24Acoustics
Armstrong House
3 Bassett Avenue
Southampton
SO16 7DP

T: 02381 555 000
E: info@24acoustics.co.uk

OLIVE MORRIS HOUSE, BRIXTON
LONDON

NOISE & VIBRATION MONITORING

WEEK 16: 17TH TO 23RD AUGUST 2020

Technical Report: R8473-16 Rev 0

Date: 24th August 2020

For: O'Keefe Demolition Ltd
St Andrew's House
1 Dreadnought Street
Greenwich
London,
SE10 0PU

24 Acoustics Document Control Sheet

Project Title: Olive Morris House, Brixton, London – Noise & Vibration Monitoring
Week 16: 17th to 23rd August 2020

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	Name	Position	Signature	Date
Prepared by	Matthew Bennett Tech IOA	Technician		24/08/2020
Reviewed by	Stephen Gosling BEng MIOA	Principal Consultant		24/08/2020
Approved by	Stephen Gosling BEng MIOA	Principal Consultant		24/08/2020
For and on behalf of 24 Acoustics Ltd				

Document Status and Approval Schedule

Revision	Description	Prepared By	Reviewed By	Approved By
0	Approved for issue	Matthew Bennett	Steve Gosling	Steve Gosling

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1.0 INTRODUCTION

1.1 24 Acoustics Ltd has been instructed by O'Keefe Demolition Ltd to undertake noise & vibration monitoring during works at Olive Morris House, 18 Brixton Hill, London, SW2 1RD.

1.2 This report presents the results of noise & vibration measurements, undertaken on site during the period of 17th to 23rd August 2020.

1.3 All noise levels in this report are presented in dB relative to 20 µPa. A definition of the acoustic parameters described in this report is provided in Appendix A.

2.0 SITE DESCRIPTION AND MEASUREMENT CRITERIA

2.1 The site is located within Lambeth London Borough Council (LLBC) on Brixton Hill. The site shares party walls with residential properties to the west. The site is bounded by the residential roads of Sudbourne Road to the north and Hayter Road to the south.

2.2 The works are governed by a COPA 1974 Section 61 consent (LLBC Notice Ref: 20/02571/PLANAP, dated 8th April 2020) from Lambeth London Borough Council. The requirements of the consent are summarised below:

- Noise – not to exceed 75 dB $L_{Aeq\ 10\ hour}$ at the façade of adjacent properties (Nb, a 5-hour period is used on Saturday) with an Action Level set at 78 dB $L_{Aeq\ 1\ hour}$;
- Vibration – not to exceed 3mm/s PPV in adjacent residential properties and 1mm/s PPV in adjacent residential properties.

2.2 No noisy work is permitted on Sundays or bank holidays.

2.3 Noise & vibration monitoring is being undertaken at the following locations, as shown in Figure 1, and described below:

• Northern – north of the site on the western boundary, adjacent to the residential properties on Sudbourne Road;
• Southern – south of the site on the western boundary, adjacent to the residential properties on Hayter Road;

2.4 The instrumentation is configured to send an email alert to key staff in the event that pre-set levels are exceeded.

3.0 NOISE & VIBRATION SURVEY METHODOLOGY

Noise and Vibration

3.1 Noise and vibration measurements were undertaken using the following instrumentation:

- Svantek 958 real-time precision sound and vibration analyser x2;
- Svantek SV207 tri-axial accelerometer x2;
- Brüel & Kjær Type 4231 precision acoustic calibrator.

3.2 All noise monitoring instrumentation used conforms to the Class 1 accuracy standard of ISO 61672 and the equipment was calibrated in accordance with the manufacturer's instructions. Environmental windshields were fitted.

3.3 Noise measurements were undertaken in single minute samples using A weighted Leq values. Similarly, vibration levels were measured in single minute samples in each of the orthogonal axes of motion in terms of the unweighted peak particle velocity (PPV).

4.0 NOISE & VIBRATION SURVEY RESULTS

4.1 The noise survey results are summarised in Table 1 below.

Date	Sound Pressure Level dB $L_{Aeq, T}$	
	Location 1 Northern	Location 2 Southern
Monday 17/08/2020	64.1	67.4
Tuesday 18/08/2020	67.0	73.1
Wednesday 19/08/2020	66.0	72.1
Thursday 20/08/2020	66.9	71.4
Friday 21/08/2020	66.5	72.5
Saturday 22/08/2020	51.0	50.3

Table 1: Summary of Noise Survey Results (free-field)

4.2 The data shows that measured noise levels did not exceed the 75 dB $L_{Aeq\ 10\ hour}$ site action level at either monitoring location during this period.

4.3 The vibration data is summarised in Table 2 below.

Date	Recorded Vibration Level, PPV mm/s	
	Location 1 Northern	Location 2 Southern
Monday 17/08/2020	0.80	0.20
Tuesday 18/08/2020	0.80	0.20
Wednesday 19/08/2020	0.80	0.30
Thursday 20/08/2020	1.00	0.30
Friday 21/08/2020	3.00	0.60
Saturday 22/08/2020	1.00	0.04

Table 2: Summary of Vibration Survey Results, Maximum in Any Direction of Motion

4.4 Analysis of the data indicates that the upper level of 3 mm/s PPV was not exceeded at either monitoring location during this period.

5.0 SUMMARY AND CONCLUSIONS

5.1 Noise & vibration monitoring at Olive Morris House, Brixton, London has been undertaken.

5.2 The data shows that measured noise levels were not exceeded at either monitoring location during this period.

5.3 Analysis of the data indicates that the upper level of 3 mm/s PPV was not exceeded at either monitoring location during this period.

Project: Olive Morris House	**Description:** Monitoring Locations	
DWG No: Figure 1	**Scale:** N.T.S	**Rev:** A
Date: May 2020	**Drawn By:** MH	**Job No:** 8473

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APPENDIX A: NOISE AND VIBRATION TERMINOLOGY

Noise

Noise is defined as unwanted sound. The range of audible sound is from 0 to 140 dB. The frequency response of the ear is usually taken to be around 18 Hz (number of oscillations per second) to 18000 Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than the lower and higher frequencies and because of this, the low and high frequency components of a sound are reduced in important by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most widely used, and which correlates best with subjective response to noise is the dB(A) weighting. This is an internationally accepted standard for noise measurements.

For variable sources, such as traffic, a difference of 3 dBA is just distinguishable. In addition, a doubling of traffic flow will increase the overall noise by 3 dBA. The 'loudness' of a noise is a purely subjective parameter, but it is generally accepted that an increase/ decrease of 10 dB(A) corresponds to a doubling/ halving in perceived loudness.

External noise levels are rarely steady but rise and fall according to activities within an area. In attempt to produce a figure that relates this variable noise level to subjective response, a number of noise indices have been developed. These include:

i) The L_{Amax} noise level

This is the maximum noise level recorded over the measurement period.

ii) The L_{Aeq} noise level

This is "equivalent continuous A-weighted sound pressure level, in decibels" and is defined in British Standard BS 7445 as the "value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time internal, T, has the same mean square sound pressure as a sound under consideration whose level varies with time".

It is a unit commonly used to describe construction noise and noise from industrial premises and is the most suitable unit for the description of other forms of environmental noise. In more straightforward terms, it is a measure of energy within the varying noise.

iii) The L_{A10} noise level

This is the noise level that is exceeded for 10% of the measurement period and gives an indication of the noisier levels. It is a unit that has been used over many years for the measurement and assessment of road traffic noise.

iv) The L_{A90} noise level

This is the noise level that is exceeded for 90% of the measurement period and gives an indication of the noise level during the quieter periods. It is often referred to as the background noise level and is used in the assessment of disturbance from industrial noise.

Vibration

Vibration can be described as a mechanical isolation of a medium about an equilibrium point. Vibration may be periodic, such as the motion of a pendulum or random such as the response of ground to a force input on a construction or demolition site.

Vibration may be measured in terms of acceleration, velocity or displacement (most commonly acceleration or velocity) using either an accelerometer or velocity transducer and suitable signal conditioning system.

The measured data may be analysed to identify frequency content and considered in terms of a number of different parameters, including the root mean square (RMS), maximum or peak.

In the UK, British Standard 7385 Parts 1 and 2 provides methodology for measuring and assessing the vibration level in buildings and states that vibration should be measured in the three orthogonal axes of motion (two lateral and one vertical) in terms of the peak particle velocity (PPV) at frequencies between 4 Hz and 250 Hz. Guidance is given on the relationship between PPV and the risk of cosmetic damage to buildings.

British Standard 5228 Part 2 describes PPV as the simplest indicator of both subjective perceptibility to vibration and risk of building damage and states that the threshold of perceptibility varies from 0.14 mm/s to 0.3 mm/s. A vibration level of 1.0 mm/s PPV is quoted as likely to give rise to complaint but can be tolerated for a short period given prior warning. A level of 10 mm/s PPV is considered intolerable for anything other than the shortest period of exposure.