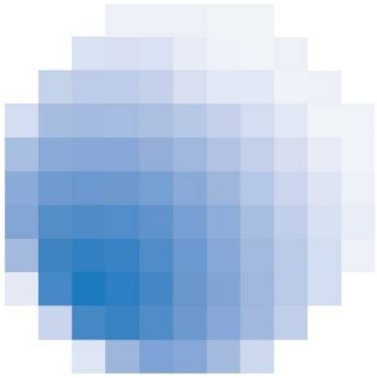


sol
acoustics

Unit 11, Brunel Court, Gadbrook Park, CW9 7LP

*tel* 01565 632 535
*email* info@solacoustics.co.uk
*web* www.solacoustics.co.uk

**LABS Victoria House**
**Southampton Row, London WC1B 4DA**

# External Building Services Acoustic Specification

**P1867-REP01-TSL**

**27 November 2019**

sol acoustics

| | |
|---|---|
| PROJECT: | LABS Victoria House<br>Southampton Row, London WC1B 4DA<br>External Building Services Acoustic Specification |
| CLIENT: | LAB VH Ltd<br>7 Esplanade<br>St Helier<br>Jersey<br>JE2 3QA |
| DOCUMENT REFERENCE: | P1867-REP01-TSL |
| SIGNED: | JOSH MCLELLAND |
| CHECKED: | THOMAS LEACH |
| DATE: | 27 November 2019 |

**SUMMARY**

Sol Acoustics Ltd (Sol) has been commissioned by LAB VH Ltd (LABS) to undertake an acoustic assessment of proposed external fixed plant and equipment as part of the LABS development, Victoria House, Holborn, London, WC1B 4DA.

Two environmental noise surveys were undertaken from c. 17:00 hrs on Tuesday 28 August to c. 10:30 hrs on Thursday 29 August 2018 and c. 18:30 hrs on Monday 28 October to c. 14:15 hrs on Tuesday 29 October 2019. The purpose of these assessments was to determine the prevailing daytime and night time Residual Sound Level and to ascertain the existing Background Sound Levels at the nearest noise sensitive receptors (NSRs) through direct, environmental noise measurement.

This assessment is in accordance with BS4142: 2014 *'Methods for rating and assessing industrial and commercial sound'* and provides details of the site surveys, analysis and sets out suitable noise levels to be achieved by all fixed plant and equipment in order to comply with local planning policy.

Please refer to the main report and appendices for further information.

sol acoustics

**CONTENTS**

# 1 INTRODUCTION

Sol Acoustics Ltd (Sol) has been commissioned by LABS to undertake an acoustic assessment of proposed external fixed plant and equipment as part of the LABS, Victoria House Development, London.

The purpose of this assessment is as follows:

- To identify the nearest pre-existing noise sensitive receptors (NSRs) which are most likely to be affected by environmental noise arising from the proposed plant during its hours of operation.
- To determine the prevailing daytime and night time Background Sound Levels at the nearest receptors through direct, environmental noise measurement.
- To set maximum permissible rating levels based on the results of the environmental noise surveys.

At present, exact plant selection has not been finalised, therefore suitable acoustic performance specifications have been proposed which will result in no adverse impact at noise sensitive receptors and allow for planning permission to be granted through the use of suitable conditioning.

*Once plant is selected, full details shall be submitted to Sol for further assessment.*

## 2 DESCRIPTION OF SITE

### 2.1 General Overview of the Site

The Development site forms part of the LABS development holdings in Camden, Central London with Victoria House located at Bloomsbury Square, WC1B 4DA.

The Development site is surrounded predominantly by mixed commercial and residential properties and is located adjacently to the primary, localised noise sources, the A40 (Bloomsbury Way) and the A4200 (Southampton Row).

Figure 1 below shows the location of the Development site (in red) in relation to its general surroundings:

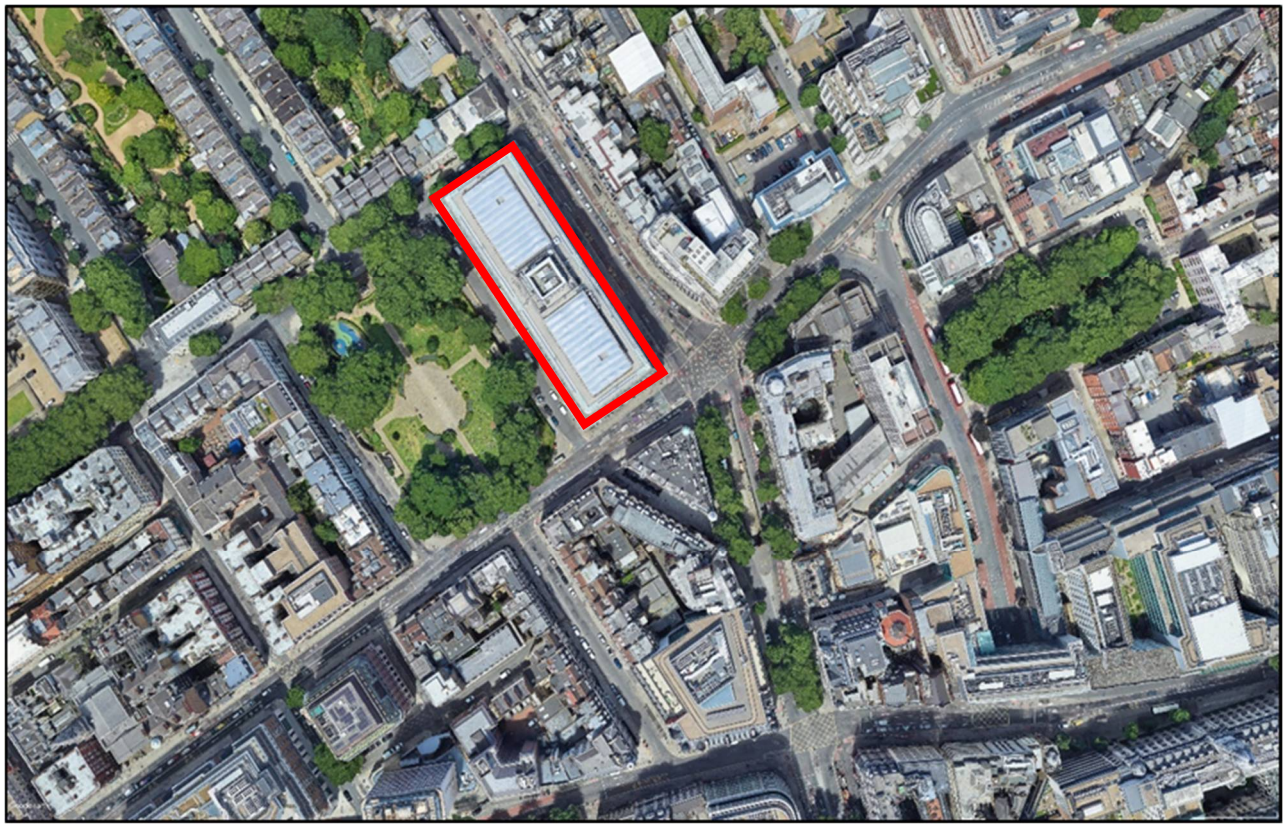


**Figure 1:** The Development site in relation to its surroundings

## 2.2 Development Proposals

As part of the development proposals for the redevelopment of Victoria House, new fixed plant and equipment is to be located upon the roof, balcony and front façade of the building to replace existing units. It is understood that the plant will operate on a 24 hour basis.

- The nearest existing NSRs to the proposed plant location have been identified as follows:
- The residential dwellings on Southampton Row c.30m to the north east,
- The residential dwellings on Sicilian Avenue/Vernon Place c.75m to the south east,
- The residential dwellings situated to the north of Bloomsbury Square on Great Russell Street c. 100m away,
- The residential dwellings to the west on Bloomsbury Square c. 139m away.

## 3 DETAILS OF INVESTIGATION

In order to inform the assessment, two environmental noise surveys were conducted by Sol. The purpose of these measurements was to determine the prevailing, pre-existing Background Sound Levels expected at the nearest noise sensitive premises to the Development site, for environmental benchmarking and subsequent acoustic impact assessment purposes.

The noise surveys were undertaken from c. 17:00 hours on Tuesday 28 August to c. 10:30 hours on Wednesday 29 August 2018 and c. 18:30 hours on Monday 28 October to c. 14:15 hours on Tuesday 29 October 2019. Both measurement positions are described in Table 1 below:

| Measurement Position | Description |
|---|---|
| 1 (Sicilian House) | The microphone was positioned in a free-field proxy position 1.8m above the local ground level on the rooftop of Sicilian House, representative of the closest noise sensitive receptors to the south east of the Development site at Sicilian House/Vernon Place. |
| 2 (Victoria House) | The microphone was mounted on a 1.3m high tripod in a free-field proxy position on the rooftop of the Development site, representative of the closest noise sensitive receptors to the north east of the Development site on Southampton Row. |

**Table 1:** Noise monitoring position summary

It was noted at the time of the surveys that the soundscape was dominated by road traffic noise from both Southampton Row and Bloomsbury Way and the measurement positions are considered representative of the facades of the noise sensitive receptors.

Both noise surveys were carried out using Type 1 Precision Grade noise monitoring equipment, and the complete measuring systems were field calibrated immediately prior to and following the noise survey period. (Full details of the noise monitoring systems are retained on file by Sol, including traceable calibration records; these are available for review if needed).

During all environmental noise measurements, the prevailing weather conditions remained favourable for the purposes of environmental noise assessment throughout the entire survey period. Further details of the identified weather conditions are provided in Appendix A.

The microphone system was entirely weatherproofed and fitted with an all-weather environmental windshield with a bird spike. Both measurement positions are shown in Figure 2 overleaf:

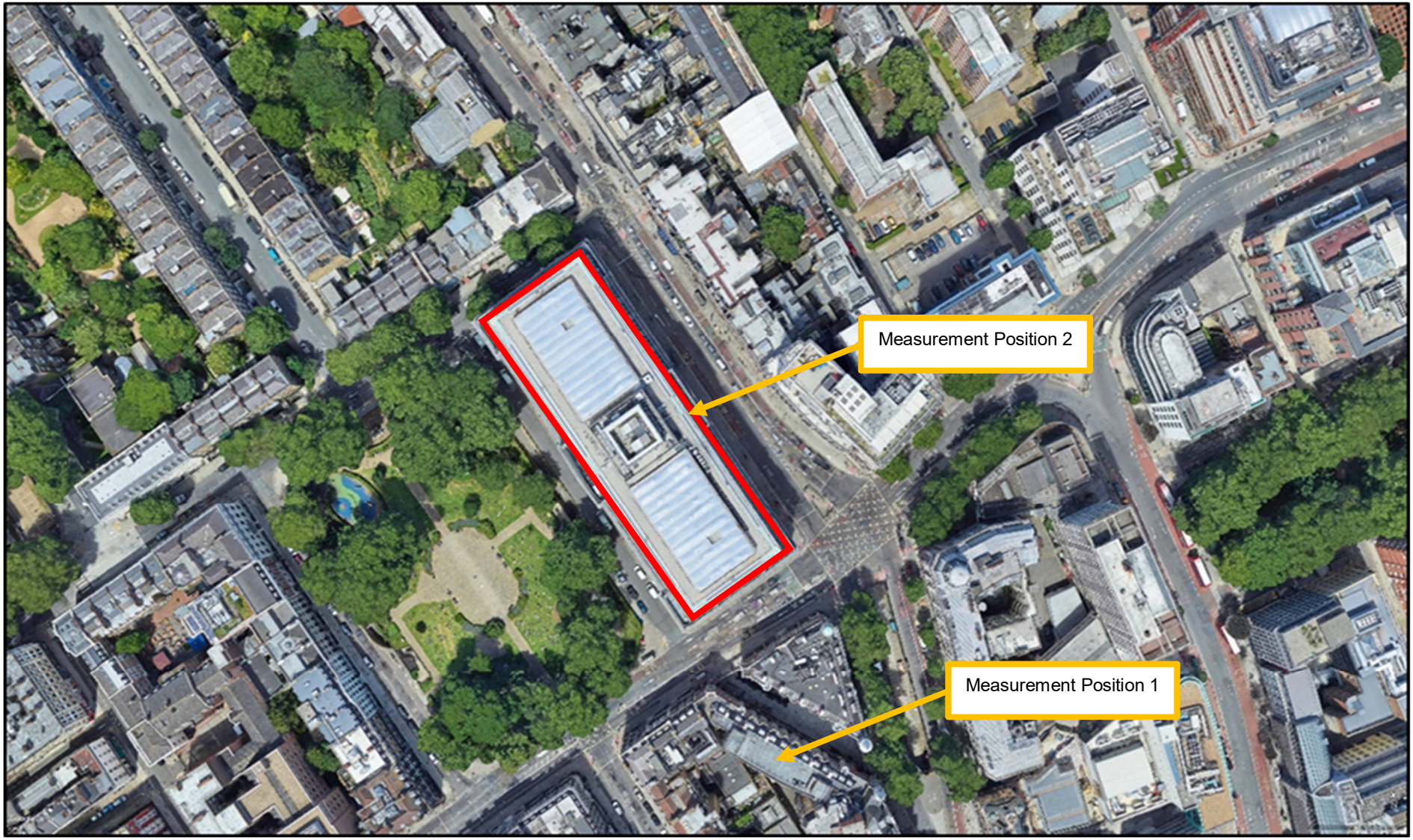



**Figure 2:** Noise survey measurement locations in relation to surrounding receptors

## 4 ENVIRONMENTAL NOISE SURVEY RESULTS

Graphs A1 and A2 presented in Appendix A show the results of the measurements at Sicilian House (MP1) and Victoria House (MP2) respectively. A summary of these results is shown in Table 2 below:

| Measurement Position | Typical Measured Noise Levels (Average $L_{Aeq}$, $L_{A90}$ and Range $L_{AFmax}$) | | | | | |
|---|---|---|---|---|---|---|
| | Daytime (07:00 – 23:00) | | | Night time (23:00 – 07:00) | | |
| | dB, $L_{Aeq,15min}$ | dB, $L_{A90,15min}$ | dB, $L_{AFmax,15min}$ | dB, $L_{Aeq,15min}$ | dB, $L_{A90,15min}$ | dB, $L_{AFmax,15min}$ |
| 1 (Sicilian House) | 57 | 55 | 75 | 54 | 50 | 78 |
| 2 (Victoria House) | 61 | 54 | 85 | 57 | 53 | 81 |

**Table 2:** Summary of measured environmental noise levels

It is considered that the measured residual and background sound levels are representative of all the receptors surrounding the development site.

# 5 GUIDANCE AND CRITERIA

## 5.1 National Planning Policy Framework (NPPF), Noise Policy Statement for England (NPSE) and National Planning Practice Guidance (NPPG)

The NPPF sets out the Government's economic, environmental and social planning policies for England.

Throughout all the documents there is a presumption in favour of sustainable development, which should be seen as a golden thread running through both plan-making and decision-taking.

Below the No Observed Effect Level (NOEL) sound is unnoticeable and of no significance. Below the Lowest Observed Adverse Effect Level (LOAEL) sound may be heard but does not cause any changes in behaviour or attitude, although the acoustic character of the area may be slightly changed. Below the Significant Observed Adverse Effect Level (SOAEL) sound may cause slight changes in behaviour or attitude e.g. turning up volume of a television or closing windows. There is potential for some sleep disturbance and a perceived change in the acoustic character of the area and quality of life.

Areas of Tranquillity should be protected, but in general cases it may be inappropriate to achieve a level below the LOAEL as this provides no benefit but may require additional resources such energy, materials, space, time and money, adversely affecting the sustainability of doing so. Noise above the LOAEL should be mitigated and reduced to a minimum, although it may be appropriate to exceed the LOAEL and create an adverse acoustic impact, if this provides other sustainability benefits that are of greater significance. Noise above the SOAEL should be avoided.

In deriving the LOAEL and SOAEL it is possible to apply objective standards to the assessment of noise and the effect produced by the introduction of noise sources.

## 5.2 BS4142: 2014 Methods for Rating Industrial and Commercial Sound

The BS4142 methodology compares the Rating Level (average source noise level with a suitable Rating Penalty if applicable), against the existing Background Sound Level (that exceeded for 90% of the time, i.e. the quietest 10% level) and provides an indication of the likelihood of adverse impact based upon this differential, all as explained in Table 3:

| Rating Level - Background Sound Level | Initial Estimate |
|---|---|
| Around +10dB | Likely to be an indication of a significant adverse impact, depending on the context. |
| Around +5dB | Likely to be an indication of an adverse impact, depending on the context. |
| +0dB | An indication of the specific sound source having a low impact, depending on the context. |

**Table 3:** Explanation of BS4142: 2014 methodology

One of the significant differences between BS4142: 2014 and previous editions of the Standard is the explicit requirement to consider context as part of the assessment. It is no longer adequate to simply compare the Rating Level and the Background Sound Level without due regard to the context of the acoustic environment and the sound source.

In addition to comparing the level and character of the Specific and Residual Sound Levels, the context also includes careful consideration of other factors such as the character of the locale e.g. quiet rural or predominantly industrial; noise sensitive receptors e.g. outdoor amenity space or indoors; and duration and time of specific sound e.g. 24/7 operation or one event per week.

## 5.3 World Health Organisation / BS8233: 2014

For dwellings the main considerations are to protect sleep in bedrooms and to protect resting, listening and communicating in other rooms. For noise without a specific character it is desirable that the overall average levels during the 8 hour night or 16 hour daytime periods do not exceed 30dB $L_{Aeq,T}$ or 35dB $L_{Aeq,T}$ respectively. For dwellings with conventional windows, an internal target of 35dB $L_{Aeq,T}$ during the day equates to around 50dB $L_{Aeq,T}$ outside noise sensitive rooms with openable windows.

For amenity spaces, such as gardens and patios, it is desirable that the 16-hour daytime average level does not exceed 50dB $L_{Aeq,T}$, with an upper guideline value of 55dB $L_{Aeq,T}$ which would be acceptable in noisier environments.

### 5.4 Camden Local Plan 2017 – Noise and Vibration

Policy A4 Noise and Vibration of the Camden Local Plan 2017 states:

> *"The Council will seek to ensure that noise and vibration is controlled and managed.*
>
> *Development should have regard to Camden's Noise and Vibration Thresholds (Appendix 3). We will not grant planning permission for:*
>
> *a. development likely to generate unacceptable noise and vibration impacts; or*
>
> *b. development sensitive to noise in locations which experience high levels of noise, unless appropriate attenuation measures can be provided and will not harm the continued operation of existing uses.*
>
> *We will only grant permission for noise generating development, including any plant and machinery, if it can be operated without causing harm to amenity. We will also seek to minimise the impact on local amenity from deliveries and from the demolition and construction phases of development."*

The guidance presented in Table C of Appendix 3 of the Local Plan states that normally the rating level from fixed plant and equipment should not exceed 10dB below the background sound level (LOAEL) which will form the basis of this assessment.

The guidance notes that where noise from plant and equipment contains audible tonal elements the criterion should be increased to 15dB below the background sound level. However, considering the context of the existing plant and equipment the acoustic environment is unlikely to change therefore it is considered that this penalty is unlikely to be required.

## 6 FIXED PLANT AND EQUIPMENT ENVIRONMENTAL NOISE LIMITS

Currently the operational conditions of plant to be installed at the Development site are not known, therefore it is assumed that all plant will operate during the day and night on a 24 hour basis. Therefore, the reference time interval ($T_r$) is 1 hour during the day (07:00 to 23:00 hours) and 15 minutes during the night (23:00 to 07:00 hours).

At present it is understood that no plant has been selected, therefore a suitable acoustic performance specification has been proposed that will facilitate the use of a suitable condition as part of the planning approval.

Based on the results of the acoustic survey and the requirements of the Camden Local Plan 2017 the maximum rating level from all fixed plant at any NSRs is shown in Table 4 below:

| **Daytime (07:00 – 23:00)** | **Night time (23:00 – 07:00)** |
|---|---|
| 44dB $L_{Ar,Tr}$ | 40dB $L_{Ar,Tr}$ |

**Table 4:** Maximum permissible Rating Level at Noise Sensitive Receptors

Where selected fixed plant and equipment contains acoustically distinguishing characteristics, further guidance should be sought from Sol regarding a suitable rating penalty in line with BS4142: 2014.

## 7 CONCLUSION

Sol Acoustics Ltd (Sol) has been commissioned by LABS to undertake an acoustic assessment of proposed external fixed plant and equipment as part of the LABS, Victoria House Development, London WC1B 4DA.

Two environmental noise surveys were undertaken from c. 17:00 hrs on Tuesday 28 August to c. 10:30 hrs on Thursday 29 August 2018 and c. 18:30 hrs on Monday 28 October to c. 14:15 hrs on Tuesday 29 October 2019. The purpose of this assessment was to determine the prevailing daytime and night time Residual soundscape and to ascertain the existing Background Sound Levels at the nearest NSRs through direct, environmental noise measurement.

It is assumed that fixed mechanical plant and equipment will operate 24 hours a day. At present, exact plant selections have not be finalised, therefore suitable acoustic performance specifications have been proposed which will allow for planning permission to be granted through the use of suitable conditioning.

## APPENDIX A NOISE SURVEY DETAILS AND SUMMARY RESULTS

### LOCATION

Victoria House, Southampton Row, Holborn, London, WC1B 4DA

Sicilian/Vernon House, Sicilian Avenue, Camden, London, WC1A 2QS

### DATES AND TIMES

Position 1 - 17:00 hrs Tuesday 28 August 2018 to 10:30 hrs Wednesday 29 August 2018.

Position 2 - 17:30hrs Monday 28 October 2019 to 14:15hrs Tuesday 29 October 2019.

### WEATHER CONDITIONS

| Date | Daytime (07:00 - 23:00) | | | | Night Time (23:00 – 07:00) | | | |
|---|---|---|---|---|---|---|---|---|
| | Temp, °C | Rain, mm | Wind Direction | Average Wind Speed, m/s | Temp, °C | Rain, mm | Wind Direction | Average Wind Speed, m/s |
| 28/08/2018 | 4 | - | N | 3.5 | 4 | - | N | 3.5 |
| 29/08/2019 | 6 | - | N | 4 | - | - | - | - |
| 29/10/2019 | 8 | - | NE | 4 | 9 | - | E | 4 |
| 30/10/2019 | 8 | - | E | 4 | - | - | - | - |
| * Weather information taken from wunderground.com | | | | | | | | |

### PERSONNEL PRESENT DURING MEASUREMENTS

Jack Florentine – Sol Acoustics

Ciaron Murphy – Sol Acoustics

Thomas Leach – Sol Acoustics

### INSTRUMENTATION

01dB Cube Sound level meter (serial no. 11117)
01dB Pre22 Microphone preamplifier (serial no. 1610404)
GRAS 40CD Microphone capsule (serial no. 260827)
01dB CAL 21 Acoustic calibrator (serial no. 34675320)

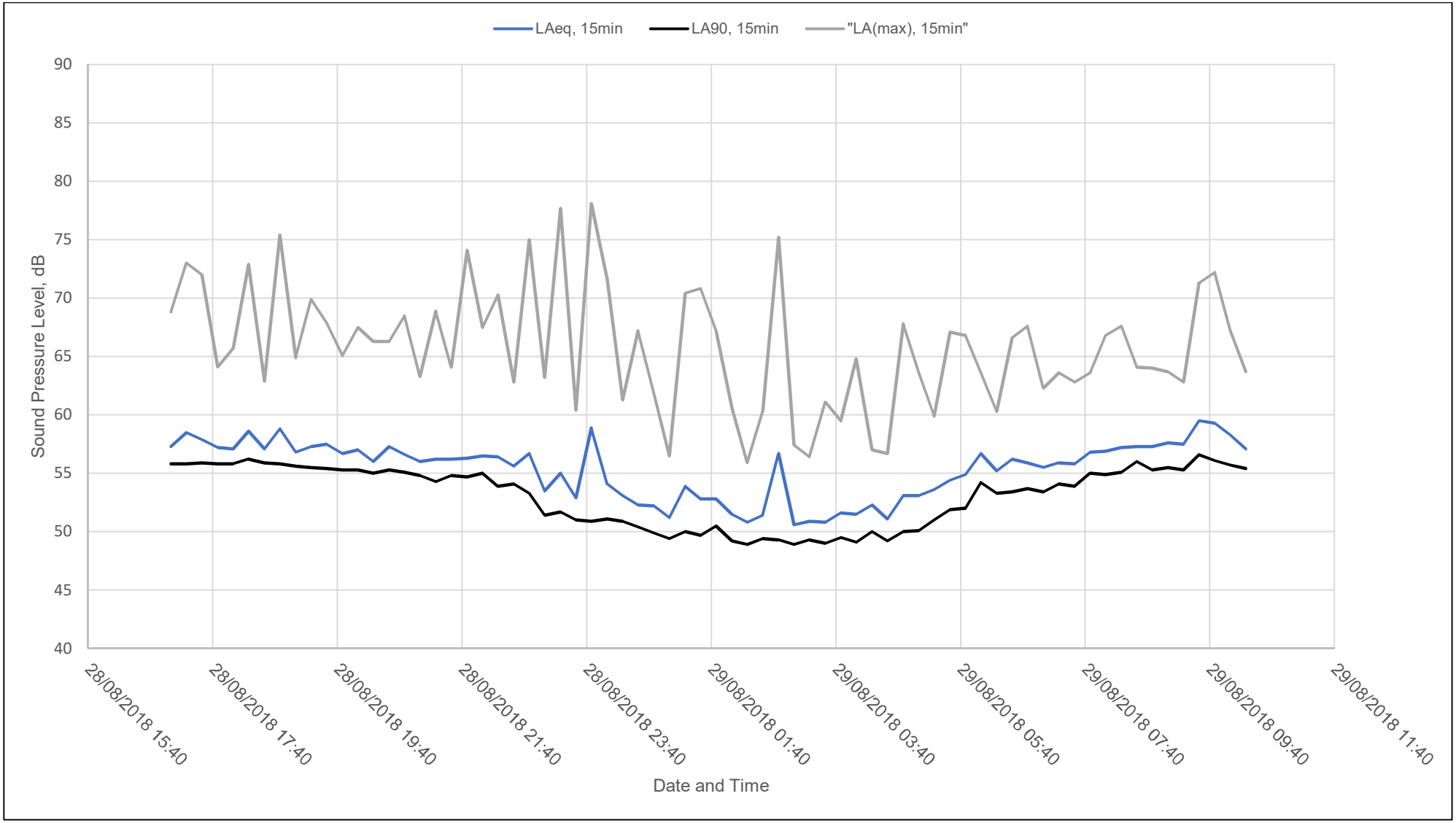
01dB Cube Sound level meter (serial no. 11114)
01dB Pre22 Microphone preamplifier (serial no. 1610399)
GRAS 40CD Microphone capsule (serial no. 260807)
01dB CAL 21 Acoustic calibrator (serial no. 34375244)

**METHODOLOGY**

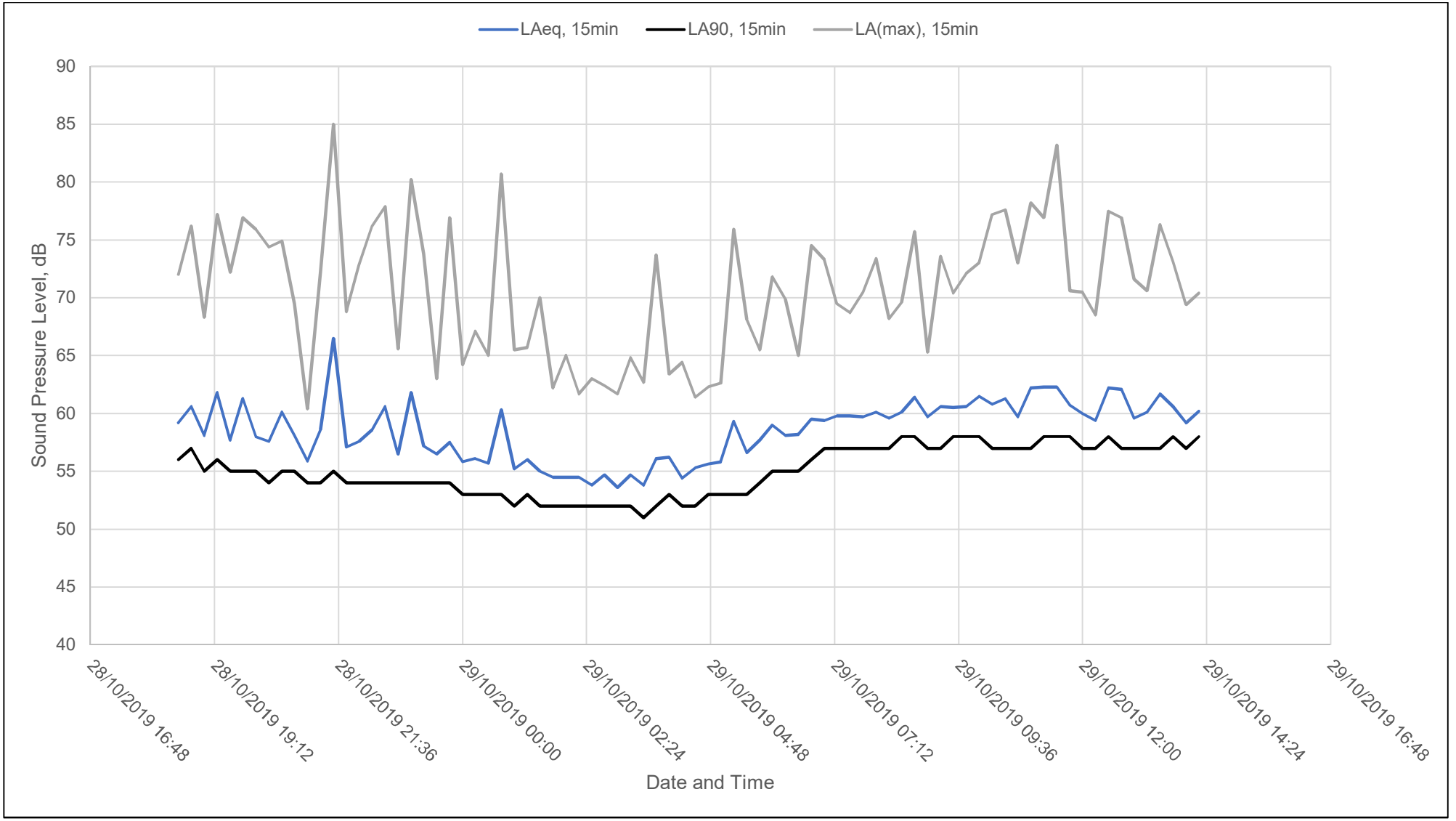
Before and after the measurements the sound level meters were check calibrated to an accuracy of ±0.3dB using the 01dB CAL 21 Calibrator. The calibrator produces a specific sound pressure level of 94dB re $2x10^{-5}$ Pa @ 1kHz. The sensitivity of the sound level meters was checked using the acoustic calibrator both immediately before and after the surveys - no drift in sensitivity was detected at survey decommissioning.

**MEASUREMENT RESULTS**

Graphs A1 and A2 summarise the results obtained from the noise surveys.




**Graph A1:** Survey results from Measurement Position 1 as located at Sicilian House




**Graph A2:** Survey results from Measurement Position 2 as located at Victoria House