(A)}$ $L_{(A)eq}$ is only likely to be achieved directly behind the building, where there is no line of sight to traffic. There are no external amenity areas.

6.3 The highest peak ($L_{(A)max}$) noise level recorded was 111.2 $dB_{(A)}$. There were a total of ten events exceeding 100 $dB_{(A)}$ during the monitoring, all of them during daytime. The source of these peak noise levels is uncertain, however, noisy vehicles, emergency services' sirens or seagull calls near to the microphone are considered to be the most likely sources.

6.4 Any proposed redevelopment of the building will have some noise impacts. However, internal work and, work restricted to normal hours, should not be a significant concern.

7. CONCLUSIONS

7.1 The National Planning Policy Framework (NPPF) states that sustainable development should:

i. Avoid noise from giving rise to significant adverse impacts on health and quality of life.

ii. Mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise, including through the use of conditions attached to planning consents.

iii. Recognise that development will often create some noise and existing businesses, wanting to develop in continuance of their business, should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established.

iv. Identify and protect areas of tranquillity, which have remained relatively undisturbed by noise and are prized for their recreational and amenity value.

7.2 Due to the location of the site, whereby the west (front) façade overlooks the junction of Ditchling Road and Viaduct Road and the northern façade overlooks Upper Lewes Road, it is significantly impacted by traffic noise. The eastern and southern façades are less impacted by traffic noise.

7.3 Professional Practice Guidance (ProPg): Planning & Noise Note 1 *risk of adverse effects* rating for the site is Medium to High. This indicates a requirement that good acoustic design process should be followed for residential land use at this site.

7.4 In order to achieve the desired <30 $dB_{(A)}$ $L_{(A)eq}$ within the west/front façade bedrooms, and accounting for night-time peak noise events, acoustic double glazing and acoustic ventilation will be required in order to provide 35 $dB_{(A)}$ of attenuation. For rooms on the north façade, a minimum of 28 $dB_{(A)}$ of attenuation will be required for windows and any ventilation openings. For rooms on the south and east façade, a minimum of 22 $dB_{(A)}$ of attenuation will be required for windows and any ventilation openings. This may be achieved by standard thermal double glazing with matching acoustic ventilation.

7.5 The recommended attenuation will address items 7.1 (i) and (ii) above (from the NPPF). The ventilation will need to be powered to provide an adequate cooling air-flow, which would be unlikely to be provided by passive vents alone. An alternative to powered acoustic ventilation would be a "whole house" type ventilation system with heat recovery and inlets located on the south or east façades where air quality is likely to be better.

7.6 External noise levels less than the 55 $dB_{(A)}$ $L_{(A)eq}$ recommended as an annoyance threshold by WHO are only likely to be achieved directly behind the building, where there is no line of sight to traffic. There are no external amenity areas.

7.7 Any proposed redevelopment of the building comprising internal refurbishment should not have significant adverse noise impacts on adjacent residential receptors, as long as the work is restricted to normal hours.

7.8 The evidence of this assessment is that, subject to implementing the mitigation and attenuation measures recommended above, any proposed internal development of this site should not give rise to significant adverse impacts on health and quality of life for proposed future residents.

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APPENDIX A
Figure 1 : Site Location

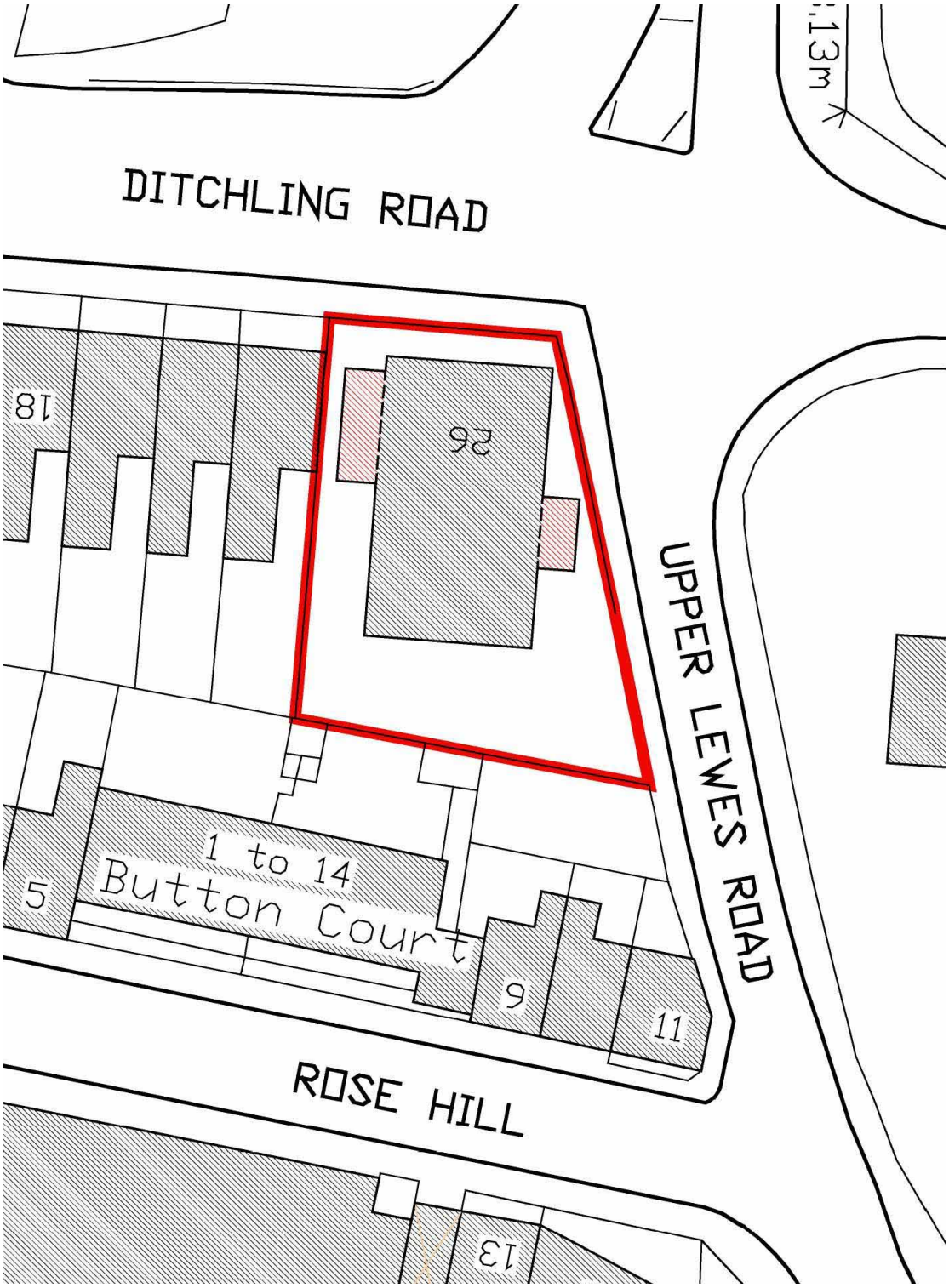
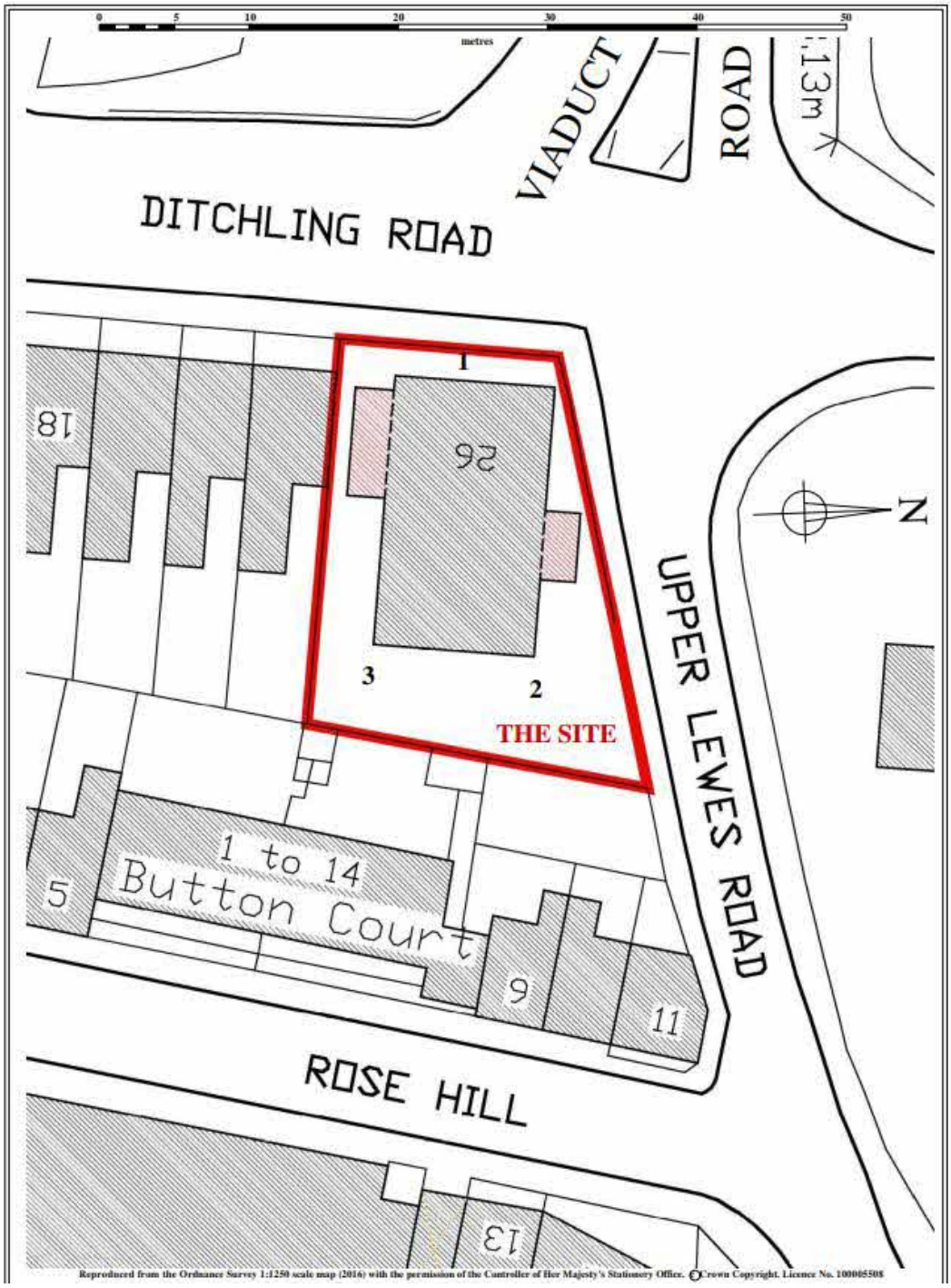


Figure 2: Monitoring Locations



1: Continuous monitoring location
2: Additional noise monitoring location
3: Additional noise monitoring location

APPENDIX B
Noise Monitor Calibration Certificates

Acoustic Calibration Services Limited
Unit 6H Diamond Industrial Centre
Works Road Letchworth Garden City
Hertfordshire SG6 1LW
Tel: 01462 677 197 Mobile: 0771 886 4944
Email: trevjohnlewis@aol.com
or
cal@acousticcalibration.co.uk
web: www.acousticcalibration.co.uk

ACSL
Acoustic Calibration Services Limited

CERTIFICATE OF CALIBRATION

Model: Casella CEL-490·C1 **Serial Number:** 129580

Organisation: Environmental Assessment Services Limited,1st Floor, Unit 1, Winterpick Business Park, Hurstpierpoint Road, Wineham, Henfield, West Sussex BN5 9BJ

Job Number: 2935 **Customer Order Reference:** SLM Calibration

The Sound Level Meter was assessed for conformance with International Standards IEC 60651 and IEC 60804 using test procedures described in BS 7580 Part 1. The meter claims Type 1 accuracy conformance and it was against these requirements that all the results were evaluated.

The sound level meter was fitted with a **GRAS 40AE** measurement microphone Serial No. **100742** and a **CEL-495** preamplifier Serial No. **001597**. The microphone was replaced with a suitable input device in order to apply electrical signals to the preamplifier.

A **Casella CEL-110/1** Acoustic Calibrator Serial No: **119427** was supplied with the meter and was utilised in establishing the initial acoustic calibration setting.

The sound level meter passed all applied tests with no deviations from Type 1 specification, in accordance with IEC 60651 and IEC 60804. Accordingly, the meter meets the requirements of BS 7580 Part 1.

The sound level meter should be set to read **113.9dB** when used with the associated acoustic calibrator, microphone and preamplifier, as detailed above at reference atmospheric pressure.

All ACSL's calibration instrumentation is fully traceable to National Standards. The acoustic references are calibrated by laboratories which are UKAS accredited for the purpose.

Certificate No: **16161**
Date of Issue: **9th March 2023**

Signature:
Print Name: **Trevor Lewis**

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web: www.acousticcalibration.co.uk

ACSL
Acoustic Calibration Services Limited

CERTIFICATE OF CALIBRATION

Model: Casella CEL-110/1 **Serial Number:** 119427

Organisation: Environmental Assessment Services Limited,1st Floor, Unit 1 Winterpick Business Park, Hurstpierpoint Road, Wineham Henfield, West Sussex BN5 9BJ

Job Number: 2935 **Customer Order Reference:** SLM Calibration

The acoustic calibrator was run for a period of time until a stable level was achieved. The output level was compared to the certified level of the laboratory measurement references. The calibrator was applied to the meter, removed, then reapplied to provide five separate readings, with the average value of these measurements recorded and certified.

The ambient temperature during calibration was **22.0** ± 1°C.
The barometric pressure was **99.4** to **99.5** kPa.
The relative humidity was **35** to **45** %

The sound pressure level output from the Acoustic Calibrator was measured in its half inch configuration using a B&K 4134 microphone. The mean level output of the acoustic calibrator was 114.0 dB at the reference setting and 94.1 dB at the -20dB setting.

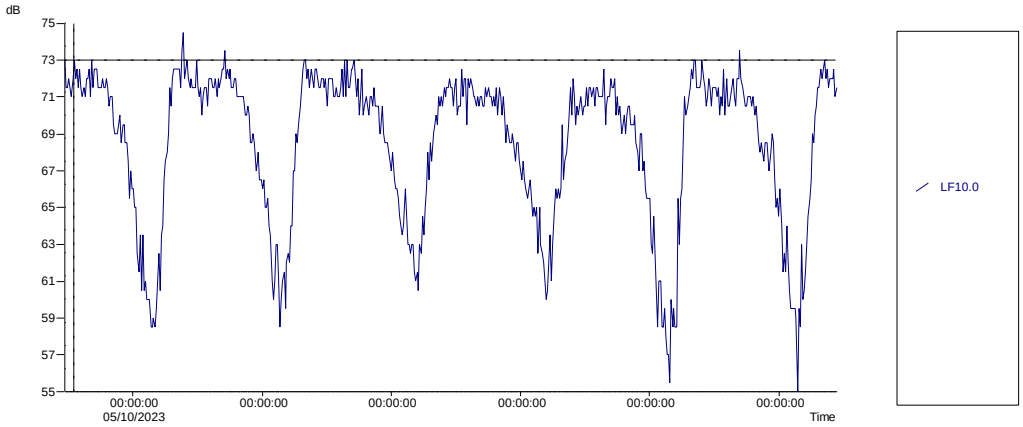
The output frequency signal of the acoustic calibrator is 1000Hz.

All ACSL's calibration instrumentation is fully traceable to National Standards. The acoustic references are calibrated by laboratories which are UKAS accredited for the purpose.

Certificate No: **16160** ***Signature:***
Date of Issue: **9th March 2023** ***Print Name:*** **Trevor Lewis**

Robert Lewis Accountants, Head Office: 4 Capricorn Centre Cranes Farm Road Basildon SS14 3JJ
Registered No: 4143457 VAT No: GB 770505441 Directors: Trevor J Lewis, G Parry BSc CPhys MInstP AMIOA, O R Clingan MIOA

APPENDIX C
SLM Traces



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Cursor 2: Time = 04/10/2023 12:56:07, Level = 73.0 dB, Flags: -----
Duration on / between the cursors = 00:15:00, Flags: , Scale: 1:1

- LZF10.0 -

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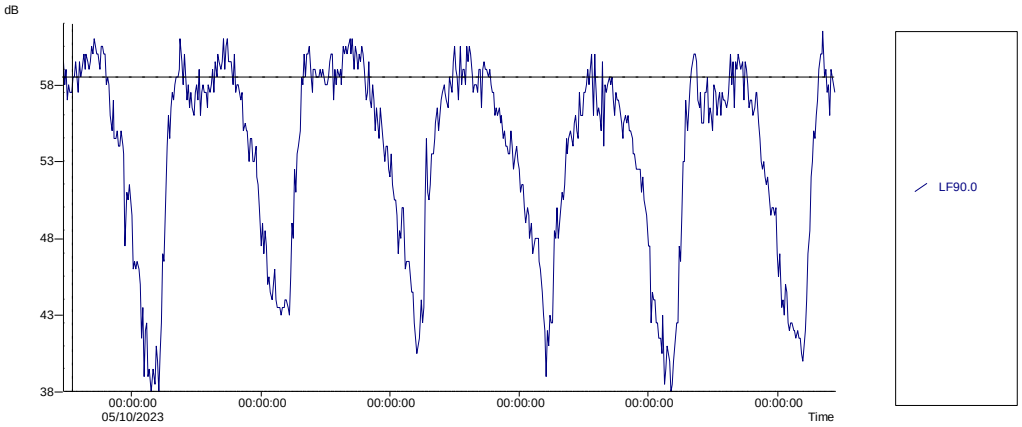

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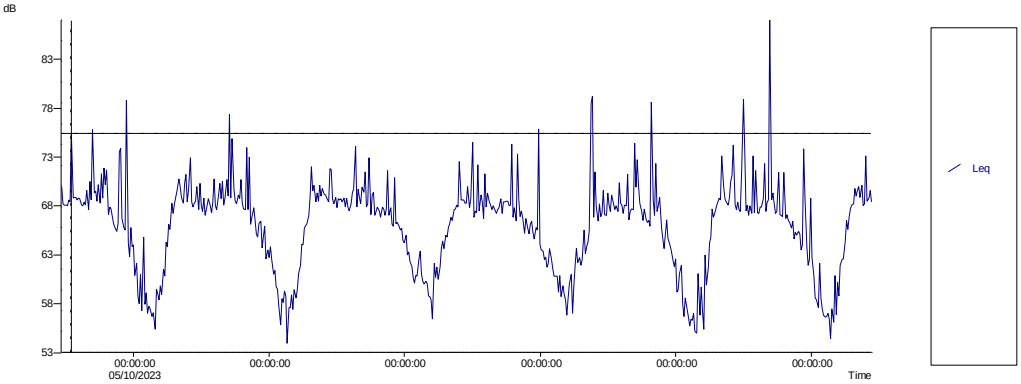

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Band = Broadband
Overall profile duration = 143:45:46 (575 samples)
Function order = LZeq dB
Cursor 1: Time = 04/10/2023 12:56:07, Level = 75.4 dB, Flags: -----
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- LZeq -

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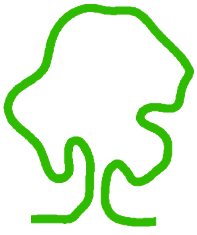
Calculated average LZeq = 68.7 dB, Overall
Calculated average LZeq = 75.4 dB, On / between the cursors
Calculated average LZeq = 68.6 dB, Outside the cursors

Calculated LZE = 125.8 dB, Overall
Calculated LZE = 104.9 dB, On / between the cursors
Calculated LZE = 125.8 dB, Outside the cursors



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