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PROJECT EVO NOISE PLANNING STATEMENT

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1. EXECUTIVE SUMMARY

This noise statement has been prepared in support of the planning application for Project EV0 which is a new speculative office development at A5103 Princess Road in Manchester.

This report details noise level measurements taken on site and near to existing sensitive receptors to the development. These noise levels have been used to assess the minimum acoustic requirements for the building envelope and set suitable noise limits for external plant.

Existing noise levels are moderate and may be controlled via the proposed form of construction and suitable glazing specifications.

Plant limits for new external plant serving the scheme have been set using the methodology of BS 4142:2014+A1:2019 *'Methods for rating and assessing industrial and commercial sound'* and requirements set out in Manchester City Council's *'Planning and Noise – Technical Guidance'* (2022).

Any emergency plant items such as standby generators will be designed to exceed existing background levels by no more than 10dB.

1. INTRODUCTION

The Bruntwood Works Project EV0 is a new build speculative office development located off the A5103 Princess Road in Manchester, nestled between the existing Sir William Siemens House and Spire Hospital Manchester. The site is also near an existing bus terminus on the junction of A5103 Princess Road and A5145 Barlow Moor Road, and new residential units located at the rear of the site away from Princess road.

The proposed location of the Bruntwood Works Project EV0 (Building D1) is immediately to the southeast of Princess Park Road (A5103), which is a major traffic route in and out of Manchester City centre. Figure 1 shows the location of the site relative to the A5103.

The nearest residential receptors to the site are on Nell Lane to the north, and Kensal Drive to the east adjacent to the main car park of the Siemens site.

Acoustics are an important consideration for any modern office development. The main considerations addressed in this report are the control of external noise sources such as road traffic so that suitable internal noise levels are achieved, as well as setting suitable noise limits for external plant serving the scheme.

The specifications outlined in this document establish that suitable design criteria may be met, and these specifications will be developed through the RIBA design stages of the project. Similarly, the planning noise limits within this report will be used by the design team to select appropriate plant items and to establish a MEP strategy which will comply with the requirements of Manchester City Council's guidance.

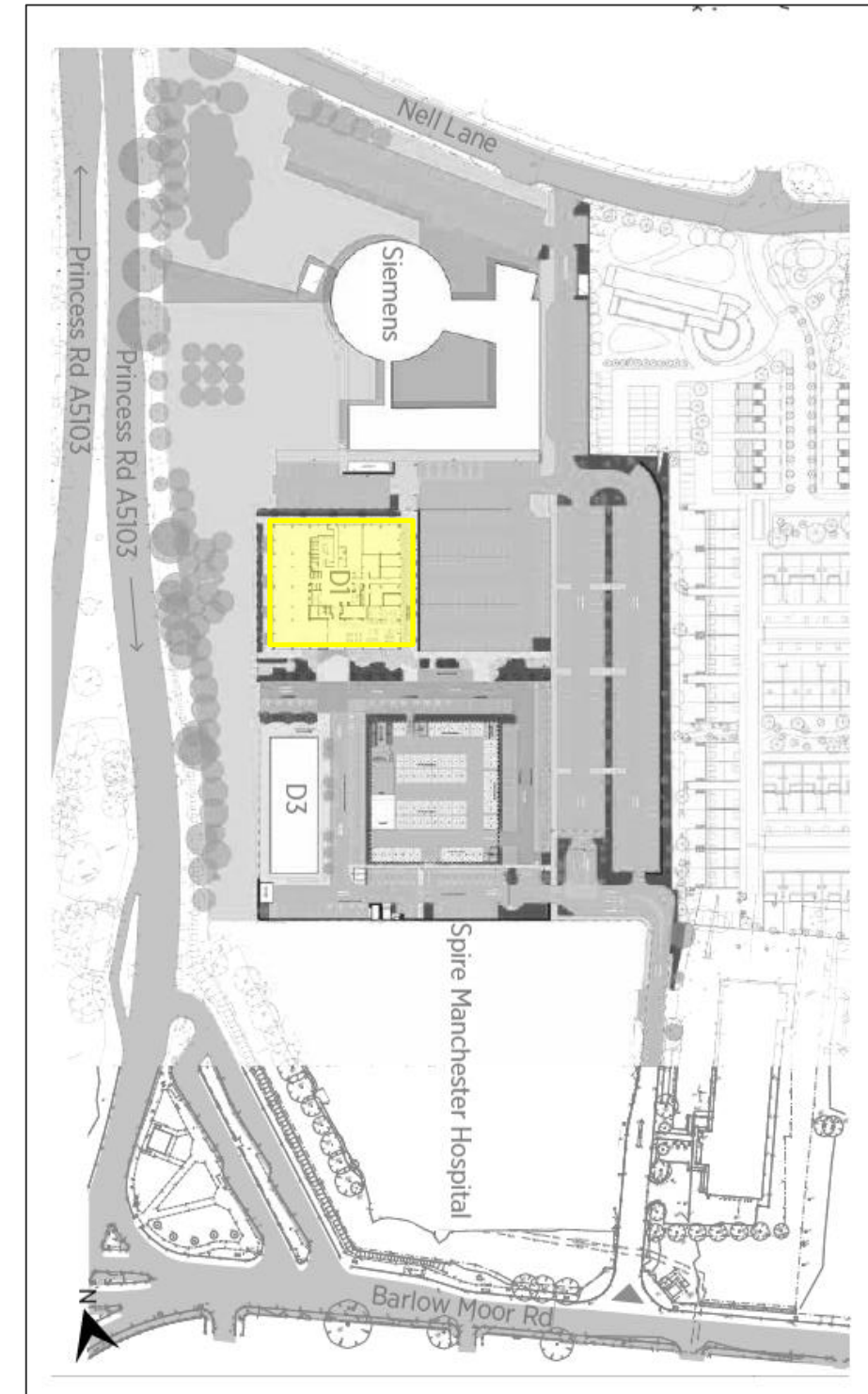


Figure 1: Proposed location of the Project EV0 building

2. CRITERIA

This section identifies the criteria which applies to the development in terms of internal noise criteria and plant limits.

2.1 Internal noise criteria for offices

The internal noise criteria for the development is defined in guidance from BS8233:2014¹.

2.1.1 BS8233:2014

BS8233:2014 provides guidance on various internal space types within a development such as Bruntwood Works Project EV0. The following internal noise level criteria are set out in BS8233:2014 which are the basis of BREEAM credits for this development.

Location	Target, dB LAeq
Cellular/executive offices	35 – 40
Meeting rooms	35 – 45
Open Plan Offices	45 – 50
Circulation	45 – 55

Table 1 – BS8233:2014 Indoor ambient noise criteria

2.2 Noise limits for fixed plant

2.2.1 Manchester City Council Guidance

Manchester City Council’s *Planning and Noise – Technical Guidance (2022)* sets out the City’s criteria for internal and external noise levels.

The guidance requests that plant items are assessed in accordance with the methodology in BS4142:2014+A1:2019² to minimise the impact of noise on the nearest sensitive receptors. The City’s guidance states:

‘Externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB (LAeq) below the typical background (LA90) level at the nearest noise sensitive location’.

2.2.2 BS4142:2014+A1:2019

BS4142 defines the noise source (e.g. plant) as the ‘specific’ noise. When comparing the specific noise against existing background levels, BS4142 highlights that certain acoustic features (tonality, impulsivity, intermittency etc.) can increase any significance of impact and penalties should be applied to the specific noise level, in accordance with the guidance in BS4142, to provide the Rating Level of the noise source.

Comparison of the Rating Level to background noise level indicates the significance of the new noise source at the receptor under assessment. If the Rating Level is higher than the background noise level then there may be an impact:

- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- A difference of around +5 dB 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. 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.

¹ BS8233:2014 Guidance on sound insulation and noise reduction for buildings

² BS4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound

3. EXISTING NOISE LEVELS

3.1 Consultation with Manchester City Council in 2022

Since noise levels at site in were taken in 2019, Ramboll contacted Ms Sharon McAndrew, Environmental Health Officer at Manchester City Council in February 2022 to discuss the suitability of using this data for the 2022 submission. Ms McAndrew confirmed this was acceptable if there had been no major developments in the area since the 2019 survey, which is understood to be the case. In addition, Ms McAndrew requested that the survey and evaluation of background levels follows the guidance set out in Manchester City Council’s *Planning and Noise – Technical Guidance (2015)*, which was updated in June 2022. The email from Ms McAndrew is provided in Appendix 3.

3.2 Noise survey

To understand the existing noise climate, Ramboll measured noise levels on 20 June 2019 using attended survey positions as shown on Figure 2 below (A, B, C). In addition, an automatic logger (L) was left on site overnight to obtain background noise levels throughout the night for the purposes of setting plant noise limits.

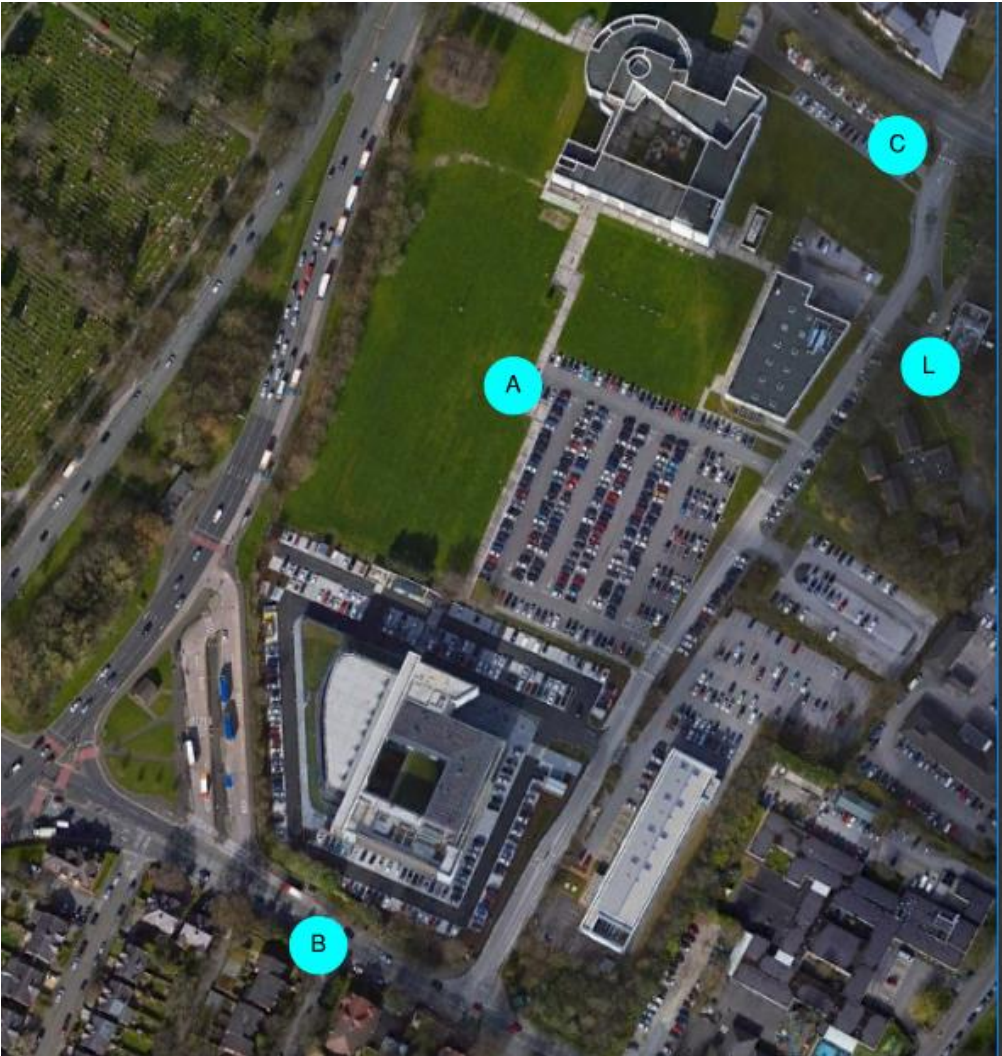


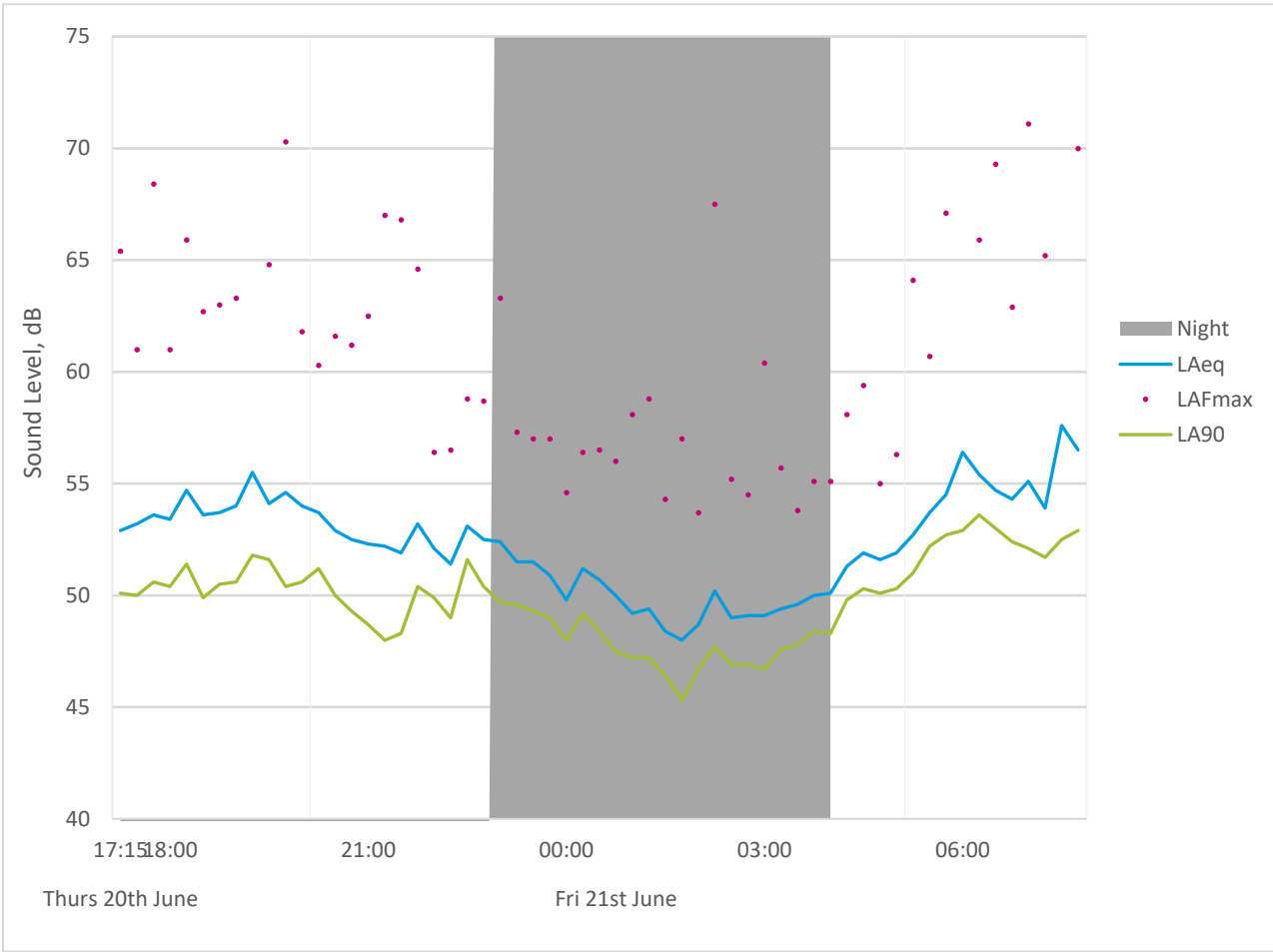
Figure 2: Proposed site layout showing Ramboll noise measurement positions

Table 2 below summarises the measurements at each of the above positions. Further survey details are presented in Appendix 2.

Receptor	Daytime
Position A approximately 45m from the edge of Princess Park Way	59dB LAeq
Position B 2m from the edge of Barlow Moor Road	70dB LAeq 57dB LA90
Position C 5m from the edge of Nell Lane	64dB LAeq 56dB LA90

Table 2 – Noise levels measured by Ramboll in June 2019

Graph 1 below provides a trace for the unattended noise survey as measured using the automatic logger throughout the night. Typical background levels are around 50dB LA90 during the the day and 47dB LA90 between midnight and 04:00 hours.



Graph 1 – Unattended noise measurements

3.3 Noise model

Using the noise survey data, Ramboll has created a noise model of the site in its current form (i.e. no Project EV0 building) using CadnaA® noise modelling software. Noise levels from the survey, due to road traffic were input into the model to calibrate the measured data so that the predicted noise levels within the noise model match the data acquired at each measurement position in the absence of the building (Table 2).

The proposed Bruntwood Works Project EV0 was then added to the model and the resulting noise levels calculated at each façade. Figure 3 below shows the output of the model, indicating noise levels at each building façade. The noise levels shown in plan represent the highest predicted noise level as experienced at that point of the elevation, regardless of height. Figure 4 shows the northwest and northeast elevations in a 3D view, which show where those highest noise levels occur. The upper storeys of the building will be exposed to higher levels of noise.



Figure 3 – Plan view of the development showing predicted noise levels to each facade

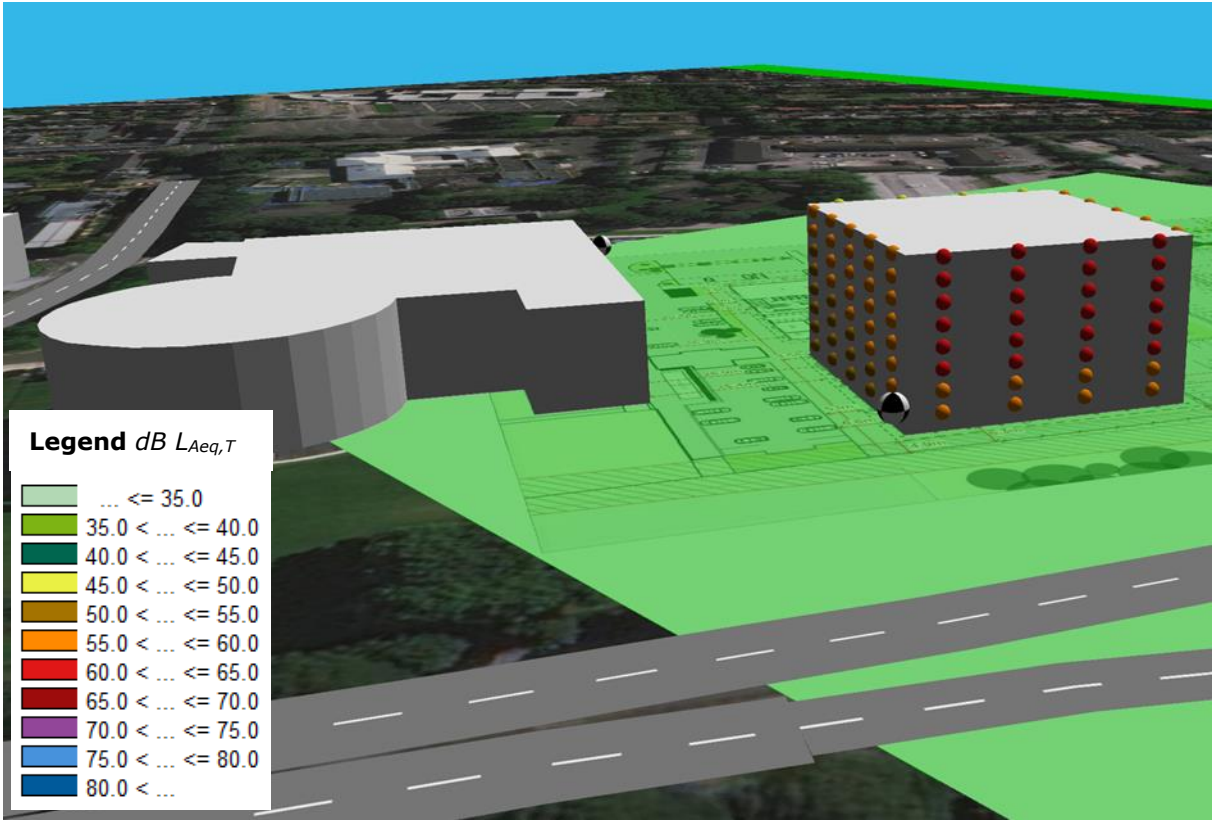


Figure 4 – 3D view of the proposed development showing predicted noise levels to northwest and northeast facades

4. FAÇADE REQUIREMENTS

4.1 Scheme proposals

The façade of the building will generally comprise:

- Thermal double glazing
- Aluminium cladding, 150mm METSEC filled with approximately 200mm Rockwool insulation and internal linings.

4.2 Facade requirements

Using the predicted external noise levels at each facade, as informed by the acoustic model discussed in Section 3, the following outline requirements apply to the facade components.

Elevation	Façade requirement, dB R _w	
	Glazing	Non-glazed area
Northwest, facing Princess Park Road	≥40 *	≥35
All other elevations	≥33	≥35

Table 3 – Outline facade requirements

* Higher sound insulation required to this elevation to allow for cellular offices, which have a smaller internal volume compared to open floor plates.

It is important to note that these outline requirements are to guide the design team in making appropriate selections for glazing and façade construction types. All specifications must be reviewed with calculation to confirm the developed proposals can control external noise levels to suitable noise levels internally.

5. EXTERNAL PLANT

5.1 External noise emissions limits

Manchester City Council’s guidance requires the rating level (L_{A,Tr}) of any external plant items, when assessed in accordance with BS4142:2014+A1:2019 ‘Methods for rating and assessing industrial and commercial sound’, to be controlled to 5dB below existing background noise levels (L_{A90}).

To meet this criterion, the noise limits in Table 4 below must be met by any external plant items associated with the scheme. These limits are as measured at 1m from the window of the nearest noise sensitive premises which are approximately 100m to the east and north east at Kelsall Drive, and 140m to properties on Nell Lane.

Noise limit at nearest sensitive receptor, dB L _{Aeq}	
Daytime	Overnight
45	42

Table 4 – Noise limits for building services as measured at the nearest noise sensitive premises

5.2 Emergency plant

Based on Ramboll’s experience with other commercial developments within Manchester, it is generally acceptable for any emergency plant and equipment to be up to 10dB in excess of existing background levels. Therefore, the following limits apply:

Noise limit at nearest sensitive receptor, dB L _{Aeq}	
Daytime	Early morning
60	57

Table 5 – Noise limits for emergency plant as measured at the nearest noise sensitive premises

6. CONSTRUCTION NOISE

Manchester City Council's *Planning and Noise – Technical Guidance* acknowledges that noise from construction works can, at times, be disruptive. To minimise the impact of construction noise to nearby sensitive receptors all construction works must adhere to the City's guidance, which states:

'All noisy works (i.e. those that are audible beyond the site boundary) should be restricted to the following hours to minimise disruption:

- *Monday - Friday: 7.30am - 6pm*
- *Saturday: 8.30am - 2pm*
- *Sunday / Bank holidays: No work*

These restrictions apply to deliveries/collections to the site.'

By adhering to the above hours of work, suitable respite can be afforded to local residents and businesses. The guidance also recommends 'keeping an open dialogue' with local residents to 'placate any complaints or grievances'.

It is expected that the main contractor will be a member of a Considerate Constructors Scheme, whereby the contractor signs up to code of conduct to minimise disruption to nearby businesses and residents. In addition, the contractor will be required to submit a Construction Environmental Management Plan (CEMP) to the City for approval. This typically include a section on noise and a suite of best practicable means to control noise emissions from various work activities or stages.

APPENDIX 1 – ACOUSTICS GLOSSARY

A-weighting - The unit of sound level, weighted according to the A-scale, which takes into account the increased sensitivity of the human ear at some frequencies.

L_{Aeq} – The A-weighted equivalent continuous sound pressure level. It can be considered as the "average" noise level.

L_{A90} - This is the A-weighted sound pressure level that is exceeded for 90% of a time period T. It is usually considered to be the background noise level at the measurement point.

L_{AMax} -The maximum A-weighted sound pressure level identified during a measurement period.

L_{A10} -This is the A-weighted sound pressure level that is exceeded for 10% of a time period T. For example, this would be the level which is exceeded for a total of six minutes or a one-hour period.

L' _{nT,w} - The weighted standardised impact sound pressure level.

R_w – The laboratory rating of sound insulation performance, usually quoted in manufacturer data. To get the weighted sound reduction index (R_w) of a construction the R values are measured in octave or 1/3rd octave bands covering the range of 100Hz to 3150Hz. The curve is adjusted so that the unfavourable deviation (or shortfall of the actual measurements below this standard curve) averaged over all the octave or 1/3 octave bands is not greater than 2dB. The value of the curve at 500Hz is the R_w.

D_{nT,w} - The weighted standardised level difference. D is measured on site in octave or 1/3rd octave bands covering the range of 100Hz to 3150Hz. As the level difference is affected by the area of the common wall/floor and the volume of the receiving room, as well as the amount of absorption in the receiving room, in the case of the D_{nT,w}, the results are "standardised" by a mathematical correction a reverberation time, usually 0.5 seconds (D_{nT}). The same weighting curve as for D_w is used to obtain a single figure: D_{nT,w}.

Reverberation Time - The time taken, in seconds, for the sound within a space to decay by 60dB after a stationary sound source has stopped.

APPENDIX 2 – ACOUSTICS SURVEY DETAILS

Location

Land off Princess Park Way, Manchester

Date, time

Thursday 20 June 2019 (Ryan McNulty, RAMBOLL UK)

Weather

Approx. 18-20°C, little wind (Westerly). Limited cloud cover, dry road surfaces

Equipment

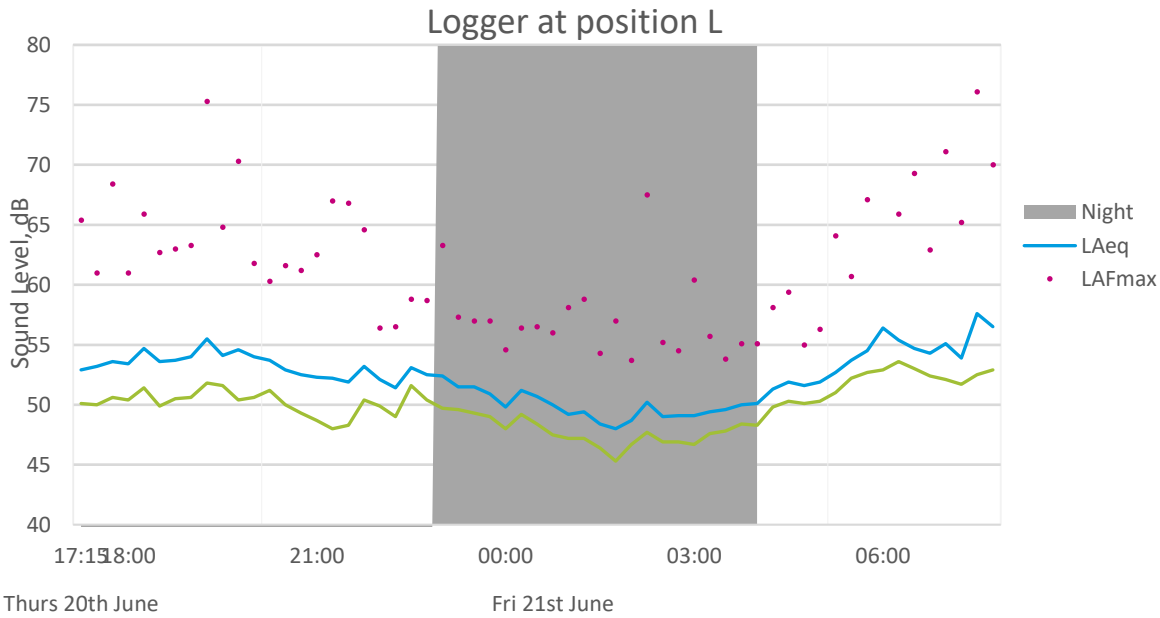
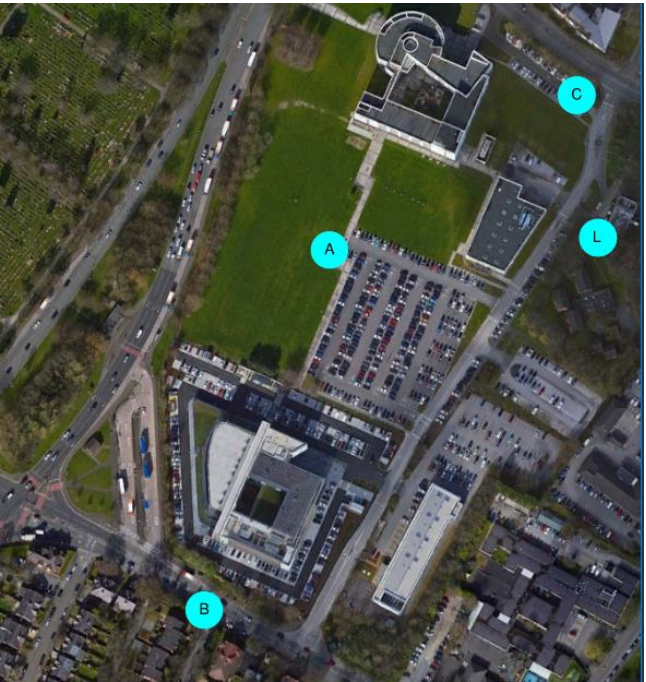
- Norsonics NOR 140 (kit 2) – S/N 3396 + environmental weather kit

Before and after the survey the sound level meter was check calibrated to an accuracy of ±0.1 dB using the sound level calibrator.

Noise levels were measured at a height of 1.5m above the relative ground level.

Noise levels are as reported in the main report body and below. Further data and spectral information available on request.

Location	Date	Time, hh:mm	L _{Aeq} (dB)	L _{A90} (dB)	L ₁₀ (dB)
A	20 June 2019	13:23 to 13:38	58.7	53.7	61.2
		14:25 to 14:40	59.3	54.4	61.7
		15:27 to 15:42	58.8	54.3	61.1
B		13:44 to 13:59	69.6	58.8	73.2
		14:47 to 15:02	70.5	56.8	74.5
		15:49 to 16:04	70.5	61.5	74.0
C		14:06 to 14:21	64.1	56.0	68.0
		15:09 to 15:24	64.8	54.7	69.0
		16:13 to 16:28	64.2	56.5	67.7



APPENDIX 3 – EMAIL FROM MANCHESTER CITY COUNCIL EHO

Development adjacent to Seimens, Princess Road, Didsbury.



Sharon McAndrew <sharon.mcandrew@manchester.gov.uk>

To  Ryan McNulty

 You replied to this message on 17/02/2022 10:51.

You don't often get email from sharon.mcandrew@manchester.gov.uk. [Learn why this is important](#)

Dear Ryan

I have received your enquiry regarding the noise survey you carried out in 2019 for the above site.

I know roughly where the site is and I know there has been development around there over the last few years so I would say that It is acceptable to use data acquired in 2019 as long as:-

1. There have be no major changes around the proposed site which may adversely affect the noise data. For example, the introduction of new commercial / industrial premises or the demolition of buildings which may have previously screened the site from road traffic noise.
2. That the readings were taken in accordance with the MCC Noise and Planning Guidance, and background noise levels were calculated using this guidance. If you have not already done so I would advise that you read the guidance document which can be found at https://www.manchester.gov.uk/downloads/download/5199/information_for_developers and would like to draw your attention to Appendix A which demonstrates how MCC would like background noise levels to be calculated.

If you have any questions, please feel free to contact me on 0161 234 1374. I am part time and work Thursdays, Fridays and every other Wednesday.

Kind regards

Sharon McAndrew
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Environmental Protection Section
Neighbourhoods Directorate
Community Safety, Compliance and Enforcement
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