Noise Impact Assessment

Royston Environmental Permit Application

Johnson Matthey

Orchard Road, Royston, SG8 5HE

Prepared by:

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15 Middle Pavement, Nottingham, NG1 7DX

SLR Project No.: 416.065394.00001

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Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
1.0	22 August 2024	N Auckland, MIOA	M Dawson, MIOA	M Dawson, MIOA
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3.0	28 October 2024	N Auckland, MIOA	M Dawson, MIOA	M Dawson, MIOA

Basis of Report

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1.0 Introduction

Johnson Matthey has appointed SLR Consulting Ltd. (SLR) to undertake an assessment of the noise impact of new plant to be installed at the Johnson Matthey Site in Royston (the Site).

Due to the potential for the new plant to increase noise levels in the area the Environment Agency (EA) has requested that an application to vary the site's Permit is made, and that the application includes a Noise Impact Assessment.

This Report has been completed by Nick Auckland who is a Corporate Member of the Institute of Acoustics (MIOA).

1.1 Report Structure

This Report presents:

- A description of the Site.
- A description of applicable guidance.
- The results of a baseline background sound survey at locations representative of the nearest noise-sensitive receptors to the proposed new plant.
- An assessment of existing and cumulative sound from the Site undertaken in accordance with British Standard 4142:2014+A1:*2019 Methods for rating and assessing industrial and commercial sound* as required by the Environment Agency (EA) Guidance *Noise and vibration management: environmental permits*.

Whilst reasonable effort has been made to ensure that this report is easy to understand, it is technical in nature; to assist the reader, a glossary of terminology is included in Appendix 01.

2.0 Site Description

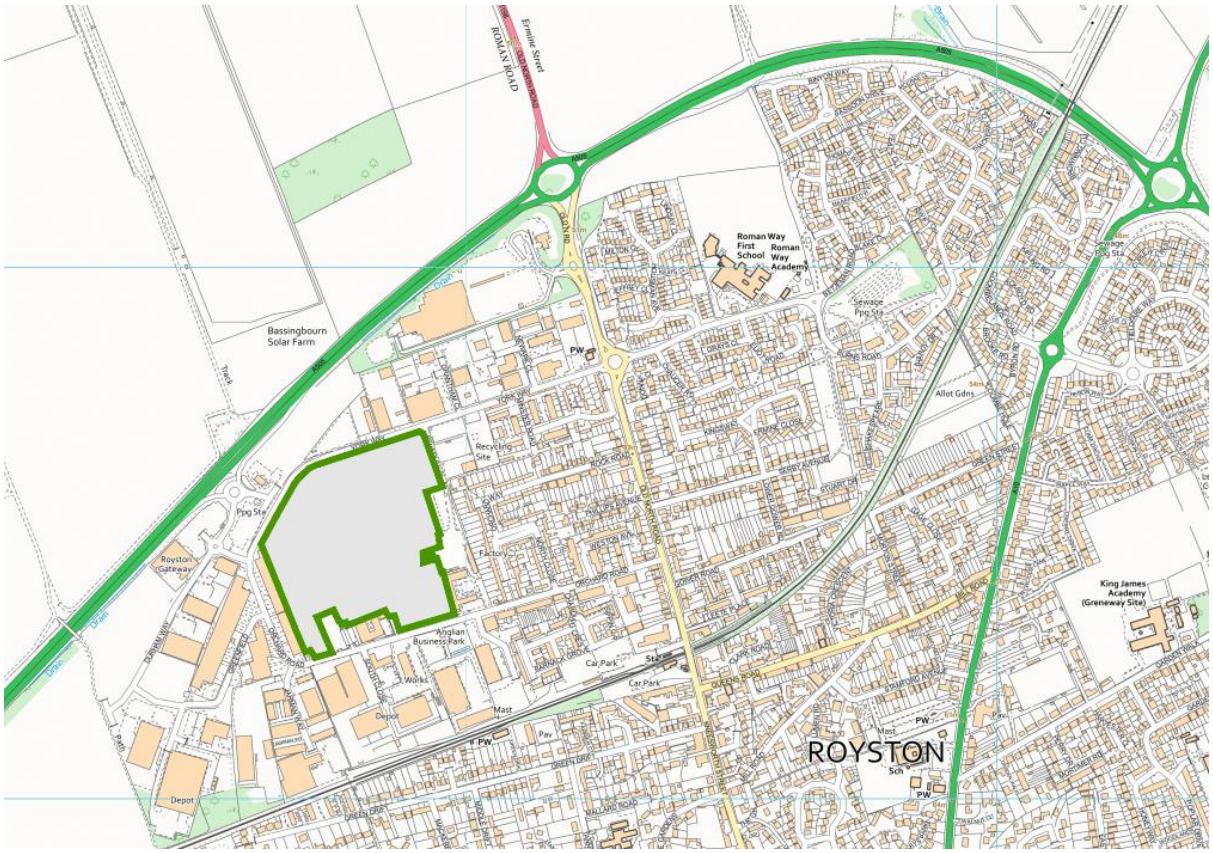
2.1 Existing Site

The Site in Royston is situated within an industrial area on the north-west edge of Royston, immediately adjacent to residential houses. The site is bounded by York Way to the north and Orchard Road to the south, with industrial units to the west and residential houses to the east.

The A505 dual carriageway is located approximately 100m to the north-west of the Site, with the Baldock to Royston main railway line located approximately 225m to the south, and the A1198 Old North Road located approximately 325m to the east. The nearest residential houses are immediately adjacent to the east boundary. There are further residential houses to the east of the A1198, and to the south of the Baldock to Royston main railway line.

The position of the Site (edged green) and the context of the surrounding area can be seen in Figure 2-1.

Figure 2-1: Site Location



2.2 Proposed Variation

The variation is to effect the following changes:

- To authorise a new Third Century Refinery (3CR) platinum group metals refinery.
- Expansion of the existing homogeneous catalysis (HomCat) plant.
- Add a new iridium-based product to the Project 3CR catalyst coated membrane facility.

A detailed description of each of the proposed activities is provided below.

2.2.1 3CR

The Third Century Refinery (3CR) is a new refinery which will replace the existing Platinum Group Metals Refinery (PGMR) on the Site. It will be located in two newly constructed interconnected buildings as follows:

- A 4-storey steel-framed chemical facility with concrete floors and roof, with walls of block work and thermally efficient cladding.
- Adjoining the process building will be a 5-storey office building which will incorporate welfare facilities for the operational staff.

Once the commissioning of all processes into 3CR is complete, the refining operation in the PGMR will cease. The existing refinery will not be decommissioned until the new facility is commissioned and operational; therefore, it is considered that a new listed activity will need to be added to the permit.

However, Johnson Matthey anticipate a 22-month window in which the processes will be transferred from the PGMR. During this time Johnson Matthey will not operate both the new and old refineries simultaneously, instead as processes are transferred to the 3CR they will cease to operate in the PGMR. Johnson Matthey will retain the PGMR as a standby operational plant during this phase should any product purity issues arise with the 3CR processes which require the re-processing of materials in the PGMR. However, it is anticipated such occurrences will be infrequent and only be needed for isolated batches during this phase.

On completion of 3CR, the PGMR will be decommissioned, and the buildings will be removed including the scrubbing system and stacks. The low-level packing and dispatch facility at the south end of PGMR will remain.

2.2.2 HomCat Expansion

It is proposed to expand the homogenous catalyst (HomCat) plant, to replace the Zeocat line which has been decommissioned. The process will utilise the services in the existing building, along with an existing stack.

As the proposed change will not introduce any new noise emitting plant, this assessment will not consider this specific variation further.

2.2.3 Apollo New Iridium Product

Project 3CR – a new Catalyst Coated Membrane process – is currently being applied for as part of Variation 16 to the Environmental Permit (still under determination). The existing variation application was for a platinum-based product; however Johnson Matthey now intend to use the same line to produce an additional iridium-based product.

However, the proposed change will not introduce any new noise emitting, therefore this assessment will not consider this specific variation further.

3.0 Scope and Guidance

A summary of the requirements outlined in the EA Guidance document, and the assessment methodology outlined in BS4142:2014+A1:2019 are provided below.

3.1 Noise and vibration management: environmental permits

The Environment Agency (EA) released the guidance document *Noise and vibration management: environmental permits* (NVM) in July 2021, replacing the previous guidance presented in *Horizontal Guidance for Noise (H3) parts 1 and 2*. The NVM details when a noise assessment is required, the competency required to undertake an assessment and how to carry out a noise impact assessment.

The NVM references BS4142:2014+A1:2019 as the appropriate assessment methodology.

The NVM outlines how context should be taken into account in the assessment and notes that *"Whilst context allows you to interpret impact thresholds (to a degree), there are practical limits to the extent of the interpretation. It is unlikely you could adjust the assessment outcome beyond the next band (for example, modifying a BS 4142 outcome of more than 10dB to be less than an 'adverse impact')."*

Determining the outcome of the assessment the following should be considered:

- weekdays rather than weekends.
- what the sound 'means' – meaningful sound is one that conveys an unpleasant meaning beyond its mere acoustic content, for example noise from an abattoir.
- time of day.
- the absolute sound level.
- where the sound occurs.
- new industry or new residences.
- intrinsic links between the source and receptor, for example the source is the resident's place of work.
- local attitudes.
- the residual acoustic environment.
- the land use at the receptor (for example, gardens rather than yards).
- the exceedance (traditional BS 4142).
- whatever else might be particular to that individual situation.

Based on the results of the BS4142:2014+A1:2019 assessment the NVM has three distinct requirements as detailed in Table 3-1.

Table 3-1: **NVM Assessment**

NVM Result	BS4142 Descriptor	Next Stage
Unacceptable level of audible or detectable noise	The closest corresponding BS 4142 descriptor is 'significant adverse impact'	You must take further action or you may have to reduce or stop operations. The environment agencies will not issue a permit if you are likely to be operating at this level.
Audible or detectable noise	The closest corresponding BS 4142 descriptor is 'adverse impact'	Your duty is to use appropriate measures to prevent or, where that is not practicable, minimise noise. You are not in breach if you are using appropriate measures. But you will need to rigorously demonstrate that you are using appropriate measures.
No noise, or barely audible or detectable noise	The closest corresponding BS 4142 descriptor is 'low impact or no impact'	Low impact does not mean there is no pollution. However, if you have correctly assessed it as low impact under BS 4142, the environment agencies may decide that taking action to minimise noise is a low priority.

3.2 British Standard 4142:2014+A1:2019

British Standard 4142:2014+A1:2019 *Methods for rating and assessing industrial and commercial sound* is intended to be used to assess the potential adverse impact of sound, of an industrial and/or commercial nature, at nearby noise-sensitive receptor locations within the context of the existing sound environment.

Where the specific sound contains tonality, impulsivity and/or other sound characteristics, penalties should be applied depending on the perceptibility. For tonality, a correction of either 0, 2, 4 or 6dB should be added and for impulsivity, a correction of either 0, 3, 6 or 9dB should be added. If the sound contains specific sound features which are neither tonal nor impulsive, a penalty of 3dB should be added.

In addition, if the sound contains identifiable operational and non-operational periods, that are readily distinguishable against the existing sound environment, a further penalty of 3dB may be applied.

The assessment of impact contained in BS4142:2014+A1:2019 is undertaken by comparing the sound rating level, i.e. the specific sound level of the source plus any penalties, to the measured representative background sound level immediately outside the noise-sensitive receptor location. Consideration is then given to the context of the existing sound environment at the noise-sensitive receptor location to assess the potential impact.

Once an initial estimate of the impact is determined, by subtracting the measured background sound level from the rating sound level, BS4142:2014+A1:2019 states that the following should be considered:

- typically, the greater the 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; and
- 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. It is an indication that the specific sound source has a low impact, depending on the context.

BS4142:2014+A1:2019 notes that:

"Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact."

Finally, BS4142:2014+A1:2019 outlines guidance for the consideration of the context of the potential impact, including consideration of the existing residual sound levels, location and/or absolute sound levels.

3.3 ISO 9613-2:1996

The levels of sound generated by the operation of the proposed Plant has been predicted in accordance with the prediction framework within ISO 9613-2:1996 *Acoustics – Attenuation of Sound during Propagation Outdoors– Part 2: General Method of Calculation*. This method of calculation takes into account the distance between the sound sources and the closest receptors, and the amount of attenuation due to atmospheric absorption. The methodology also assumes downwind propagation, i.e. a wind direction that assists the propagation of sound from the source to the receiver.

4.0 Baseline Background Noise Levels - 2020

4.1 Survey Date

To determine sound levels in the vicinity of the Site noise surveys have been undertaken by INVC during 2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016, 2018, and 2020.

The 2020 survey was undertaken between Monday the 14th and Thursday the 17th of September 2020. During the survey the Site was operational, and as such noise from the existing Site may have contributed to the measured baseline background sound level, most notably at No.2 Orchard Close.

4.2 Weather Conditions

During the survey, weather conditions were reported as generally dry and warm with a very light wind. Full details of the weather conditions during the survey are given in Appendix A of the INVC Report[1].

4.3 Equipment

Full details of the monitoring equipment are given in Appendix B of the INVC Report[2].

4.4 Survey Locations

Sound levels were measured at three locations, representative of the nearest residential receptors to the site, as follows:

- Location 1: Orchard Way.
- Location 2: Rock Road.
- Location 3: Eliot Road.

The survey locations are shown in Figure 4-1.

[1] INVC Report 9706 Dated 9th October 2020.

[2] INVC Report 9706 Dated 9th October 2020.

Figure 4-1: Monitoring and Sensitive Receptor Locations

4.5 Baseline Background Sound Level Results

A summary of the survey results at Location One is shown in Table 4-1.

Table 4-1:Summary of 2020 Survey Results dB(A)

Location	Period	$L_{A90,5min}$	$L_{Aeq,5min}$
No. 2 Orchard Way	Daytime	40	56
	Night-Time	37	39
No. 25 Rock Road	Daytime	47	50
	Night-Time	37	51
Eliot Road	Daytime	40	60
	Night-Time	30	34

4.6 Soundscape

It was noted in the INVC Report that some noise from Johnson Matthey is audible along most of the east boundary, but it is well controlled and not particularly intrusive. However, the noise level at the north end of the east boundary, increases significantly when the Fast Cat roller shutter door (FC3) is open.

It is further stated that the average ambient noise level along the east boundary (adjacent to the residential houses) is about the same as it was in recent years since 2010 and has gradually decreased (by up to 9 dB) over the earlier years 2002 to 2008.

5.0 Baseline Background Noise Levels - 2023

5.1 Survey Date

To further inform this assessment SLR completed a noise survey in December 2023. The 2023 survey was undertaken between Friday the 1st and Monday the 4th of December. During the survey the Site was operational, and as such noise from the existing Site may have contributed to the measured baseline background sound level. However, to reduce any noise from the Site elevating the measured sound levels, care was taken to position noise meters at locations where the microphone was shielded by noise from the Site by intervening buildings. For Orchard Way (where Site noise at the boundary with Orchard Way would influence measured noise levels) the meter was positioned at approximately 80m further from the Site boundary with intervening residential buildings shielding the meter from Site noise.

5.2 Weather Conditions

During the survey, weather conditions were reported as generally dry, but cold with temperatures ranging from 7°C to -3°C with a very light wind. Full details of the weather conditions during the survey are shown in Appendix C.

5.3 Equipment

The noise survey equipment used during the survey is detailed in Table 5-1. All measurement instrumentation was calibrated before and after the measurements. No significant drift was observed. The calibration chain is traceable via the United Kingdom Accreditation Service to National Standards held at the National Physical Laboratory.

Table 5-1: Equipment

Meter	Serial no.	Start time	End time	Calibration Drift (dB)	Calibrator serial no.
Location 4 – N1	1403010	1246	1156	0.0	31875
Location 5 – C2	G061094	1315	1208	0.0	72210
Location 6 – C4	G068726	1346	1221	0.5	72210

5.4 Survey Locations

Sound levels were measured at three locations, representative of the nearest residential receptors to the site, as follows:

- Location 4: 22 Blake Close (used as a proxy for Elliot Road).
- Location 5: 25 Rock Road.
- Location 6: 21 Orchard Way.

The survey locations are shown in Figure 5-1.

Figure 5-1: Monitoring and Sensitive Receptor Locations

Photographs of the meter set up can be seen in Appendix D.

5.5 Soundscape

At Location 3 Orchard Way, on collection a reversing siren of a forklift was heard, which was considered to be operating at the Site. Other Site noise was not distinguished. Additionally, there was also birdsong, high altitude planes and the occasional car passing on Orchard Way.

Location 4 Blake Close had distant road noise, birdsong, and the occasional train as well as the dog barking from within the house. The soundscape on collection was the same with the addition of rain falling on the adjacent trees and a high-altitude plane audible also.

Location 5 Rock Road had road noise most dominant and birdsong as well. This was observed on both setup and collection.

5.6 Baseline Background Sound Level Results - Weekday

5.6.1 Location 4 - Blake Road

A summary of the survey results at Location Four Blake Road is shown in Table 5-2. The full survey results are available in Appendix E.

Table 5-2: Location 4: Blake Road Summary of Weekday 2023 Results, dB

Date	Period	$L_{Aeq,T}$	$L_{A90,T}$	$L_{A10,T}$	$L_{Amax,F}$
Friday 1st December	Daytime	47	43	48	85
	Night-Time	39	29	38	81
Monday 4th December	Daytime	50	48	51	68
	Night-Time	-	-	-	-

Appendix F contains the survey data charts, with a graph of the sound levels measured (over the whole period) at Blake Road shown in Figure 11-1, and histograms of the $L_{Aeq,T}$ and the L_{A90} during the week can be seen in Figure 11-2 and Figure 11-3

5.6.2 Location 5 - Rock Road

A summary of the survey results at Location Five Rock Road is shown in Table 5-3. The full survey results are available in Appendix E.

Table 5-3: Location 5: Rock Road Summary of Weekday 2023 Results, dB

Date	Period	$L_{Aeq,T}$	$L_{A90,T}$	$L_{A10,T}$	$L_{Amax,F}$
Friday 1st December	Daytime	49	45	49	73
	Night-Time	42	40	42	70
Monday 4th December	Daytime	45	42	46	75
	Night-Time	-	-	-	-

Appendix F contains the survey data charts, with a graph of the sound levels measured (over the whole period) at Rock Road shown in Figure 11-6Figure 11-1, and histograms of the $L_{Aeq,T}$ and the L_{A90} during the week can be seen in Figure 11-7 and Figure 11-8.

5.6.3 Location 6 - Orchard Way

A summary of the survey results at Location Six Orchard Way is shown in Table 5-4. The full survey results are available in Appendix E.

Table 5-4: Location 6: Orchard Way Summary of Weekday 2023 Results, dB

Date	Period	L_{Aeq}	L_{A90}	L_{A10}	L_{Amax}
Friday 1st December	Daytime	48	42	47	78
	Night-Time	44	41	44	68
Monday 4th December	Daytime	49	43	48	80
	Night-Time	-	-	-	-

Appendix F contains the survey data charts, with a graph of the sound levels measured (over the whole period) at Orchard Way shown in Figure 11-11, and histograms of the $L_{Aeq,T}$ and the L_{A90} during the week can be seen in Figure 11-12 and Figure 11-13.

5.7 Baseline Background Sound Level Results - Weekend

5.7.1 Location 4 Blake Road

A summary of the survey results at Location Four Blake Road is shown in Table 5-5. The full survey results are available in Appendix E.

Table 5-5: Location 4: Blake Road Summary of Weekend 2023 Results, dB

Date	Period	L_{Aeq}	L_{A90}	L_{A10}	L_{Amax}
Saturday 2nd December	Daytime	45	39	46	82
	Night-Time	43	39	44	81
Sunday 3rd December	Daytime	48	45	49	83
	Night-Time	44	40	44	63

Appendix F contains the survey data charts, with histograms of the $L_{Aeq,T}$ and the L_{A90} during the weekend shown in Figure 11-4 and Figure 11-5.

5.7.2 Location 5 Rock Road

A summary of the survey results at Location Five Rock Road is shown in Table 5-6. The full survey results are available in Appendix E.

Table 5-6: Location 5: Rock Road Weekend Summary of 2023 Results, dB

Date	Period	L_{Aeq}	L_{A90}	L_{A10}	L_{Amax}
Saturday 2nd December	Daytime	46	42	47	78
	Night-Time	41	39	41	67
Sunday 3rd December	Daytime	45	43	46	77
	Night-Time	42	38	42	69

Appendix F contains the survey data charts, with histograms of the $L_{Aeq,T}$ and the L_{A90} during the weekend shown in Figure 11-9 and Figure 11-10.

5.7.3 Location 6 Orchard Way

A summary of the survey results at Location Six Orchard Way is shown in Table 5-7. The full survey results are available in Appendix E.

Table 5-7: Location 6: Orchard Way Weekend Summary of 2023 Results, dB

Date	Period	L_{Aeq}	L_{A90}	L_{A10}	L_{Amax}
Saturday 2nd December	Daytime	50	43	48	93
	Night-Time	43	40	43	72
Sunday 3rd December	Daytime	48	44	47	77
	Night-Time	43	40	43	72

Appendix F contains the survey data charts, with histograms of the $L_{Aeq,T}$ and the L_{A90} during the weekend shown in Figure 11-14 and Figure 11-15.

5.8 Baseline Backgrounds for Assessment

Based on the data presented the following baseline background sound levels will be used in the BS4142 assessments for the noise sensitive receptors. The 2023 data is considered to supersede the 2020 survey, as the survey was completed over a longer time period (compared to the short survey completed in 2020).

The 2023 survey was completed during suitable weather conditions and at each location the Site was not audible, with the exception of a forklift during the collection of the meter at Orchard Way.

- **Location 1[3] Orchard Way**
  - Weekday: A daytime baseline background of 41 dB $L_{A90,T}$. A night-time baseline background of 40 dB $L_{A90,T}$
  - Weekend: A daytime baseline background of 43 dB $L_{A90,T}$. A night-time baseline background of 41 dB $L_{A90,T}$
- **Location 2[4] Rock Road**
  - Weekday: A daytime baseline background of 40 dB $L_{A90,T}$. A night-time baseline background of 38 dB $L_{A90,T}$
  - Weekend: A daytime baseline background of 42 dB $L_{A90,T}$. A night-time baseline background of 39 dB $L_{A90,T}$
- **Location 3[5] Elliot Road**
  - Weekday: A daytime baseline background of 38 dB $L_{A90,T}$ A night-time baseline background of 34 dB $L_{A90,T}$
  - Weekend: A daytime baseline background of 39 dB $L_{A90,T}$ A night-time baseline background of 34 dB $L_{A90,T}$

[3] Using measured baselines background sound levels at proxy location 6 (Orchard Way)

[4] Using measured baselines background sound levels at proxy location 5 (Rock Rd)

[5] Using measured baselines background sound levels at proxy location 4 (Blake Rd)

6.0 BS4142 Assessment - Existing Operations

Within SLR Report 416.963922.00001 (dated February 2024), following an agreed approach with the EA, the sound level of the existing "active" Site was determined. This is replicated within Appendix G of this report.

Within the same report, the sound level of the Variation 16 plant was predicted, and is replicated within Appendix H.

The cumulative rating level of the existing "active" site, and the proposed Variation 16 plant was then presented in Section 7 of the report, as part of the cumulative assessment.

Although Variation 16 has yet to be determined, this assessment presents the cumulative level from the report as the "Existing" noise impact of the site.

The Existing BS4142 Noise Impact Assessment of the Site is presented in Table 6-1[6].

Table 6-1: BS4142 Assessment of Existing Operations, dB

Receptor	Assessment	Specific Sound Level of Existing Operations, $L_{Aeq,T}$	Rating Level of Existing Operations, $L_{Ar,T}$	Derived Background Level, $L_{A90,T}$	Difference
Orchard Way	Week Daytime	54	59	41	+18
	Week Night-Time	50	55	40	+15
	Weekend Daytime	54	59	43	+16
	Weekend Night-Time	50	55	41	+14
Rock Road	Week Daytime	38	43	40	+3
	Week Night-Time	36	41	38	+3
	Weekend Daytime	38	43	42	+1
	Weekend Night-Time	36	41	39	+2
Eliot Road	Week Daytime	32	35	38	-3
	Week Night-Time	30	33	34	-1
	Weekend Daytime	32	35	39	-4
	Weekend Night-Time	30	33	34	-1

[6] Table 7-6 in SLR Report 416.963922.00001 (dated February 2024).

7.0 BS4142 Assessment - Proposed Variation

7.1 Introduction

As detailed within Section 2.2, this variation is to effect the following changes:

- To authorise a new 3CR platinum group metals refinery.
- Expansion of the existing HomCat plant.
- Add a new iridium-based product to the Project 3CR catalyst coated membrane facility.

However, as explained in Section 2-2 only the plant associated with the 3CR requires assessment, as the Homcat expansion will not introduce any new noise emitting plant not already included in the existing permit, and the New Iridium Project will not introduce any new noise emitting plant not already included in the Variation 16 (included as part of the Existing BS4142 Assessment).

7.2 3CR Noise Sources

Johnson Matthey has identified that the main noise risk is the Air Handling Units (AHU) associated with the 3CR. The AHUs will be located on the roof of the buildings. The AHUs will be designed to ensure no increase of noise will be detectable at the installation boundary.

New liquid ring seal vacuum pumps will be situated at ground floor level, at the northern end of the 3CR facility. These pumps will be housed in a vacuum shed which will provide sound insulation.

The vacuum shed is located at ground floor level, in the middle of the Site surrounding by the adjacent buildings. It will be located over 280m from the noise sensitive receptors, and will be fully screened by the intervening buildings with no direct line of sight.

Where appropriate, steam and compressed air safety valves will release internally to a safe point. All fans will be fitted with anti-vibration mounts. Existing site systems will be used for boiler blow-off and air compressors which do not cause any nuisance noise or vibration.

The main sources that could potentially cause an impact are detailed in Table 7-1 below. At this stage, the equipment is in the process of being procured, however it is understood that compliance with the below levels is part of the procurement process.

Table 7-1: 3CR Plant - Noise Data

Plant	Sound Pressure Level, L_{Aeq}
MFB – Roof top chillers	<85 dB @ 1m
Annex - Roof top chillers	<85 dB @ 1m
Vacuum Shed	<80 dB @ 1m

The location of the Plant can be seen in Figure 7-1, Figure 7-2, and Figure 7-3 below. On each drawing the location of the plant listed above is shown in yellow, and the drawing references are also included.

Figure 7-1: Location of AHU Plant (Drawing X2JM-250-000-PPL-001-0002-06_3 MFB roof)

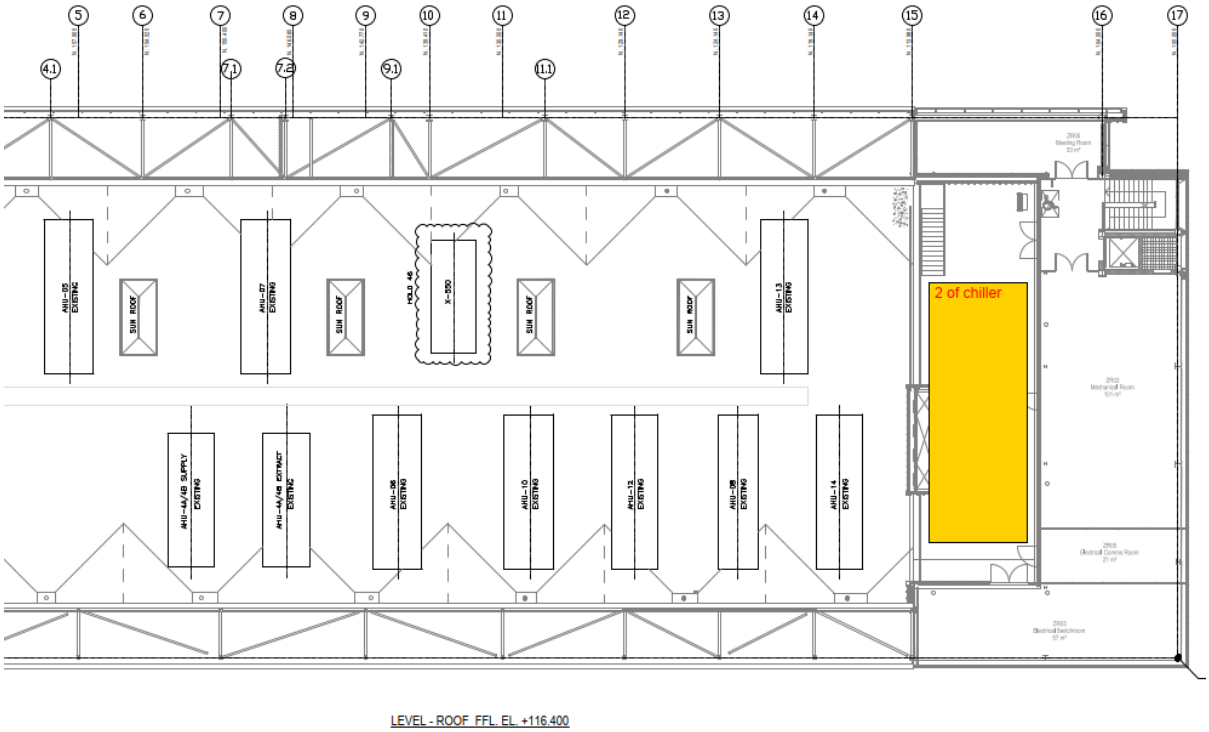


Figure 7-2: Location of AHU Plant (Drawing X2JM-250-000-PPL-001-0003-04_1 Annex Roof)

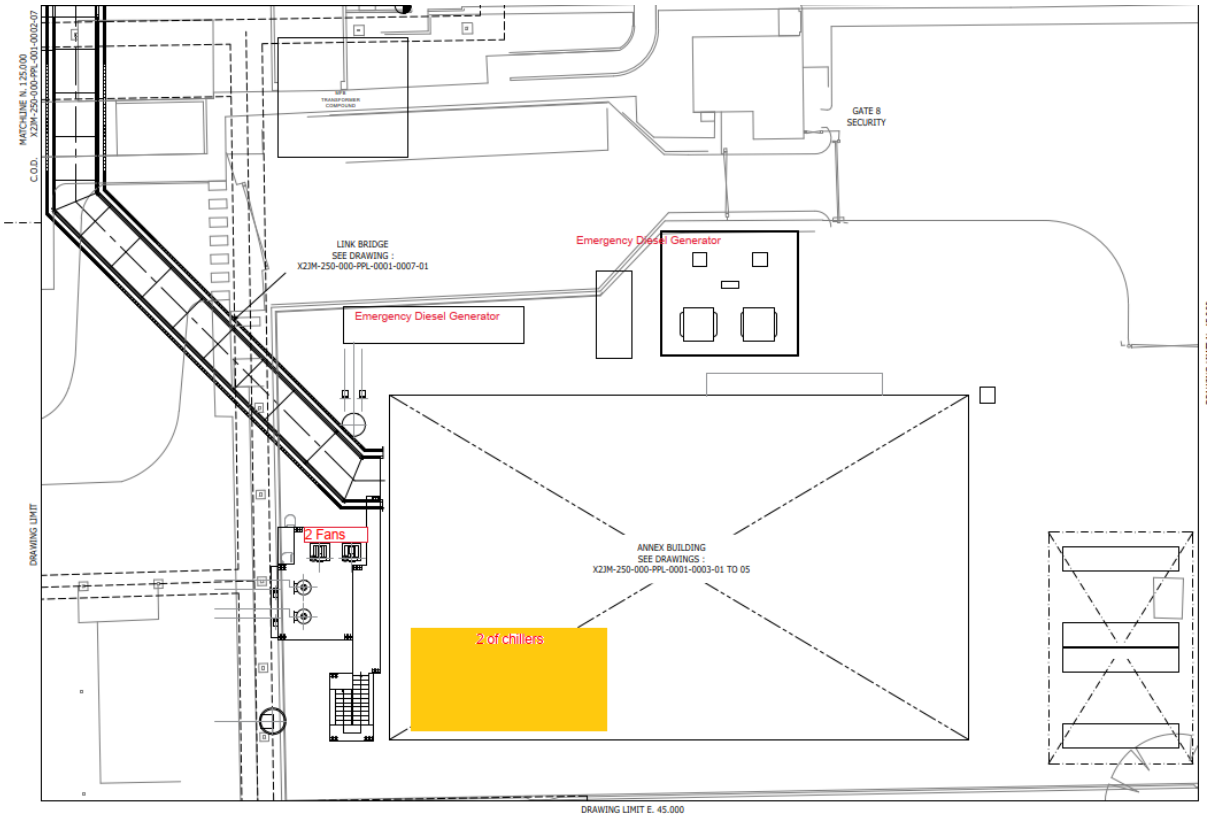
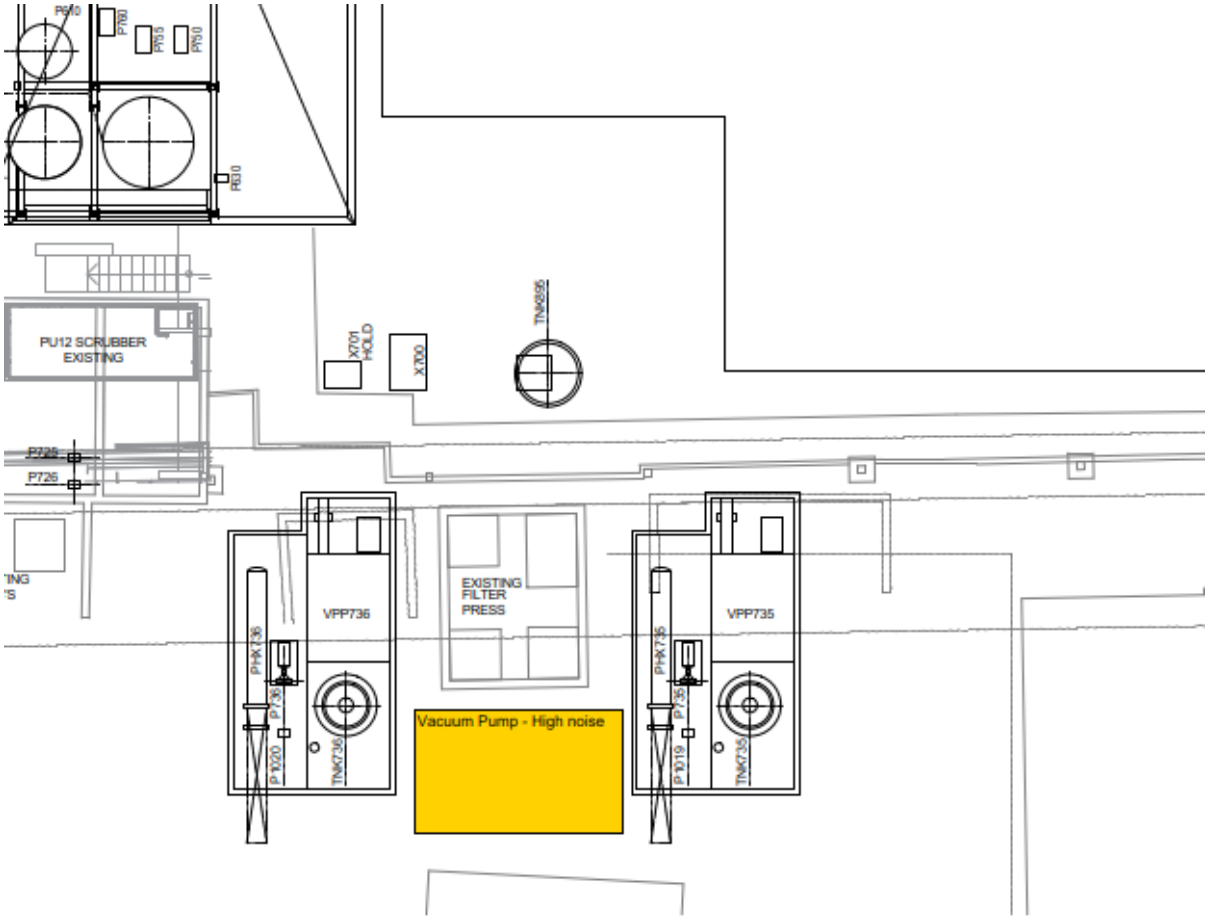


Figure 7-3: Location of Ground Floor Vacuum Pumps (X2JM-250-000-PPL-001-0002-07_0 OSLB MFB)



The approximate distances between the 3CR external plant, and the receptors are detailed in Table 7-2.

Table 7-2: Distance Between 3CR Plant and NSR Locations

3CR Plant	Distance to NSR (m)		
	Orchard Way	Rock Road	Elliot Road
MFB – Roof top chillers	280	400	900
Annex - Roof top chillers	320	460	950
Vacuum Shed	290	420	900

7.3 Noise Model

The sound predictions in this assessment have been undertaken using the noise modelling software CadnaA, which implements the full range of UK noise-based calculation methods. The calculation algorithms set out in ISO 9613-2:1996 *Acoustics – Attenuation of sound*

during propagation outdoors – Part 2 General method of calculation have been used and the model assumes:

- A ground absorption factor of 0.5.
- Contour Data to include OS terrain data.
- A reflection factor of 3.

The characteristics of the proposed noise sources as modelled in CadnaA are presented in Table 7-3.

Table 7-3: Plant Characteristics in CadnaA

Plant	X/Y	CadnaA Noise Type	Size (W x D x H)	Sound Power Level, dB (per unit area (PWL"))
MFB – Roof top chillers	534787, 241374	Modelled as a 5-sided box using vertical area source for sides, and area source for top	15 x 5 x 2m	85
Annex - Roof top chillers x2	534730, 241330		6 x 2 x 2m	85
Vacuum Shed – ground floor external	534740, 241414		3.6 x 3 x 2m	80

7.4 Character Corrections

The character of the noise source and the sound penalty that will be applied in the BS4142 assessment are detailed below:

- **Tonality**: SLR has not undertaken the BS4142 *Objective method for assessing the audibility of tones, h*owever, within the INVC Report it is stated that tones were identified in the datasets at the three off-site NSR that may be attributable to Site plant. Therefore, a 2 dB character correction will be applied.
- **Impulsivity**: Sounds from the Site is not considered impulsive; therefore, no correction is required.
- **Other sound characteristics**: When operating, the proposals may be readily distinctive against the residual acoustic environment. A 3 dB correction will therefore be required.
- **Intermittency**: Over the BS4142 reference period of 1-hour during the daytime, and 15-minutes during night-time, is anticipated that the sources would be constant; therefore, no correction is required.

Based on the above, a 5 dB correction is applicable to the predicted specific sound level to derive the corresponding rating levels at the closest NSRs, on Orchard Way and Rock Road.

Due to the significant stand-off distance to receptors on Eliot Road, it is considered unlikely that tonal sounds would be audible, however the site could be readily distinctive. Therefore, is it considered justified to only apply a 3 dB correction at this NSR.

7.5 Specific Sound Level of Proposed Variation

The calculated specific level of the sound sources associated with the proposed variation, at each receptor are presented in Table 7-4 below, with the highest predicted sound level for Orchard Way presented.

Table 7-4: Specific Sound Level of Proposed Variation – dB(A)

Receptor	Assessment Period	Predicted Specific Sound Level, $L_{Aeq,T}$
Orchard Way	Daytime	34
	Night-time	35
Rock Road	Daytime	33
	Night-time	35
Eliot Road	Daytime	28
	Night-time	28

The daytime and night-time CadnaA plots of the specific sound level ($L_{Aeq,T}$) are presented in Figures 7-4 and 7-5. However, receptors on Eliot Road are not shown on the map due to their significant distance from the site, as including them would require a map scale too large to accurately depict the site details.

Figure 7-4: Specific Sound Level during the Daytime, at 1.5m above ground level

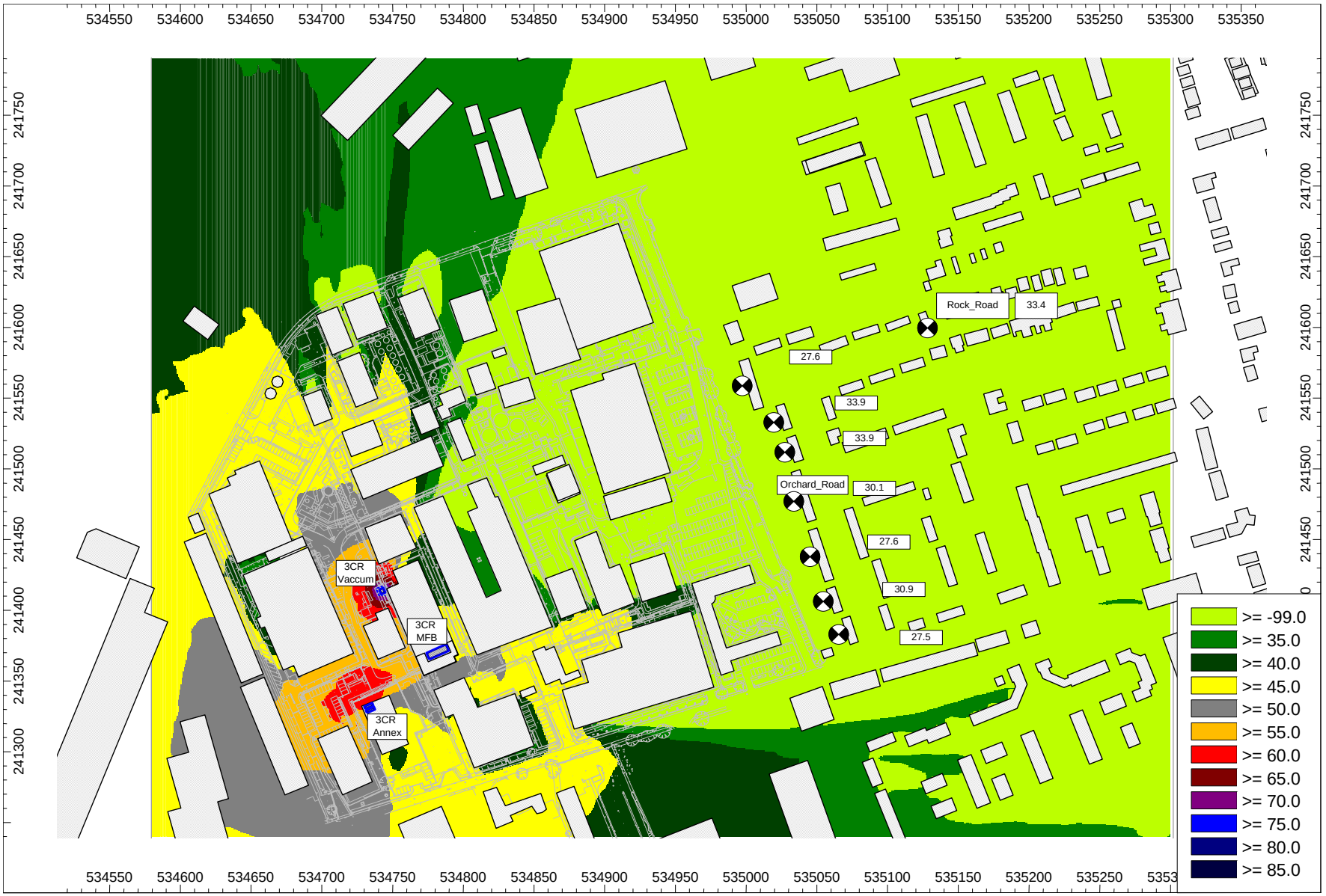
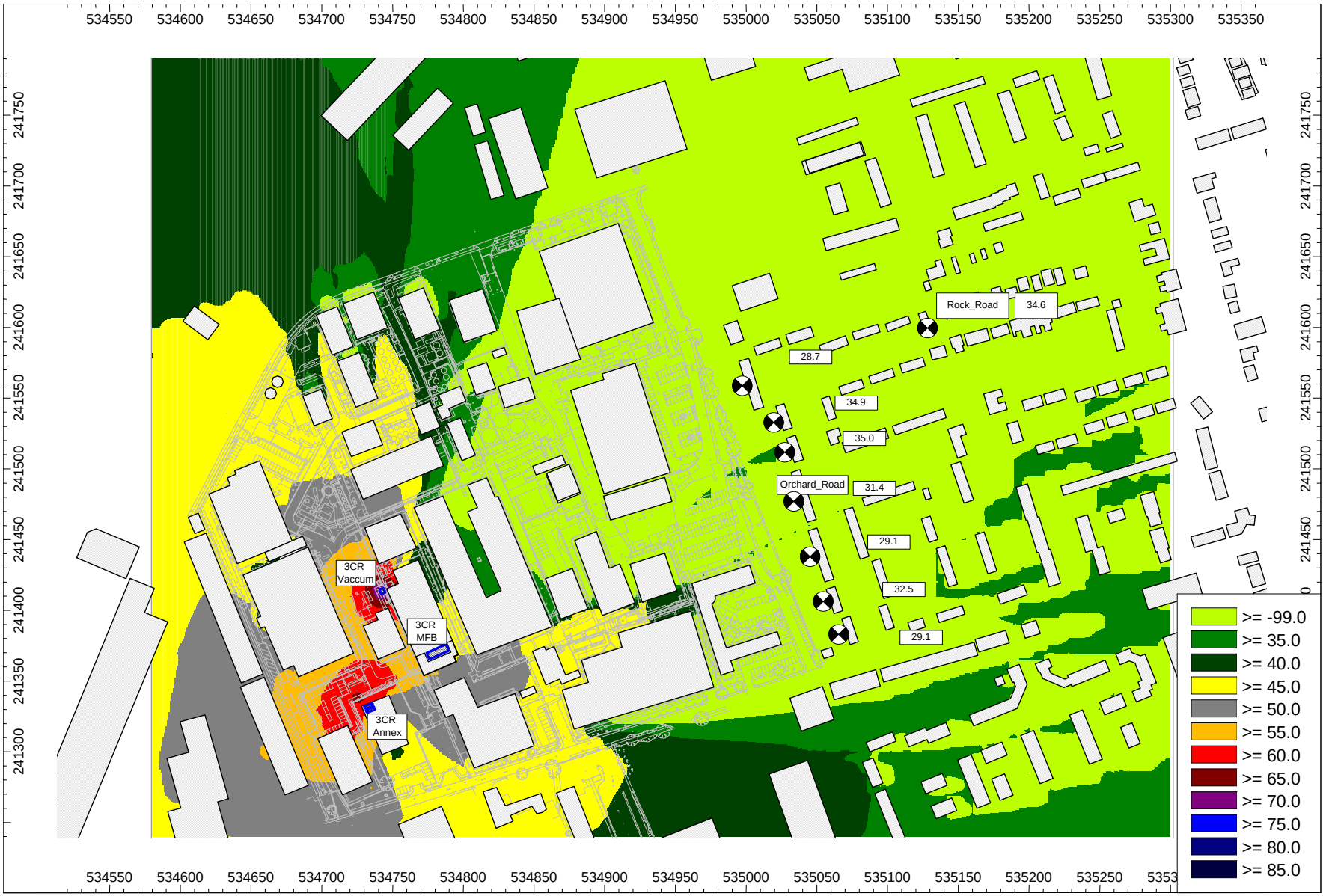


Figure 7-5 Specific Sound Level during the night-time, at 4.0m above ground level



8.0 BS4142 Assessment – Cumulative Operations

8.1 Cumulative Specific Sound Level

The cumulative specific sound level of the exiting plant and additional plant is presented in Table 8-1 below.

Table 8-1: Cumulative Specific Sound Level of Existing and Proposed Plant – dB(A)

Receptor	Period	Existing Plant Specific Sound Level, $L_{Aeq,T}$	Additional Plant Specific Sound Level, $L_{Aeq,T}$	Cumulative Plant Specific Sound Level, $L_{Aeq,T}$
Orchard Way	Weekday Daytime	54	34	54
	Weekday Night-time	50	35	50
	Weekend Daytime	54	34	54
	Weekend Night-time	50	35	50
Rock Road	Weekday Daytime	38	33	39
	Weekday Night-time	36	35	38
	Weekend Daytime	38	33	39
	Weekend Night-time	36	35	38
Eliot Road	Weekday Daytime	32	28	33
	Weekday Night-time	30	28	32
	Weekend Daytime	32	28	33
	Weekend Night-time	30	28	32

8.2 BS4142 Assessment of Cumulative Site Operations

The corrections described in Section 7.4 have been added to the specific sound levels shown in Table 7-5, to derive the rating levels at the receptors. The rating level has then been compared to the derived background sound level.

The result of the cumulative BS4142 assessment is shown in Table 8-2. It must be noted that the rating levels and the representative background sound levels have been rounded to the nearest decibel.

Table 8-2: Cumulative Site BS4142 Assessment, dB

Receptor	Period	Cumulative Specific Sound Level, $L_{Aeq,T}$	Cumulative Rating Level, $L_{Ar,T}$	Derived Background Sound Level L_{A90}	Difference
Orchard Way	Weekday Daytime	54	59	41	+18

Receptor	Period	Cumulative Specific Sound Level, $L_{Aeq,T}$	Cumulative Rating Level, $L_{Ar,T}$	Derived Background Sound Level L_{A90}	Difference
	Weekday Night-time	50	55	40	+15
	Weekend Daytime	54	59	43	+16
	Weekend Night-time	50	55	41	+14
Rock Road	Weekday Daytime	39	44	40	+4
	Weekday Night-time	38	43	38	+5
	Weekend Daytime	39	44	42	+2
	Weekend Night-time	38	43	39	+4
Eliot Road	Weekday Daytime	33	36	38	-2
	Weekday Night-time	32	35	34	+1
	Weekend Daytime	33	36	39	-3
	Weekend Night-time	32	35	34	+1

8.3 Results

From a comparison of the noise impact assessments presented in Table 6-1 and Table 8-2, the following summarises the key findings for each NSR:

- **Orchard Way:**
  - The additional plant is not predicted to increase the difference between the Site's existing rating level and the background sound level.
  - While the rating level exceeds the baseline background sound level by more than 10 dB(A), this difference does not increase with the addition of the new plant.
  - The cumulative noise level remains unchanged, suggesting that the proposed variation will not exacerbate the existing noise impact, and is **not** considered significant.
- **Rock Road:**
  - The variation will result in a slight increase in the rating level, with an increase of 1 to 2 dB across the different periods assessed.
  - The level difference compared to the baseline background sound level increases by up to +5 dB.
  - However, due to the small increase, this is **not** considered significant.
- **Eliot Road:**

- The variation will result in a slight increase in the rating level, with an increase of 1 to 2 dB across the different periods assessed.
- The level difference compared to the baseline background sound level increases by up to +1 dB.
- This increase is **not** considered significant.

8.4 Context Assessment

With regards to context, BS4142 allows for a review of the absolute sound level. It is relevant to consider the absolute level of predicted plant emissions at the receptor, particularly during the night-time period.

From an analysis of the baseline survey data, the existing baseline ambient noise levels at Orchard Way are between 40 dB and 49 dB $L_{Aeq,T}$. Internally, assuming a typical 26 dB Rw reduction from a standard glazed window, this would equate to an internal level of 14 dB to 23 dB $L_{Aeq,T}$.

Cumulatively, with the addition of the specific sound level, as a worst-case scenario, the total level inside a bedroom would equate to 27 dB $L_{Aeq,T}$ [7]. This level is below the 30 dB $L_{Aeq,T}$ guideline value for sleeping recommended by the World Health Organization.

With a partially open window, the guideline value may be exceeded, the variation proposals do not elevate the specific sound level of the facility above that which is already occurring. Therefore, it is not expected that the variation will cause a change in noise impact at Orchard Way.

Other contextual issues which should also been considered include:

- **Orchard Way**: The residential nature of this area makes it sensitive to noise, especially at night. However, the current noise levels remain below WHO guidelines for indoor environments, suggesting that the impact is manageable.
- **Rock Road and Eliot Road**: Both areas experience small increases in noise levels (+1 to 2 dB), which is considered minor within the existing industrial context. The overall impact is expected to be minimal, given that these areas likely have higher tolerance due to the existing noise environment.
- **Time of Day/Week**: Noise during night-time and weekends is typically more intrusive, however the predicted levels stay within acceptable limits, indicating that the variation will not significantly worsen the noise impact.
- **Existing Acoustic Environment**: The site is located within a mixed use area with elevated background noise due to current operations, reducing sensitivity to additional noise. As previously noted from the 2020 survey results, some noise from Johnson Matthey is audible along the east boundary, but it is generally well controlled and not particularly intrusive.
- **Local Attitudes**: The absence of noise complaints suggests the community is relatively tolerant, further diminishing the impact of slight increases in noise.
- **Regulation and Control:** The site's noise levels are regulated and regularly monitored to ensure compliance with environmental standards. Regular noise monitoring ensures that any variations in noise levels are quickly identified and managed.

In context, it is proposed that the application will not have a significant impact. Furthermore, while the identified difference between the rating level and the baseline background sound

[7] Log add 49 dB and 50 dB = 53 dB. Minus 26 dB = 27 dB.

level may appear high, the absence of noise complaints associated with the Site indicates that the Site is operating with a low noise impact.

On this basis, it is considered that the permit variation should be permitted.

9.0 Conclusion

Johnson Matthey has appointed SLR to undertake an assessment of the noise impact of new plant to be installed at the Johnson Matthey Site.

Due to the potential for the new plant to increase noise levels in the area the Environment Agency has requested that an application to vary the Site's Permit is made, and that the application includes a Noise Impact Assessment.

This Report has been completed by Nick Auckland, a Corporate Member of the Institute of Acoustics (MIOA).

This Report has presented a BS4142 assessment of the existing Plant and a cumulative assessment including the plant associated with the permit variation, which includes the following changes:

- To authorise a new 3CR platinum group metals refinery.
- Expansion of the existing HomCat plant.
- Add a new iridium-based product to the Project 3CR catalyst coated membrane facility.

Only plant associated with 3CR requires assessment, as the Homcat expansion will not introduce any new noise emitting plant not already included in the existing permit, and the New Iridium Project will not introduce any new noise emitting plant not already included in the Variation 16 (included as part of the Existing BS4142 Assessment).

With regard to 3CR, the assessment concludes that while the additional plant is predicted to result in a minor increase of 1 to 2 dB at the NSRs, this increase is not expected to significantly alter the existing noise impact. Whilst the identified difference between the rating level and the baseline background sound level may appear high, the absence of noise complaints associated with the Site, and the robust assessment presented, indicates that the Site is operating with a low noise impact.

On this basis it is considered that the permit variation should be permitted.

11.0 Closure

The assessment has required a suitable level of technical ability and has been undertaken by a Suitably Qualified Person (SQP). An individual with all the following credentials has been considered a SQP for this noise assessment:

- Has a minimum of three years' verifiable experience (within the last five years) of providing noise impact assessments. Such experience has clearly demonstrated a practical understanding of factors affecting acoustics in relation to the built environment, including acting in an advisory capacity to provide recommendations and design advice in planning, and;
- Holds a recognised acoustic qualification and membership of an appropriate professional body. The primary professional body for acoustics in the UK is the Institute of Acoustics.

This assessment has been led and managed by a SQP as defined above.

The SQP confirms that the relevant measurements and calculations:

- Represent good industry practice in accordance with available guidance.
- Are appropriate given the development being assessed and scope of works proposed.
- Avoid invalid, biased and exaggerated claims.

The checker and author of this document confirm that they both comply with the definition of a SQP defined in this Section.

Regards,

SLR Consulting Limited

N Auckland, BSc. (Hons) MIOA
Associate Acoustic Consultant

M Dawson, BSc. (Hons) MIOA
Technical Director Acoustics

Appendix A Glossary

Noise Impact Assessment

Royston Environmental Permit Application

Johnson Matthey

SLR Project No.: 416.065394.00001

28 October 2024

A.1 Glossary of Terminology

In order to assist the understanding of acoustic terminology and the relative change in noise, the following background information is provided.

The human ear can detect a very wide range of pressure fluctuations, which are perceived as sound. In order to express these fluctuations in a manageable way, a logarithmic scale called the decibel, or dB scale is used. The decibel scale typically ranges from 0dB (the threshold of hearing) to over 120dB. An indication of the range of sound levels commonly found in the environment is given in the following table.

Table 11-1: Sound Levels Commonly Found in the Environment

Sound Level	Location
0dB(A)	Threshold of hearing
20 to 30dB(A)	Quiet bedroom at night
30 to 40dB(A)	Living room during the day
40 to 50dB(A)	Typical office
50 to 60dB(A)	Inside a car
60 to 70dB(A)	Typical high street
70 to 90dB(A)	Inside factory
100 to 110dB(A)	Burglar alarm at 1m away
110 to 130dB(A)	Jet aircraft on take off
140dB(A)	Threshold of Pain

Acoustic Terminology

dB (decibel) — The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure ($2x10^{-5}$Pa).

dB(A) — A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.

L_{Aeq} — L_{Aeq} is defined as the notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the A - weighted fluctuating sound measured over that period.

L_{10} & L_{90} — If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The L_n indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L_{10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the L_{10} index to describe traffic noise.

L_{Amax} — L_{Amax} is the maximum A - weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.

Appendix B 2020 Survey Data

Noise Impact Assessment

Royston Environmental Permit Application

Johnson Matthey

SLR Project No.: 416.065394.00001

28 October 2024

Position	Year	Time	Date (dd/mm/yy)	Start Time (hh:mm)	Stop Time (hh:mm)	Duration (hh:mm)	L_{A90} (dB)	L_{A50} (dB)	L_{Aeq} (dB)	L_{A10} (dB)	L_{Amax} (dB)
2 Orchard Way	2020	Afternoon	14/09/20	13:30	13:35	00:05	41.0	48.0	60.2	61.0	84.0
				13:35	13:40	00:05	40.0	47.0	53.8	58.5	67.1
				13:40	13:45	00:05	40.0	44.0	53.6	58.0	69.1
		Mean	14/09/20	13:35	13:40	00:05	40.3	46.3	55.9	59.2	73.4
		Std Dev	0	00:05	00:05	00:00	0.6	2.1	3.8	1.6	9.2
		Night	17/09/20	00:40	00:45	00:05	36.0	38.0	38.4	39.5	47.7
				00:45	00:50	00:05	37.0	38.5	39.2	40.5	50.3
				00:50	00:55	00:05	36.5	38.5	38.8	40.0	49.1
		Mean	17/09/20	00:45	00:50	00:05	36.5	38.3	38.8	40.0	49.0
		Std Dev	0	00:05	00:05	00:00	0.5	0.3	0.4	0.5	1.3
22 Rock Road	2020	Morning	16/09/20	07:10	07:15	00:05	46.5	48	49.1	49.5	61.9
				07:15	07:20	00:05	47.5	48.5	50.8	53	62.4
				07:20	07:25	00:05	47.0	48.5	50.0	51.5	62.2
		Mean	16/09/20	07:15	07:20	00:05	47.0	48.3	50.0	51.3	62.2
		Std Dev	0	00:05	00:05	00:00	0.5	0.3	0.9	1.8	0.3
		Night	17/09/20	01:00	01:05	00:05	37.0	38.5	40.8	41.0	60.6
				01:05	01:10	00:05	37.0	38.5	41.1	41.5	61.2
				01:10	01:15	00:05	37.0	38.5	40.6	40.5	60.0
		Mean	17/09/20	01:05	01:10	00:05	37.0	38.5	40.8	41.0	60.6
		Std Dev	0	00:05	00:05	00:00	0.0	0.0	0.3	0.5	0.6
Eliot Road	2018	Morning	21/08/18	12:15	12:20	00:05	46.0	48.5	51.9	54.0	68.9
				12:20	12:25	00:05	46.0	49.5	54.8	57.0	73.3
				12:25	12:30	00:05	46.5	49.5	53.8	56.5	69.3
		Afternoon	21/08/18	15:40	15:45	00:05	41.5	45.0	53.9	57.5	70.0
				15:45	15:50	00:05	44.0	48.5	55.5	57.5	75.1
				15:50	15:55	00:05	45.0	47.0	54.6	57.5	65.6
		Mean	21/08/18	14:02	14:07	00:05	44.8	48.0	54.1	56.7	70.4
		Std Dev	0	01:42	01:42	00:00	1.7	1.6	1.1	1.2	3.1
		Night	21/08/18	00:55	01:00	00:05	39.5	41.0	50.9	44.0	71.7
				01:00	01:05	00:05	40.0	41.5	42.3	44.0	54.6
				01:05	01:10	00:05	38.5	40.0	40.7	42.0	42.6
		Mean	21/08/18	01:00	01:05	00:05	39.3	40.8	44.6	43.3	56.3
		Std Dev	0	00:04	00:04	00:00	0.6	0.6	4.5	0.9	11.9
	2020	Afternoon	15/09/20	15:55	16:00	00:05	40.5	50.0	61.8	60.5	83.7
				16:00	16:05	00:05	40.0	47.0	65.3	64.5	87.3
				16:05	16:10	00:05	38.5	45.0	52.0	56.5	69.3
		Mean	15/09/20	16:00	16:05	00:05	39.7	47.3	59.7	60.5	80.1
		Std Dev	0	00:05	00:05	00:00	1.0	2.5	6.9	4.0	9.5
		Night	17/09/20	01:15	01:20	00:05	30.0	30.0	34.4	37.0	50.4
				01:20	01:25	00:05	30.0	30.0	34.7	36.5	51.5
				01:25	01:30	00:05	30.0	30.0	34.1	37.5	49.4
		Mean	17/09/20	01:20	01:25	00:05	30.0	30.0	34.4	37.0	50.4
		Std Dev	0	00:05	00:05	00:00	0.0	0.0	0.3	0.5	1.1

Appendix C 2023 Weather Data

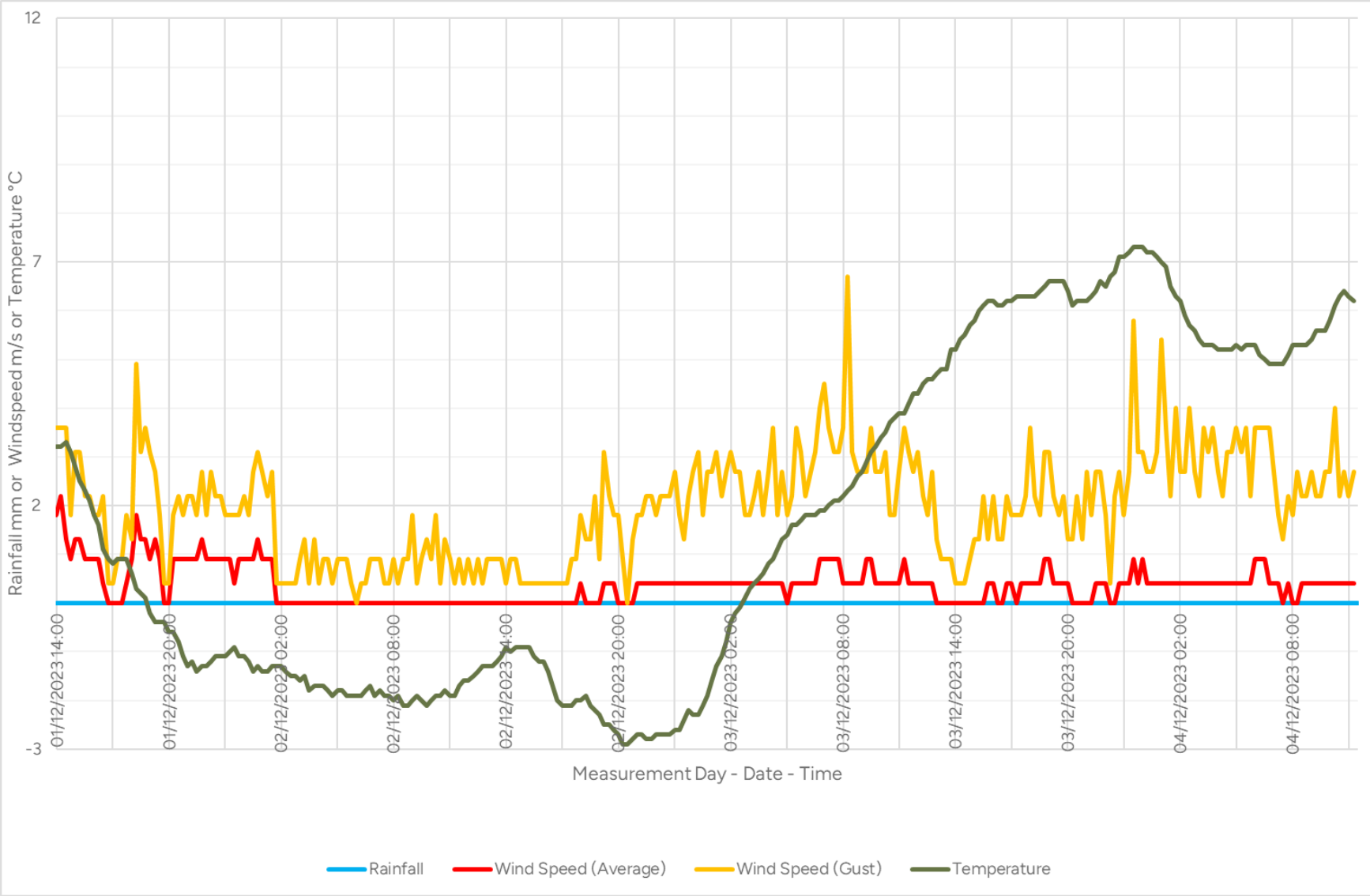
Noise Impact Assessment

Royston Environmental Permit Application

Johnson Matthey

SLR Project No.: 416.065394.00001

28 October 2024


12
7
2
-3
Rainfall mm or Windspeed m/s or Temperature °C
01/12/2023 14:00
01/12/2023 20:00
02/12/2023 02:00
02/12/2023 08:00
02/12/2023 14:00
02/12/2023 20:00
03/12/2023 02:00
03/12/2023 08:00
03/12/2023 14:00
03/12/2023 20:00
04/12/2023 02:00
04/12/2023 08:00
Measurement Day - Date - Time
Rainfall
Wind Speed (Average)
Wind Speed (Gust)
Temperature

Appendix D 2023 Site Photos

Noise Impact Assessment

Royston Environmental Permit Application

Johnson Matthey

SLR Project No.: 416.065394.00001

28 October 2024

Location 4 - Blake Road

Location 5 - Rock Road

Location 6 - Orchard Way

Appendix E 2023 Survey Data

Noise Impact Assessment

Royston Environmental Permit Application

Johnson Matthey

SLR Project No.: 416.065394.00001

28 October 2024

E.1 Location 4 - Blake Close

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
01/12/2023	00:13:54	51.9	77.9	50.4	42.8
01/12/2023	00:14:58	46.5	66.2	47.9	43.9
01/12/2023	00:14:58	45.4	51.8	47.1	43.0
01/12/2023	00:14:58	46.7	59.0	49.2	43.2
01/12/2023	00:14:58	49.7	61.5	51.8	45.6
01/12/2023	00:14:58	49.1	80.6	49.7	44.3
01/12/2023	00:14:58	47.6	58.0	50.0	44.5
01/12/2023	00:14:58	48.3	57.6	49.7	46.2
01/12/2023	00:14:58	49.2	57.3	51.1	46.9
01/12/2023	00:14:58	49.5	57.7	51.3	47.1
01/12/2023	00:14:58	48.2	62.4	49.5	46.0
01/12/2023	00:14:58	49.6	61.2	51.0	46.7
01/12/2023	00:14:58	52.2	71.9	51.8	46.4
01/12/2023	00:14:58	49.4	54.7	50.8	48.0
01/12/2023	00:14:58	49.9	72.2	50.3	47.5
01/12/2023	00:14:58	48.2	53.2	49.4	46.7
01/12/2023	00:14:58	47.6	54.9	48.9	46.1
01/12/2023	00:14:58	48.9	78.4	48.5	43.4
01/12/2023	00:14:58	49.6	77.0	50.7	42.9
01/12/2023	00:14:58	47.5	68.8	47.6	42.6
01/12/2023	00:14:58	50.2	70.1	50.2	42.7
01/12/2023	00:14:58	49.7	82.3	49.9	42.6
01/12/2023	00:14:58	44.2	56.1	45.9	41.7
01/12/2023	00:14:58	45.5	52.9	47.6	42.3
01/12/2023	00:14:58	43.7	58.2	46.0	40.4
01/12/2023	00:14:58	46.5	65.3	47.2	39.2
01/12/2023	00:14:58	46.5	64.3	48.8	36.3
01/12/2023	00:14:58	43.7	59.9	47.2	34.5
01/12/2023	00:14:58	40.1	55.9	42.8	35.2
01/12/2023	00:14:58	43.9	58.0	47.6	38.2
01/12/2023	00:14:58	43.3	54.5	46.7	37.6
01/12/2023	00:14:58	44.9	62.9	48.2	35.8
01/12/2023	00:14:58	37.5	50.7	40.0	32.7
01/12/2023	00:14:58	48.6	84.7	37.8	31.6
01/12/2023	00:14:58	37.6	52.7	39.8	33.1
01/12/2023	00:14:58	39.2	55.9	41.7	33.1
01/12/2023	00:14:58	42.4	58.9	41.4	33.1
01/12/2023	00:14:58	41.8	58.3	43.5	34.4
01/12/2023	00:14:58	36.7	47.6	39.2	33.3
01/12/2023	00:14:58	36.0	48.2	38.7	32.2
01/12/2023	00:14:58	36.6	48.2	38.9	32.7
01/12/2023	00:14:58	36.9	56.2	38.1	31.2
01/12/2023	00:14:58	39.5	54.9	43.0	31.2

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
01/12/2023	00:14:58	45.3	81.2	39.4	30.7
01/12/2023	00:14:58	44.5	62.0	43.4	30.4
02/12/2023	00:14:57	37.8	52.7	42.7	31.6
02/12/2023	00:14:58	39.7	52.5	43.8	32.8
02/12/2023	00:14:58	37.4	52.1	41.3	30.4
02/12/2023	00:14:58	31.2	51.7	32.7	28.2
02/12/2023	00:14:58	39.3	56.5	39.0	28.6
02/12/2023	00:14:58	33.8	50.2	35.2	28.9
02/12/2023	00:14:58	38.3	54.6	38.1	28.8
02/12/2023	00:14:58	33.4	53.9	34.1	27.6
02/12/2023	00:14:58	34.0	53.1	35.5	28.3
02/12/2023	00:14:58	32.2	53.6	32.2	28.1
02/12/2023	00:14:58	32.1	52.7	32.7	27.8
02/12/2023	00:14:58	33.6	51.0	35.7	28.6
02/12/2023	00:14:58	36.8	56.6	40.6	28.3
02/12/2023	00:14:58	33.1	59.6	31.9	27.9
02/12/2023	00:14:58	35.4	51.9	38.3	28.2
02/12/2023	00:14:58	32.4	51.0	33.5	28.5
02/12/2023	00:14:58	33.0	52.5	33.9	27.9
02/12/2023	00:14:58	35.1	53.0	37.3	28.9
02/12/2023	00:14:58	34.9	54.2	35.7	29.5
02/12/2023	00:14:58	37.1	55.1	39.3	29.2
02/12/2023	00:14:58	40.6	56.9	44.8	29.1
02/12/2023	00:14:58	36.0	55.5	37.6	29.1
02/12/2023	00:14:58	40.4	58.3	43.4	29.4
02/12/2023	00:14:58	42.2	62.5	46.1	31.9
02/12/2023	00:14:58	40.5	58.4	44.5	30.3
02/12/2023	00:14:58	39.1	57.8	41.1	31.7
02/12/2023	00:14:58	36.2	53.3	37.9	32.5
02/12/2023	00:14:58	40.7	52.1	45.2	33.5
02/12/2023	00:14:58	41.5	57.6	45.6	34.0
02/12/2023	00:14:58	37.3	51.9	39.3	34.0
02/12/2023	00:14:58	43.8	64.1	44.8	33.7
02/12/2023	00:14:58	40.4	57.6	42.3	36.8
02/12/2023	00:14:58	42.5	63.2	42.9	36.5
02/12/2023	00:14:58	42.8	60.8	44.8	37.7
02/12/2023	00:14:58	40.6	53.3	42.2	38.1
02/12/2023	00:14:58	40.6	59.6	41.9	37.1
02/12/2023	00:14:58	41.5	64.9	42.8	37.1
02/12/2023	00:14:58	41.7	54.7	43.6	38.3
02/12/2023	00:14:58	40.9	61.8	42.7	38.0
02/12/2023	00:14:58	41.2	51.4	42.8	39.2
02/12/2023	00:14:58	44.4	58.9	47.4	39.5
02/12/2023	00:14:58	42.4	53.2	45.0	38.5
02/12/2023	00:14:58	40.8	52.7	42.4	38.3

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
02/12/2023	00:14:58	42.2	56.1	44.6	37.7
02/12/2023	00:14:58	40.5	60.3	42.9	36.4
02/12/2023	00:14:58	40.2	56.4	42.4	36.6
02/12/2023	00:14:58	41.7	54.1	45.4	37.4
02/12/2023	00:14:58	42.2	56.9	44.3	37.3
02/12/2023	00:14:58	40.0	53.9	41.6	37.2
02/12/2023	00:14:58	41.6	54.1	44.9	36.9
02/12/2023	00:14:58	38.6	52.9	40.6	35.8
02/12/2023	00:14:58	41.0	58.7	42.9	37.4
02/12/2023	00:14:58	52.0	74.3	46.5	38.2
02/12/2023	00:14:58	40.8	64.0	41.7	37.1
02/12/2023	00:14:58	40.0	64.4	41.6	36.4
02/12/2023	00:14:58	45.0	65.0	47.0	38.4
02/12/2023	00:14:58	42.1	62.6	44.6	38.1
02/12/2023	00:14:58	43.5	61.6	46.0	39.0
02/12/2023	00:14:58	43.3	59.2	46.6	38.3
02/12/2023	00:14:58	43.2	61.8	46.5	38.4
02/12/2023	00:14:58	44.0	59.2	46.6	39.6
02/12/2023	00:14:58	44.0	57.8	46.8	39.6
02/12/2023	00:14:58	42.0	55.3	44.6	38.6
02/12/2023	00:14:58	41.6	55.9	44.1	38.9
02/12/2023	00:14:58	42.6	55.5	45.6	39.2
02/12/2023	00:14:58	43.4	64.7	44.9	39.9
02/12/2023	00:14:58	43.5	69.8	45.2	39.7
02/12/2023	00:14:58	42.4	58.7	44.4	39.7
02/12/2023	00:14:58	43.9	58.0	44.0	40.6
02/12/2023	00:14:58	43.3	59.0	44.7	41.4
02/12/2023	00:14:58	45.8	55.9	47.8	43.3
02/12/2023	00:14:58	45.9	51.0	47.4	44.0
02/12/2023	00:14:56	46.4	53.9	48.2	44.3
02/12/2023	00:14:58	45.5	51.6	46.8	43.8
02/12/2023	00:14:58	46.1	57.3	47.8	44.0
02/12/2023	00:14:58	46.9	54.6	48.8	44.8
02/12/2023	00:14:58	47.4	54.1	48.8	45.7
02/12/2023	00:14:58	46.5	53.4	48.4	44.3
02/12/2023	00:14:58	45.9	50.8	47.6	43.6
02/12/2023	00:14:58	46.5	53.3	48.5	44.2
02/12/2023	00:14:58	46.2	58.3	47.9	43.7
02/12/2023	00:14:58	45.2	52.6	47.8	42.0
02/12/2023	00:14:58	47.1	57.1	49.3	44.5
02/12/2023	00:14:58	47.4	58.3	48.7	45.0
02/12/2023	00:14:58	48.8	81.3	48.1	44.7
02/12/2023	00:14:58	47.1	59.0	48.1	44.6
02/12/2023	00:14:58	45.6	50.2	47.0	43.8
02/12/2023	00:14:58	49.2	82.4	47.9	44.7

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
02/12/2023	00:14:58	47.1	55.4	48.7	44.8
02/12/2023	00:14:58	47.1	53.8	48.6	45.1
02/12/2023	00:14:58	46.7	57.6	48.2	44.8
02/12/2023	00:14:58	46.3	55.8	47.7	44.6
02/12/2023	00:14:58	47.5	58.0	49.0	44.5
02/12/2023	00:14:58	45.9	53.4	47.7	43.7
02/12/2023	00:14:58	48.2	81.2	47.2	43.9
02/12/2023	00:14:58	45.8	61.1	47.4	43.5
03/12/2023	00:14:57	46.7	67.4	47.6	43.9
03/12/2023	00:14:58	45.0	51.9	46.5	43.0
03/12/2023	00:14:58	45.2	62.6	46.5	42.7
03/12/2023	00:14:58	42.7	49.9	44.7	39.6
03/12/2023	00:14:58	42.7	50.0	44.6	40.2
03/12/2023	00:14:58	42.5	51.2	44.5	39.9
03/12/2023	00:14:58	41.9	50.1	43.9	39.3
03/12/2023	00:14:58	41.2	48.1	43.3	38.6
03/12/2023	00:14:58	41.4	52.1	43.3	38.9
03/12/2023	00:14:58	40.9	50.5	43.2	37.2
03/12/2023	00:14:58	39.9	53.6	42.1	36.2
03/12/2023	00:14:58	39.2	49.7	41.8	35.6
03/12/2023	00:14:58	37.6	50.4	39.7	34.0
03/12/2023	00:14:58	37.8	49.3	40.1	33.6
03/12/2023	00:14:58	38.0	55.7	40.1	35.1
03/12/2023	00:14:58	41.6	47.3	43.7	37.2
03/12/2023	00:14:58	42.7	52.7	44.3	40.0
03/12/2023	00:14:58	41.5	48.7	43.1	39.1
03/12/2023	00:14:58	39.3	53.9	41.5	36.8
03/12/2023	00:14:58	37.9	48.1	40.1	35.2
03/12/2023	00:14:58	40.1	56.4	42.3	35.7
03/12/2023	00:14:58	41.0	49.4	43.3	37.6
03/12/2023	00:14:58	39.5	47.6	41.5	36.4
03/12/2023	00:14:58	40.0	49.1	42.0	37.3
03/12/2023	00:14:58	40.6	48.0	42.4	38.4
03/12/2023	00:14:58	42.1	52.4	43.7	39.8
03/12/2023	00:14:58	43.1	52.6	45.0	40.5
03/12/2023	00:14:58	44.1	56.6	45.5	41.6
03/12/2023	00:14:58	43.2	52.3	44.9	41.1
03/12/2023	00:14:58	44.9	54.5	47.1	41.8
03/12/2023	00:14:58	44.1	54.0	45.7	42.2
03/12/2023	00:14:58	44.9	55.6	46.4	43.2
03/12/2023	00:14:58	44.8	57.1	46.5	42.6
03/12/2023	00:14:58	46.0	54.9	47.6	43.9
03/12/2023	00:14:58	46.2	55.2	47.5	44.4
03/12/2023	00:14:58	47.4	60.3	48.9	45.4
03/12/2023	00:14:58	47.7	57.3	49.5	45.0

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
03/12/2023	00:14:58	47.6	53.9	49.0	46.1
03/12/2023	00:14:58	47.8	54.9	49.0	46.3
03/12/2023	00:14:58	51.3	71.0	52.7	47.1
03/12/2023	00:14:58	48.1	54.6	49.2	46.8
03/12/2023	00:14:58	48.8	61.5	50.2	46.9
03/12/2023	00:14:58	49.0	56.3	50.0	47.9
03/12/2023	00:14:58	49.2	57.3	50.2	47.9
03/12/2023	00:14:58	50.5	73.3	50.9	48.1
03/12/2023	00:14:58	51.0	69.4	53.2	48.3
03/12/2023	00:14:58	49.4	54.8	50.4	48.2
03/12/2023	00:14:58	49.6	57.5	50.4	48.2
03/12/2023	00:14:58	50.1	58.1	51.2	48.7
03/12/2023	00:14:58	51.2	57.1	52.2	49.8
03/12/2023	00:14:58	50.0	58.0	51.1	48.7
03/12/2023	00:14:58	49.0	57.5	50.0	47.7
03/12/2023	00:14:58	48.9	65.4	49.7	47.6
03/12/2023	00:14:58	49.9	65.1	50.1	47.9
03/12/2023	00:14:58	50.0	68.4	50.7	47.8
03/12/2023	00:14:58	49.5	58.8	51.0	47.4
03/12/2023	00:14:58	50.3	65.3	51.2	48.5
03/12/2023	00:14:58	49.7	56.3	50.8	48.2
03/12/2023	00:14:58	49.5	61.4	50.6	47.4
03/12/2023	00:14:58	47.7	52.6	48.7	46.5
03/12/2023	00:14:58	47.5	55.0	48.5	46.3
03/12/2023	00:14:58	48.2	60.7	49.0	46.7
03/12/2023	00:14:58	47.8	64.5	48.4	46.2
03/12/2023	00:14:58	46.2	59.1	47.2	44.5
03/12/2023	00:14:58	47.5	58.5	49.2	45.3
03/12/2023	00:14:58	46.8	59.1	47.8	45.4
03/12/2023	00:14:58	47.7	60.8	48.3	45.3
03/12/2023	00:14:58	46.8	53.8	47.9	45.6
03/12/2023	00:14:58	46.3	61.0	47.2	44.8
03/12/2023	00:14:58	47.5	58.2	49.2	45.1
03/12/2023	00:14:58	48.3	60.5	50.9	45.3
03/12/2023	00:14:58	48.7	63.2	49.6	45.4
03/12/2023	00:14:58	48.1	59.7	48.8	46.0
03/12/2023	00:14:58	47.3	56.5	48.5	46.0
03/12/2023	00:14:58	47.3	53.9	48.5	45.9
03/12/2023	00:14:58	46.9	65.1	47.6	44.2
03/12/2023	00:14:58	46.6	66.9	47.4	43.7
03/12/2023	00:14:58	46.6	65.5	48.5	44.0
03/12/2023	00:14:58	45.2	53.8	46.6	43.7
03/12/2023	00:14:58	48.1	67.9	47.3	43.3
03/12/2023	00:14:58	46.0	56.7	47.6	44.0
03/12/2023	00:14:58	44.9	54.0	46.5	43.0

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
03/12/2023	00:14:58	48.2	82.8	45.3	41.7
03/12/2023	00:14:58	42.8	48.9	44.3	41.1
03/12/2023	00:14:58	43.6	59.4	44.9	41.7
03/12/2023	00:14:58	43.6	58.1	44.0	40.4
03/12/2023	00:14:58	43.0	59.8	44.6	41.0
03/12/2023	00:14:58	41.7	53.8	43.2	39.2
03/12/2023	00:14:58	42.4	53.4	44.0	40.2
03/12/2023	00:14:58	41.7	48.7	43.5	39.1
03/12/2023	00:14:58	41.7	47.7	43.8	39.2
03/12/2023	00:14:58	40.5	51.2	42.6	37.4
03/12/2023	00:14:58	41.0	46.9	42.6	39.1
03/12/2023	00:14:58	41.7	53.0	43.4	38.8
03/12/2023	00:14:58	42.2	52.9	44.9	37.2
03/12/2023	00:14:58	42.8	51.8	44.0	41.3
04/12/2023	00:14:57	44.2	51.5	45.7	42.4
04/12/2023	00:14:58	42.3	56.0	43.9	39.9
04/12/2023	00:14:58	40.4	52.4	42.5	38.0
04/12/2023	00:14:58	41.0	52.8	43.5	37.5
04/12/2023	00:14:58	40.4	51.5	42.2	38.2
04/12/2023	00:14:58	40.4	51.9	42.3	38.0
04/12/2023	00:14:58	40.7	54.0	42.7	37.8
04/12/2023	00:14:58	40.8	52.5	43.0	38.1
04/12/2023	00:14:58	41.0	48.5	43.3	38.4
04/12/2023	00:14:58	41.4	51.8	43.5	38.3
04/12/2023	00:14:58	40.0	54.5	42.1	37.1
04/12/2023	00:14:58	41.4	51.0	43.3	38.0
04/12/2023	00:14:58	46.4	52.4	47.9	43.6
04/12/2023	00:14:58	47.1	57.0	48.2	45.7
04/12/2023	00:14:58	43.9	57.0	46.7	40.7
04/12/2023	00:14:58	42.2	54.4	44.0	39.8
04/12/2023	00:14:58	41.1	53.4	43.3	37.6
04/12/2023	00:14:58	43.0	52.8	45.2	40.1
04/12/2023	00:14:58	43.8	52.4	45.8	41.0
04/12/2023	00:14:58	42.7	54.0	44.9	40.0
04/12/2023	00:14:58	44.6	63.0	46.2	40.4
04/12/2023	00:14:58	44.8	54.5	46.7	42.3
04/12/2023	00:14:58	46.3	60.4	48.3	43.6
04/12/2023	00:14:58	47.0	55.5	48.8	44.7
04/12/2023	00:14:58	46.8	62.9	48.4	44.9
04/12/2023	00:14:58	48.1	54.6	49.7	46.0
04/12/2023	00:14:58	48.2	57.0	49.7	46.1
04/12/2023	00:14:58	49.4	57.9	50.8	47.5
04/12/2023	00:14:58	49.6	56.5	50.9	47.7
04/12/2023	00:14:58	49.7	60.0	51.2	47.8
04/12/2023	00:14:58	50.1	67.8	51.3	48.4

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
04/12/2023	00:14:58	50.3	57.4	51.6	48.7
04/12/2023	00:14:58	50.2	58.7	51.4	48.6
04/12/2023	00:14:58	50.9	61.0	51.8	48.9
04/12/2023	00:14:58	50.2	57.1	51.3	48.8
04/12/2023	00:14:58	50.5	57.3	51.8	49.0
04/12/2023	00:14:58	49.9	61.4	51.5	47.7
04/12/2023	00:14:58	50.0	58.3	51.7	48.1
04/12/2023	00:14:58	51.1	65.7	52.2	47.5
04/12/2023	00:14:58	50.4	64.6	50.8	47.7
04/12/2023	00:14:58	49.8	62.6	51.0	47.6
04/12/2023	00:14:58	49.3	58.3	50.6	47.1
04/12/2023	00:14:58	49.6	62.8	51.0	47.4
04/12/2023	00:14:58	49.8	58.6	51.2	47.6
04/12/2023	00:14:58	49.5	58.3	51.0	47.6
04/12/2023	00:14:58	49.8	60.8	51.5	47.5
04/12/2023	00:14:58	49.2	57.4	50.7	47.0
04/12/2023	00:11:35	49.9	67.0	52.0	47.3

E.2 Location 5 – 25 Rock Road

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
01/12/2023 13:15	00:15:00	61.3	93.1	54.2	45.4
01/12/2023 13:30	00:15:00	47.8	54.5	49.5	45.6
01/12/2023 13:45	00:15:00	49.6	63.6	50	45.5
01/12/2023 14:00	00:15:00	49.1	69	50.9	45.7
01/12/2023 14:15	00:15:00	47.5	65.2	49.4	44.8
01/12/2023 14:30	00:15:00	50.6	65.5	52.2	48.1
01/12/2023 14:45	00:15:00	52.2	60	53.7	50.2
01/12/2023 15:00	00:15:00	53.4	60.1	55.1	51.2
01/12/2023 15:15	00:15:00	53.2	61	54.7	51.1
01/12/2023 15:30	00:15:00	52.5	60.3	53.9	50.4
01/12/2023 15:45	00:15:00	53.8	71	55.2	50.8
01/12/2023 16:00	00:15:00	52.5	63.4	53.7	50.9
01/12/2023 16:15	00:15:00	51.2	65	52.5	49.1
01/12/2023 16:30	00:15:00	49.8	54.3	50.9	48.5
01/12/2023 16:45	00:15:00	51.2	56.3	52.4	49.5
01/12/2023 17:00	00:15:00	48.8	63.8	50.5	45.8
01/12/2023 17:15	00:15:00	48.8	62	50	46.5
01/12/2023 17:30	00:15:00	46.9	54.2	48.4	45.1
01/12/2023 17:45	00:15:00	48.8	66.2	50.6	45.3
01/12/2023 18:00	00:15:00	49.9	72.9	51	47
01/12/2023 18:15	00:15:00	46.7	53.8	48.5	44.4
01/12/2023 18:30	00:15:00	46.1	55.8	48.1	43.2
01/12/2023 18:45	00:15:00	46.1	57.5	47.8	43.4

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
01/12/2023 19:00	00:15:00	43.7	51.5	45.3	41.4
01/12/2023 19:15	00:15:00	41.7	52.4	43	39.6
01/12/2023 19:30	00:15:00	42.2	66	42.8	39.1
01/12/2023 19:45	00:15:00	42.9	54.2	44.9	40.2
01/12/2023 20:00	00:15:00	46.5	56.5	49.8	41.6
01/12/2023 20:15	00:15:00	46	53.1	49.4	41.9
01/12/2023 20:30	00:15:00	45.3	55.5	48.1	41.2
01/12/2023 20:45	00:15:00	42	55.5	43.4	39.8
01/12/2023 21:00	00:15:00	41.4	51.2	42.6	39.5
01/12/2023 21:15	00:15:00	42.1	54.7	42.8	40.2
01/12/2023 21:30	00:15:00	41.9	55	42.4	39.3
01/12/2023 21:45	00:15:00	45.3	61.7	44.1	40.1
01/12/2023 22:00	00:15:00	44.9	59.8	45.4	40.9
01/12/2023 22:15	00:15:00	41.4	52.9	42.5	39.8
01/12/2023 22:30	00:15:00	41.5	51.6	42.8	39.6
01/12/2023 22:45	00:15:00	41.9	53.5	43	40
01/12/2023 23:00	00:15:00	41.7	53.6	42	39.5
01/12/2023 23:15	00:15:00	42.3	58.6	42.3	39.6
01/12/2023 23:30	00:15:00	41.6	53	42.7	39.8
01/12/2023 23:45	00:15:00	45.4	61	46.5	38.9
02/12/2023 00:00	00:15:00	42.8	53.6	45.7	40
02/12/2023 00:15	00:15:00	44.1	52.2	47.4	40.5
02/12/2023 00:30	00:15:00	42.5	54.5	44.2	39.4
02/12/2023 00:45	00:15:00	40.2	49.7	41	38.9
02/12/2023 01:00	00:15:00	43.1	56.6	43.7	39.6
02/12/2023 01:15	00:15:00	40.7	45.3	41.6	39.7
02/12/2023 01:30	00:15:00	42	53.8	41.8	39.6
02/12/2023 01:45	00:15:00	40.6	48.8	41.3	39.5
02/12/2023 02:00	00:15:00	41	46.4	41.9	39.9
02/12/2023 02:15	00:15:00	40.6	45.6	41.3	39.7
02/12/2023 02:30	00:15:00	40.7	44.2	41.6	39.4
02/12/2023 02:45	00:15:00	41.7	47.4	43	40.3
02/12/2023 03:00	00:15:00	41.1	50.7	42	39.7
02/12/2023 03:15	00:15:00	41.3	47.8	42.3	39.9
02/12/2023 03:30	00:15:00	41.2	46.7	42	40
02/12/2023 03:45	00:15:00	41.8	49.8	42.9	40.4
02/12/2023 04:00	00:15:00	41	47.3	41.8	40
02/12/2023 04:15	00:15:00	40.8	49.3	41.5	39.8
02/12/2023 04:30	00:15:00	41.3	48.5	42.3	40.1
02/12/2023 04:45	00:15:00	41.8	52.1	42.7	40.7
02/12/2023 05:00	00:15:00	41.4	45.8	42.1	40.4
02/12/2023 05:15	00:15:00	41.5	47.9	42.4	40.4
02/12/2023 05:30	00:15:00	41.2	49.2	42.3	40
02/12/2023 05:45	00:15:00	42.1	48.7	43.2	40.8
02/12/2023 06:00	00:15:00	43.6	70.3	42.8	40.6

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
02/12/2023 06:15	00:15:00	43.3	52.1	44.5	41.8
02/12/2023 06:30	00:15:00	43.5	59.6	44.4	42
02/12/2023 06:45	00:15:00	45.1	58.2	47.3	42
02/12/2023 07:00	00:15:00	44.7	57.5	46.9	42.3
02/12/2023 07:15	00:15:00	44.1	58.8	45.7	41.6
02/12/2023 07:30	00:15:00	46.7	65.3	47.8	41.7
02/12/2023 07:45	00:15:00	46.7	67.7	46.5	42.8
02/12/2023 08:00	00:15:00	45.5	68.1	47.1	42.7
02/12/2023 08:15	00:15:00	53.9	66.5	57.8	44
02/12/2023 08:30	00:15:00	47.2	73.7	47.8	44.2
02/12/2023 08:45	00:15:00	45.2	61.6	47.2	41.8
02/12/2023 09:00	00:15:00	47.7	77.5	48.7	43
02/12/2023 09:15	00:15:00	46.1	60.6	47.7	43.8
02/12/2023 09:30	00:15:00	45.4	61.7	47	43.2
02/12/2023 09:45	00:15:00	46.2	64.3	47.2	44.2
02/12/2023 10:00	00:15:00	46.2	58.2	47.5	43.1
02/12/2023 10:15	00:15:00	45.7	62.5	47.6	43.1
02/12/2023 10:30	00:15:00	45.5	64.5	47.3	43.1
02/12/2023 10:45	00:15:00	45.5	61.8	48.1	42.5
02/12/2023 11:00	00:15:00	43.8	67.8	45.9	40.5
02/12/2023 11:15	00:15:00	44.3	60.2	46.8	41.4
02/12/2023 11:30	00:15:00	44.5	63.2	47	41.5
02/12/2023 11:45	00:15:00	44.2	58.4	46.4	42
02/12/2023 12:00	00:15:00	45.4	69.2	47	41.8
02/12/2023 12:15	00:15:00	44.9	58.3	46.6	40.9
02/12/2023 12:30	00:15:00	43.4	64.2	44.3	40.2
02/12/2023 12:45	00:15:00	46.3	76.6	46.9	41.7
02/12/2023 13:00	00:15:00	45.4	60.4	48	42.3
02/12/2023 13:15	00:15:00	43.2	52.1	44	41.7
02/12/2023 13:30	00:15:00	43.9	62.1	45.4	41.4
02/12/2023 13:45	00:15:00	45.8	65.1	47.8	41.4
02/12/2023 14:00	00:15:00	44.3	56	47.5	41.1
02/12/2023 14:15	00:15:00	45.4	57.3	48.4	42.1
02/12/2023 14:30	00:15:00	45.7	66.3	47.3	41.5
02/12/2023 14:45	00:15:00	44.4	53.7	47.2	41.4
02/12/2023 15:00	00:15:00	44.2	60.4	46.5	41.2
02/12/2023 15:15	00:15:00	44.2	69.4	45	42
02/12/2023 15:30	00:15:00	48.1	70.5	47.6	41.7
02/12/2023 15:45	00:15:00	43.8	60.6	45.6	40.9
02/12/2023 16:00	00:15:00	44.5	63.1	46.5	41.8
02/12/2023 16:15	00:15:00	45.1	55.6	47.6	42.3
02/12/2023 16:30	00:15:00	44.5	54.3	46	42.5
02/12/2023 16:45	00:15:00	47.5	78.1	46	42.8
02/12/2023 17:00	00:15:00	45.8	58.5	46	42.5
02/12/2023 17:15	00:15:00	44.4	57.9	45.9	42.4

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
02/12/2023 17:30	00:15:00	46	71.1	47.8	43.1
02/12/2023 17:45	00:15:00	44.9	53.8	47.6	42.2
02/12/2023 18:00	00:15:00	43.7	55.9	44.5	42.1
02/12/2023 18:15	00:15:00	43.6	54.1	44.2	42.3
02/12/2023 18:30	00:15:00	43.3	49.5	44.3	42.2
02/12/2023 18:45	00:15:00	45.5	62.8	47.5	42.5
02/12/2023 19:00	00:15:00	45.2	57.4	46.5	43.2
02/12/2023 19:15	00:15:00	44.9	60.1	46.2	42.5
02/12/2023 19:30	00:15:00	44.4	54.7	45.6	42.5
02/12/2023 19:45	00:15:00	43.3	52	44.5	41.8
02/12/2023 20:00	00:15:00	44.7	69.2	45.2	42
02/12/2023 20:15	00:15:00	45.6	55.8	48.9	42.1
02/12/2023 20:30	00:15:00	46.8	55.1	49.6	43
02/12/2023 20:45	00:15:00	46.2	62.3	47	42.1
02/12/2023 21:00	00:15:00	44.2	53.9	45.6	41.9
02/12/2023 21:15	00:15:00	46.4	60.5	47.2	42
02/12/2023 21:30	00:15:00	43.2	49.4	44.8	41.2
02/12/2023 21:45	00:15:00	43.4	49.6	45	41.4
02/12/2023 22:00	00:15:00	43.5	53.1	45.2	41
02/12/2023 22:15	00:15:00	43.9	61.1	45.5	40.9
02/12/2023 22:30	00:15:00	43.4	54.2	45	40.8
02/12/2023 22:45	00:15:00	42.8	51.2	44.5	40.9
02/12/2023 23:00	00:15:00	46	65.2	46.1	40.6
02/12/2023 23:15	00:15:00	43.2	54.5	44.3	41.2
02/12/2023 23:30	00:15:00	42.7	49.4	44.5	40.5
02/12/2023 23:45	00:15:00	41.8	50.5	42.9	40.5
03/12/2023 00:00	00:15:00	42.4	56.5	43.5	40.1
03/12/2023 00:15	00:15:00	41.6	53.7	42.7	39.9
03/12/2023 00:30	00:15:00	40.8	51.7	42.1	39.3
03/12/2023 00:45	00:15:00	40.2	49.7	41.2	38.7
03/12/2023 01:00	00:15:00	40.1	49.1	41.1	39
03/12/2023 01:15	00:15:00	39.8	44.4	40.7	38.6
03/12/2023 01:30	00:15:00	40.2	52.5	41.5	38.8
03/12/2023 01:45	00:15:00	39.6	45.3	40.6	38.5
03/12/2023 02:00	00:15:00	39.6	44.8	40.4	38.6
03/12/2023 02:15	00:15:00	39.1	42.6	40	38.1
03/12/2023 02:30	00:15:00	39.6	59.2	40.1	38
03/12/2023 02:45	00:15:00	39.4	52.5	40.3	38
03/12/2023 03:00	00:15:00	38.6	45.4	39.5	37.5
03/12/2023 03:15	00:15:00	39.1	48.5	40	37.7
03/12/2023 03:30	00:15:00	39.5	53.1	40.3	38.3
03/12/2023 03:45	00:15:00	43.4	65.4	44.7	39.8
03/12/2023 04:00	00:15:00	43.2	66.5	44.3	39.4
03/12/2023 04:15	00:15:00	41.8	62.5	43	38.4
03/12/2023 04:30	00:15:00	38.9	51	39.6	37.9

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
03/12/2023 04:45	00:15:00	38.9	48.5	39.7	37.8
03/12/2023 05:00	00:15:00	41.2	56.6	41.8	38.5
03/12/2023 05:15	00:15:00	40.5	55	41.4	39
03/12/2023 05:30	00:15:00	39.5	46.4	40.4	38.5
03/12/2023 05:45	00:15:00	39.9	45.6	40.8	38.9
03/12/2023 06:00	00:15:00	40.8	49.9	41.7	39.6
03/12/2023 06:15	00:15:00	41.6	55.2	42.5	40.1
03/12/2023 06:30	00:15:00	41.7	56.3	42.7	40.2
03/12/2023 06:45	00:15:00	43.3	58.6	43.6	40.3
03/12/2023 07:00	00:15:00	42.3	55.2	43.8	40.3
03/12/2023 07:15	00:15:00	43.2	57.8	44.9	40.1
03/12/2023 07:30	00:15:00	42.2	67	42.6	39.8
03/12/2023 07:45	00:15:00	41.8	55.9	42.5	40.2
03/12/2023 08:00	00:15:00	44.8	74.3	46.1	39.9
03/12/2023 08:15	00:15:00	42.1	55.5	42.9	40.2
03/12/2023 08:30	00:15:00	43.1	62	43.8	41
03/12/2023 08:45	00:15:00	44.8	61.9	46.5	41.6
03/12/2023 09:00	00:15:00	45.3	62.3	47.3	41.5
03/12/2023 09:15	00:15:00	47.7	71.3	48.4	43.7
03/12/2023 09:30	00:15:00	45.9	58.4	47.4	43.7
03/12/2023 09:45	00:15:00	46.6	62.2	47.4	42.8
03/12/2023 10:00	00:15:00	45.5	62.6	47.3	42.4
03/12/2023 10:15	00:15:00	45.4	61.4	46.8	42.5
03/12/2023 10:30	00:15:00	45.2	68.8	46.2	43.2
03/12/2023 10:45	00:15:00	44.9	55.1	46	43.3
03/12/2023 11:00	00:15:00	46	60.9	48	43.7
03/12/2023 11:15	00:15:00	49.2	65.8	51	43.8
03/12/2023 11:30	00:15:00	44.8	58.4	45.8	43.3
03/12/2023 11:45	00:15:00	45.8	67.2	46.8	43.1
03/12/2023 12:00	00:15:00	46	57.2	47.2	44.2
03/12/2023 12:15	00:15:00	49	64.1	50.5	46.7
03/12/2023 12:30	00:15:00	46.2	57	47.5	44.3
03/12/2023 12:45	00:15:00	45.6	55.6	46.9	44
03/12/2023 13:00	00:15:00	46.7	65.6	48.1	43.9
03/12/2023 13:15	00:15:00	46.1	59.3	47.8	43.1
03/12/2023 13:30	00:15:00	45.1	62.6	46.5	42.3
03/12/2023 13:45	00:15:00	45	61.4	47	42
03/12/2023 14:00	00:15:00	45.3	65	46.4	43.4
03/12/2023 14:15	00:15:00	44.8	61.6	45.4	42.6
03/12/2023 14:30	00:15:00	45.8	60.6	46.3	42.5
03/12/2023 14:45	00:15:00	50.1	76.2	48.4	42.4
03/12/2023 15:00	00:15:00	45.3	64.6	45.5	42.9
03/12/2023 15:15	00:15:00	46.2	63.6	47	43.4
03/12/2023 15:30	00:15:00	44.7	57.1	45.5	43.4
03/12/2023 15:45	00:15:00	43.7	54.9	44.7	42.4

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
03/12/2023 16:00	00:15:00	45.4	57.5	47.7	42.9
03/12/2023 16:15	00:15:00	44.2	62.6	45.4	42.5
03/12/2023 16:30	00:15:00	47.5	76.9	47.3	42.7
03/12/2023 16:45	00:15:00	44.9	58.8	46	42.9
03/12/2023 17:00	00:15:00	44.3	58.8	44.6	42.7
03/12/2023 17:15	00:15:00	45.7	56.8	48.1	42.9
03/12/2023 17:30	00:15:00	47.8	62	51.5	42.7
03/12/2023 17:45	00:15:00	47.5	63.3	48.8	43.2
03/12/2023 18:00	00:15:00	48.1	74.2	46.7	43.3
03/12/2023 18:15	00:15:00	46.2	62.2	47.3	43.6
03/12/2023 18:30	00:15:00	45	55.4	46.4	43.2
03/12/2023 18:45	00:15:00	45.3	61.9	45.3	42.4
03/12/2023 19:00	00:15:00	43.4	61.6	44.4	41.4
03/12/2023 19:15	00:15:00	43	55.3	44.2	41.3
03/12/2023 19:30	00:15:00	42.8	55.2	43.6	41.1
03/12/2023 19:45	00:15:00	45.9	63.3	46	40.7
03/12/2023 20:00	00:15:00	42.3	52.8	43.7	40.4
03/12/2023 20:15	00:15:00	40.8	54.1	42.2	38.8
03/12/2023 20:30	00:15:00	40.5	52.9	41.4	38.8
03/12/2023 20:45	00:15:00	40.5	50.5	41.4	39
03/12/2023 21:00	00:15:00	43.7	72.9	41.8	39.4
03/12/2023 21:15	00:15:00	42.8	59.5	42.1	39.1
03/12/2023 21:30	00:15:00	39.8	49	40.6	38.5
03/12/2023 21:45	00:15:00	39.3	55	39.7	37.9
03/12/2023 22:00	00:15:00	39.3	50.8	40.2	37.9
03/12/2023 22:15	00:15:00	38.6	50.2	39.3	37.3
03/12/2023 22:30	00:15:00	38.5	49.7	39.1	37.3
03/12/2023 22:45	00:15:00	38.4	51.4	38.9	37.1
03/12/2023 23:00	00:15:00	39.6	57.8	40.4	38.2
03/12/2023 23:15	00:15:00	40.2	56.4	40.5	37.5
03/12/2023 23:30	00:15:00	41	58.6	43.4	37.5
03/12/2023 23:45	00:15:00	42.8	59.7	43.9	40.7
04/12/2023 00:00	00:15:00	43	58.1	44.4	40.8
04/12/2023 00:15	00:15:00	39.8	55.9	41	37.9
04/12/2023 00:30	00:15:00	39.7	59.3	40.7	37.6
04/12/2023 00:45	00:15:00	39	57.2	39.9	37.3
04/12/2023 01:00	00:15:00	40.4	56.7	41.7	38.1
04/12/2023 01:15	00:15:00	40.3	56.4	41.5	38.4
04/12/2023 01:30	00:15:00	39.8	53.3	40.9	37.9
04/12/2023 01:45	00:15:00	39.9	59.4	40.9	38.1
04/12/2023 02:00	00:15:00	41.1	65.2	41.8	38.2
04/12/2023 02:15	00:15:00	39	55.9	40	37.4
04/12/2023 02:30	00:15:00	39.5	56	40.6	37.2
04/12/2023 02:45	00:15:00	40.5	60.4	41.7	37.7
04/12/2023 03:00	00:15:00	47.9	67.4	49.3	42.2

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
04/12/2023 03:15	00:15:00	48.2	69.3	49.3	44.9
04/12/2023 03:30	00:15:00	42.6	64.1	44.2	39.1
04/12/2023 03:45	00:15:00	41	57	42.1	38.7
04/12/2023 04:00	00:15:00	38.8	52.8	39.8	37.4
04/12/2023 04:15	00:15:00	40.9	62.6	42.4	38.3
04/12/2023 04:30	00:15:00	41.7	66.1	43.2	38.6
04/12/2023 04:45	00:15:00	39.6	53.6	40.4	38.1
04/12/2023 05:00	00:15:00	39.7	53.3	40.7	38
04/12/2023 05:15	00:15:00	40.4	51.9	41.3	39
04/12/2023 05:30	00:15:00	41.9	54.3	42.8	40.3
04/12/2023 05:45	00:15:00	42	53.9	43	40.7
04/12/2023 06:00	00:15:00	42.4	61.7	43.4	40.6
04/12/2023 06:15	00:15:00	42.8	56	43.7	41.2
04/12/2023 06:30	00:15:00	43	53.5	44.4	41.1
04/12/2023 06:45	00:15:00	45.3	59.7	48	42.1
04/12/2023 07:00	00:15:00	47.4	74.5	45.1	42.2
04/12/2023 07:15	00:15:00	44.9	68.2	46.4	42.3
04/12/2023 07:30	00:15:00	43.8	64.7	44.2	42.4
04/12/2023 07:45	00:15:00	45.5	69	45.2	42.5
04/12/2023 08:00	00:15:00	44.8	63.9	46.1	42.7
04/12/2023 08:15	00:15:00	45.4	60.6	46.7	42.8
04/12/2023 08:30	00:15:00	45.3	61.4	46.2	42.7
04/12/2023 08:45	00:15:00	44.8	60.7	45.7	42.6
04/12/2023 09:00	00:15:00	44.3	57.3	46.1	41.8
04/12/2023 09:15	00:15:00	44.6	63.7	45.7	41.9
04/12/2023 09:30	00:15:00	43.6	61.4	44.4	41.8
04/12/2023 09:45	00:15:00	45.7	68.5	46	41.9
04/12/2023 10:00	00:15:00	44.1	66.4	45.3	41.9
04/12/2023 10:15	00:15:00	43.9	59.1	45.4	41.5
04/12/2023 10:30	00:15:00	45.8	65.1	47	41.5
04/12/2023 10:45	00:15:00	44.1	56.7	45.7	41.8
04/12/2023 11:00	00:15:00	44.2	63.6	46.2	41.6
04/12/2023 11:15	00:15:00	43.7	59.7	45.6	41.4
04/12/2023 11:30	00:15:00	45.2	72.6	45.7	41.4
04/12/2023 11:45	00:15:00	43.9	56.3	45.6	41.3
04/12/2023 12:00	00:08:36	61.7	93.2	48	41.5

E.3 Location 6 - 21 Orchard Way

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
01/12/2023 13:45	00:14:02	50.7	69	52.7	44.1
01/12/2023 14:00	00:15:00	47.3	64.6	49.8	43.1
01/12/2023 14:15	00:15:00	49.1	71.8	48.6	42.5
01/12/2023 14:30	00:15:00	49	65.5	49.1	45.1
01/12/2023 14:45	00:15:00	48.5	63.4	50.3	46.1

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
01/12/2023 15:00	00:15:00	48.8	62.6	49.5	46.5
01/12/2023 15:15	00:15:00	49.8	72.7	48.7	45.9
01/12/2023 15:30	00:15:00	48	61.2	49.1	45.6
01/12/2023 15:45	00:15:00	51.1	67.8	52.3	46.3
01/12/2023 16:00	00:15:00	48.6	66.6	49.2	46.4
01/12/2023 16:15	00:15:00	48.4	64.3	49.4	46.1
01/12/2023 16:30	00:15:00	49.7	72.8	47.9	45.1
01/12/2023 16:45	00:15:00	50.9	75.1	48.7	45.8
01/12/2023 17:00	00:15:00	48.3	70.8	47.8	43.5
01/12/2023 17:15	00:15:00	50.6	77.6	50	44.2
01/12/2023 17:30	00:15:00	46.1	65.2	45.7	42.9
01/12/2023 17:45	00:15:00	48.1	66.1	47.1	43.1
01/12/2023 18:00	00:15:00	49	67.6	48.4	43.9
01/12/2023 18:15	00:15:00	45.9	65.2	45.9	42.5
01/12/2023 18:30	00:15:00	46.1	64.6	45.3	41.9
01/12/2023 18:45	00:15:00	45.5	65.4	45.1	42.1
01/12/2023 19:00	00:15:00	42.8	60.9	43.1	40.7
01/12/2023 19:15	00:15:00	44.6	63.4	43.4	40.5
01/12/2023 19:30	00:15:00	48.8	77.8	47.6	40.4
01/12/2023 19:45	00:15:00	47.7	69.2	47	40.8
01/12/2023 20:00	00:15:00	46.3	65.2	49.5	41.2
01/12/2023 20:15	00:15:00	46.3	68.7	48.3	41.2
01/12/2023 20:30	00:15:00	44.5	56.4	47.2	40.9
01/12/2023 20:45	00:15:00	42.6	60.8	43.8	40.6
01/12/2023 21:00	00:15:00	44.1	65	42.2	40.5
01/12/2023 21:15	00:15:00	42.5	53	43.2	40.9
01/12/2023 21:30	00:15:00	41.7	47.2	42.7	40.5
01/12/2023 21:45	00:15:00	45.3	61.1	43.8	41.5
01/12/2023 22:00	00:15:00	44.6	58.7	44.8	41.5
01/12/2023 22:15	00:15:00	42.9	64.3	42.3	40.6
01/12/2023 22:30	00:15:00	44.9	66.1	44.7	41
01/12/2023 22:45	00:15:00	44.4	63.6	44.1	41.4
01/12/2023 23:00	00:15:00	44	67.7	42.8	40.7
01/12/2023 23:15	00:15:00	42.5	55.6	42.9	40.9
01/12/2023 23:30	00:15:00	43.2	59.5	44	41.1
01/12/2023 23:45	00:15:00	46.3	63.6	47.4	40.4
02/12/2023 00:00	00:15:00	43.5	51.8	45.4	41.3
02/12/2023 00:15	00:15:00	44.5	53.6	47.5	41.6
02/12/2023 00:30	00:15:00	43.3	52.6	44.8	40.9
02/12/2023 00:45	00:15:00	41.5	44.6	42.4	40.5
02/12/2023 01:00	00:15:00	43.6	51.9	44.7	41.7
02/12/2023 01:15	00:15:00	42.3	46.6	43.2	41.3
02/12/2023 01:30	00:15:00	42.6	51	43.4	41.2
02/12/2023 01:45	00:15:00	44	65.1	43.4	41.1
02/12/2023 02:00	00:15:00	42.5	52.2	43.4	41.5

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
02/12/2023 02:15	00:15:00	42.2	46	43	41.2
02/12/2023 02:30	00:15:00	42.5	48.2	44	41
02/12/2023 02:45	00:15:00	43.4	48.9	44.9	41.9
02/12/2023 03:00	00:15:00	42.9	49.1	43.9	41.6
02/12/2023 03:15	00:15:00	43.2	61.1	43.2	41.2
02/12/2023 03:30	00:15:00	42.7	46.6	43.7	41.2
02/12/2023 03:45	00:15:00	43.3	49.1	44.5	42
02/12/2023 04:00	00:15:00	42.4	46.7	43.3	41.3
02/12/2023 04:15	00:15:00	42.3	50	43.1	41.3
02/12/2023 04:30	00:15:00	42.8	49	43.7	41.7
02/12/2023 04:45	00:15:00	45.2	59.6	45.5	41.8
02/12/2023 05:00	00:15:00	46.7	62.9	50.5	41.2
02/12/2023 05:15	00:15:00	43.2	55.8	43.6	41.6
02/12/2023 05:30	00:15:00	45.4	61.3	47.1	41.3
02/12/2023 05:45	00:15:00	45.1	59.7	46.9	42
02/12/2023 06:00	00:15:00	44.3	60.5	45.7	42
02/12/2023 06:15	00:15:00	47	63.8	47.5	42.8
02/12/2023 06:30	00:15:00	46.3	62.5	47.3	42.7
02/12/2023 06:45	00:15:00	45.4	54.4	47.3	42.8
02/12/2023 07:00	00:15:00	44.7	53.2	46.1	42.6
02/12/2023 07:15	00:15:00	45.1	61	46.9	42.4
02/12/2023 07:30	00:15:00	47.1	63.8	48.7	42.2
02/12/2023 07:45	00:15:00	46.2	63.8	46.7	43.5
02/12/2023 08:00	00:15:00	57.5	88.2	57.4	42.9
02/12/2023 08:15	00:15:00	53	73.3	57.8	47.3
02/12/2023 08:30	00:15:00	63.4	93.3	64.4	48.1
02/12/2023 08:45	00:15:00	47.5	66.1	48.9	42.2
02/12/2023 09:00	00:15:00	52.5	80.6	49.1	43.4
02/12/2023 09:15	00:15:00	48.8	69.8	47.8	43.9
02/12/2023 09:30	00:15:00	45.8	62.2	47.4	42.8
02/12/2023 09:45	00:15:00	47.8	67.8	47.5	44.6
02/12/2023 10:00	00:15:00	47.8	75.1	47.4	43.3
02/12/2023 10:15	00:15:00	49.8	74.7	48.9	43.2
02/12/2023 10:30	00:15:00	52.4	79.4	50.5	43.1
02/12/2023 10:45	00:15:00	48.8	67.9	49.6	43.1
02/12/2023 11:00	00:15:00	48	65.9	48.9	42.6
02/12/2023 11:15	00:15:00	49.5	67.9	49.8	42.4
02/12/2023 11:30	00:15:00	47	68.7	47.7	43
02/12/2023 11:45	00:15:00	46.7	66.3	46.8	42.7
02/12/2023 12:00	00:15:00	46.7	67.4	45.9	42.1
02/12/2023 12:15	00:15:00	48.3	69.2	48.2	41.6
02/12/2023 12:30	00:15:00	48.1	70.5	46.5	40.9
02/12/2023 12:45	00:15:00	51.8	74.4	52.5	42.7
02/12/2023 13:00	00:15:00	45.8	64.2	47.5	42.6
02/12/2023 13:15	00:15:00	47.6	67.4	47.1	42.1

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
02/12/2023 13:30	00:15:00	44.7	61.9	45.3	42
02/12/2023 13:45	00:15:00	47.2	69.1	47.9	42.1
02/12/2023 14:00	00:15:00	48.6	80.3	47.7	41.7
02/12/2023 14:15	00:15:00	47.7	67.2	49.7	42.4
02/12/2023 14:30	00:15:00	47.2	65.8	47.6	41.9
02/12/2023 14:45	00:15:00	45.8	67.3	47.7	42
02/12/2023 15:00	00:15:00	53.3	78.1	49.5	42.3
02/12/2023 15:15	00:15:00	45.9	69.1	45.7	42.4
02/12/2023 15:30	00:15:00	50.7	70.1	53.1	44
02/12/2023 15:45	00:15:00	45.7	62.3	46.4	41.4
02/12/2023 16:00	00:15:00	47.3	64.9	49.4	42.2
02/12/2023 16:15	00:15:00	48.6	64.4	50.2	43.4
02/12/2023 16:30	00:15:00	46.7	66.7	46.6	43
02/12/2023 16:45	00:15:00	46.3	64.4	46	43.5
02/12/2023 17:00	00:15:00	48.4	69.2	47.1	43.3
02/12/2023 17:15	00:15:00	47.1	66.6	47	43.1
02/12/2023 17:30	00:15:00	48.8	66.5	50.6	43.8
02/12/2023 17:45	00:15:00	47.9	67	48.4	42.7
02/12/2023 18:00	00:15:00	46.5	65	45.4	42.5
02/12/2023 18:15	00:15:00	46.3	64.3	45.6	43
02/12/2023 18:30	00:15:00	43.8	62.6	44.5	42.7
02/12/2023 18:45	00:15:00	46.5	63.2	47.8	42.8
02/12/2023 19:00	00:15:00	50.5	70.4	49.3	44.4
02/12/2023 19:15	00:15:00	49.3	70.6	47.7	43.5
02/12/2023 19:30	00:15:00	46.7	69.5	46.7	43.4
02/12/2023 19:45	00:15:00	44.8	64.6	45.3	42.2
02/12/2023 20:00	00:15:00	45.7	64.8	46.4	42.7
02/12/2023 20:15	00:15:00	45.2	55.4	47.6	42.5
02/12/2023 20:30	00:15:00	47	54.3	49.4	43.5
02/12/2023 20:45	00:15:00	46.5	59.2	48.2	42.9
02/12/2023 21:00	00:15:00	45.7	61.2	47.5	42.7
02/12/2023 21:15	00:15:00	47	60.3	48.2	43.1
02/12/2023 21:30	00:15:00	44.7	53.2	46.7	42
02/12/2023 21:45	00:15:00	45.8	63.8	46.8	42.6
02/12/2023 22:00	00:15:00	46.5	63.9	46.9	41.9
02/12/2023 22:15	00:15:00	45.1	61.3	46.9	41.9
02/12/2023 22:30	00:15:00	44.5	54.3	46.3	41.6
02/12/2023 22:45	00:15:00	45.2	64.4	46.2	41.8
02/12/2023 23:00	00:15:00	45.7	60.3	46.5	41.7
02/12/2023 23:15	00:15:00	44.1	53	45.7	42.1
02/12/2023 23:30	00:15:00	43.7	51.9	45.4	41.7
02/12/2023 23:45	00:15:00	42.9	49.4	44.3	41.4
03/12/2023 00:00	00:15:00	47.5	72.4	45.2	41.2
03/12/2023 00:15	00:15:00	43.9	67	43.5	40.5
03/12/2023 00:30	00:15:00	41.5	46.3	42.5	40.2

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
03/12/2023 00:45	00:15:00	42.6	64.6	42.2	39.8
03/12/2023 01:00	00:15:00	41.4	47.9	42.5	40.1
03/12/2023 01:15	00:15:00	41.2	49.7	42.1	39.9
03/12/2023 01:30	00:15:00	41.5	49.9	42.8	40
03/12/2023 01:45	00:15:00	41.2	52.9	42.2	39.8
03/12/2023 02:00	00:15:00	41	45.3	41.9	39.9
03/12/2023 02:15	00:15:00	40.4	48	41.4	39.2
03/12/2023 02:30	00:15:00	40.6	51.3	41.5	39.3
03/12/2023 02:45	00:15:00	40.7	48.6	41.7	39.4
03/12/2023 03:00	00:15:00	40.1	46.1	41	38.9
03/12/2023 03:15	00:15:00	42	64.1	41.7	39.2
03/12/2023 03:30	00:15:00	41.1	50.8	42	40
03/12/2023 03:45	00:15:00	44.7	60.7	46.3	42
03/12/2023 04:00	00:15:00	43.4	61.3	44.8	41
03/12/2023 04:15	00:15:00	42.2	57.6	43.4	40.4
03/12/2023 04:30	00:15:00	40.5	53.6	41.2	39.5
03/12/2023 04:45	00:15:00	40.6	50.9	41.4	39.5
03/12/2023 05:00	00:15:00	43.4	57.6	44.6	40.5
03/12/2023 05:15	00:15:00	42	50.4	43.3	40.6
03/12/2023 05:30	00:15:00	41	46.3	41.8	40
03/12/2023 05:45	00:15:00	41.5	48.5	42.4	40.4
03/12/2023 06:00	00:15:00	42.9	54.8	44.4	41.1
03/12/2023 06:15	00:15:00	44.8	60.7	46.1	42.8
03/12/2023 06:30	00:15:00	44.7	58.2	46.6	42.3
03/12/2023 06:45	00:15:00	46.1	59	48.6	42.4
03/12/2023 07:00	00:15:00	46	65.3	45.4	42
03/12/2023 07:15	00:15:00	45.5	62.5	46.5	41.6
03/12/2023 07:30	00:15:00	46.2	67.4	45.3	41.4
03/12/2023 07:45	00:15:00	45	67.9	44.8	41.7
03/12/2023 08:00	00:15:00	49	69.5	47.5	41.6
03/12/2023 08:15	00:15:00	47.2	69.9	45.4	41.9
03/12/2023 08:30	00:15:00	47.6	69.3	45.3	42.2
03/12/2023 08:45	00:15:00	46.4	67.4	47.3	42.6
03/12/2023 09:00	00:15:00	50.5	68.4	52.1	43.1
03/12/2023 09:15	00:15:00	52.9	71.2	53.6	47.2
03/12/2023 09:30	00:15:00	50.8	76.6	50	46.9
03/12/2023 09:45	00:15:00	49.6	76.5	50	44.1
03/12/2023 10:00	00:15:00	50	70.3	50.6	43.4
03/12/2023 10:15	00:15:00	49.7	69.2	48.2	43.5
03/12/2023 10:30	00:15:00	50.3	74.6	48.7	44.5
03/12/2023 10:45	00:15:00	48.8	68.2	47.9	44.5
03/12/2023 11:00	00:15:00	47.6	64.5	48.5	44.7
03/12/2023 11:15	00:15:00	52.3	75.7	54.5	45.5
03/12/2023 11:30	00:15:00	46.3	63.7	46.6	44.4
03/12/2023 11:45	00:15:00	49.1	69	48.3	44.1

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
03/12/2023 12:00	00:15:00	48.9	68.7	48.1	44.9
03/12/2023 12:15	00:15:00	49.9	67.9	50.1	46.6
03/12/2023 12:30	00:15:00	49.2	67.8	48.4	45.2
03/12/2023 12:45	00:15:00	48.3	68.6	47.3	45.1
03/12/2023 13:00	00:15:00	49.7	69	50	44.8
03/12/2023 13:15	00:15:00	49.5	71.3	47.9	44.4
03/12/2023 13:30	00:15:00	48.9	71.6	46.8	43.5
03/12/2023 13:45	00:15:00	48.2	68.6	47.6	43.3
03/12/2023 14:00	00:15:00	50.1	77.4	47.4	44
03/12/2023 14:15	00:15:00	47.7	69.8	46.1	43.8
03/12/2023 14:30	00:15:00	47.5	63.8	48.4	43.9
03/12/2023 14:45	00:15:00	48.1	72.3	46.4	43.8
03/12/2023 15:00	00:15:00	46.7	65.5	46.9	44.6
03/12/2023 15:15	00:15:00	49	65.1	51.1	45.2
03/12/2023 15:30	00:15:00	47.2	65	47.6	45.1
03/12/2023 15:45	00:15:00	45.6	66	46.1	43.9
03/12/2023 16:00	00:15:00	47	67.4	47.9	44.5
03/12/2023 16:15	00:15:00	47.8	67.1	46.9	44.3
03/12/2023 16:30	00:15:00	47.5	65.2	47.9	44.2
03/12/2023 16:45	00:15:00	48.9	70.3	47.3	44.5
03/12/2023 17:00	00:15:00	46.3	60.3	46.8	44.2
03/12/2023 17:15	00:15:00	48.7	66.9	49.6	44.6
03/12/2023 17:30	00:15:00	49.1	68.3	50.5	44.8
03/12/2023 17:45	00:15:00	47.8	62.9	48.9	45
03/12/2023 18:00	00:15:00	47.9	60.2	48.9	45.2
03/12/2023 18:15	00:15:00	47.8	61.2	49	45.5
03/12/2023 18:30	00:15:00	50	66.2	49.8	45
03/12/2023 18:45	00:15:00	47.2	62.7	47.6	44
03/12/2023 19:00	00:15:00	47	65.4	46.1	43
03/12/2023 19:15	00:15:00	45.5	66.5	46.5	42.7
03/12/2023 19:30	00:15:00	45.9	66.5	45.5	43
03/12/2023 19:45	00:15:00	46.8	64	46.8	42.1
03/12/2023 20:00	00:15:00	45.8	65.2	45.3	41.7
03/12/2023 20:15	00:15:00	43.5	62.3	43.8	40.4
03/12/2023 20:30	00:15:00	45.4	65.4	44.3	40.3
03/12/2023 20:45	00:15:00	42.4	57.8	42.7	40.5
03/12/2023 21:00	00:15:00	42.3	52.4	43.2	40.9
03/12/2023 21:15	00:15:00	43.6	59.4	43.6	40.8
03/12/2023 21:30	00:15:00	43.8	62.9	42.6	40.1
03/12/2023 21:45	00:15:00	40.8	50.8	41.6	39.4
03/12/2023 22:00	00:15:00	43	63.8	42	39.6
03/12/2023 22:15	00:15:00	40.1	47.3	41	39.1
03/12/2023 22:30	00:15:00	40.1	46.5	41	39.1
03/12/2023 22:45	00:15:00	40.5	49.7	41.5	39
03/12/2023 23:00	00:15:00	41.3	54.9	42.3	39.8

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
03/12/2023 23:15	00:15:00	42	53.9	43.5	39.5
03/12/2023 23:30	00:15:00	41.9	55.5	43.8	39.6
03/12/2023 23:45	00:15:00	42.9	54.5	43.9	41.5
04/12/2023 00:00	00:15:00	43.3	56.4	44.6	41.5
04/12/2023 00:15	00:15:00	41.5	55.3	42.8	39.6
04/12/2023 00:30	00:15:00	41.4	53.3	42.7	39.8
04/12/2023 00:45	00:15:00	40.8	53.6	41.9	39.1
04/12/2023 01:00	00:15:00	41.6	54.2	43	39.8
04/12/2023 01:15	00:15:00	43.5	65.2	44.7	40.4
04/12/2023 01:30	00:15:00	41.6	56.4	42.7	39.9
04/12/2023 01:45	00:15:00	41.6	53.4	42.8	39.8
04/12/2023 02:00	00:15:00	41.7	55.6	42.9	39.9
04/12/2023 02:15	00:15:00	40.9	53.1	42	39.3
04/12/2023 02:30	00:15:00	46.2	71.9	42.4	39.1
04/12/2023 02:45	00:15:00	41.4	56.2	42.6	39.3
04/12/2023 03:00	00:15:00	46.4	62	48	42.5
04/12/2023 03:15	00:15:00	47	62.8	48.3	44.8
04/12/2023 03:30	00:15:00	43.4	69.6	44.8	40.8
04/12/2023 03:45	00:15:00	42.2	56.6	43.4	40.4
04/12/2023 04:00	00:15:00	41.6	54.1	42.8	39.7
04/12/2023 04:15	00:15:00	41.9	56.7	43.3	40
04/12/2023 04:30	00:15:00	41.9	55.3	43.3	39.8
04/12/2023 04:45	00:15:00	41.5	57.5	42.7	39.5
04/12/2023 05:00	00:15:00	41.4	60.4	42.5	39.5
04/12/2023 05:15	00:15:00	43.5	61.6	44.1	40
04/12/2023 05:30	00:15:00	43.8	63.6	44.4	40.6
04/12/2023 05:45	00:15:00	42.7	55.3	43.9	40.7
04/12/2023 06:00	00:15:00	44.1	59.6	45.6	41.5
04/12/2023 06:15	00:15:00	44.7	60.9	45.5	41.6
04/12/2023 06:30	00:15:00	47.2	69.3	44.6	41.2
04/12/2023 06:45	00:15:00	46.9	67.1	47.8	42.2
04/12/2023 07:00	00:15:00	46.9	63.8	48.4	43
04/12/2023 07:15	00:15:00	45.1	62.2	46.1	42.5
04/12/2023 07:30	00:15:00	43.5	51	44.2	42.5
04/12/2023 07:45	00:15:00	46.9	71.2	47.3	42.8
04/12/2023 08:00	00:15:00	49	74.6	48.7	43.1
04/12/2023 08:15	00:15:00	47.5	66.3	47.2	43.7
04/12/2023 08:30	00:15:00	53.7	80.4	50.4	43.4
04/12/2023 08:45	00:15:00	49.7	72.3	48.8	43.4
04/12/2023 09:00	00:15:00	51	78.4	49.4	43.3
04/12/2023 09:15	00:15:00	51.1	74.4	48.4	42.4
04/12/2023 09:30	00:15:00	44.2	59.5	45.3	42.5
04/12/2023 09:45	00:15:00	47.3	69	46.5	42.6
04/12/2023 10:00	00:15:00	46.6	61.9	48.5	42.9
04/12/2023 10:15	00:15:00	47.9	66.9	47	42.1

Date	Duration	LAeq,T	LAmax,F	LAF,Perc4	LAF,Perc6
04/12/2023 10:30	00:15:00	49	68.6	48.5	42.1
04/12/2023 10:45	00:15:00	47	67.7	47.5	42.5
04/12/2023 11:00	00:15:00	49	68.3	49	42.6
04/12/2023 11:15	00:15:00	49.4	68.8	46.7	42.4
04/12/2023 11:30	00:15:00	50.1	68.9	48.2	41.8
04/12/2023 11:45	00:15:00	44.4	60.5	45.5	41.3
04/12/2023 12:00	00:15:00	53.6	74.6	49.4	41.8
04/12/2023 12:15	00:06:34	51	72.4	51.2	42.6

Appendix F 2023 Survey Charts

Noise Impact Assessment

Royston Environmental Permit Application

Johnson Matthey

SLR Project No.: 416.065394.00001

28 October 2024

F.1 Location 4 Blake Road

Figure 11-1: Time-History Graph of Measured Noise Levels at Blake Road

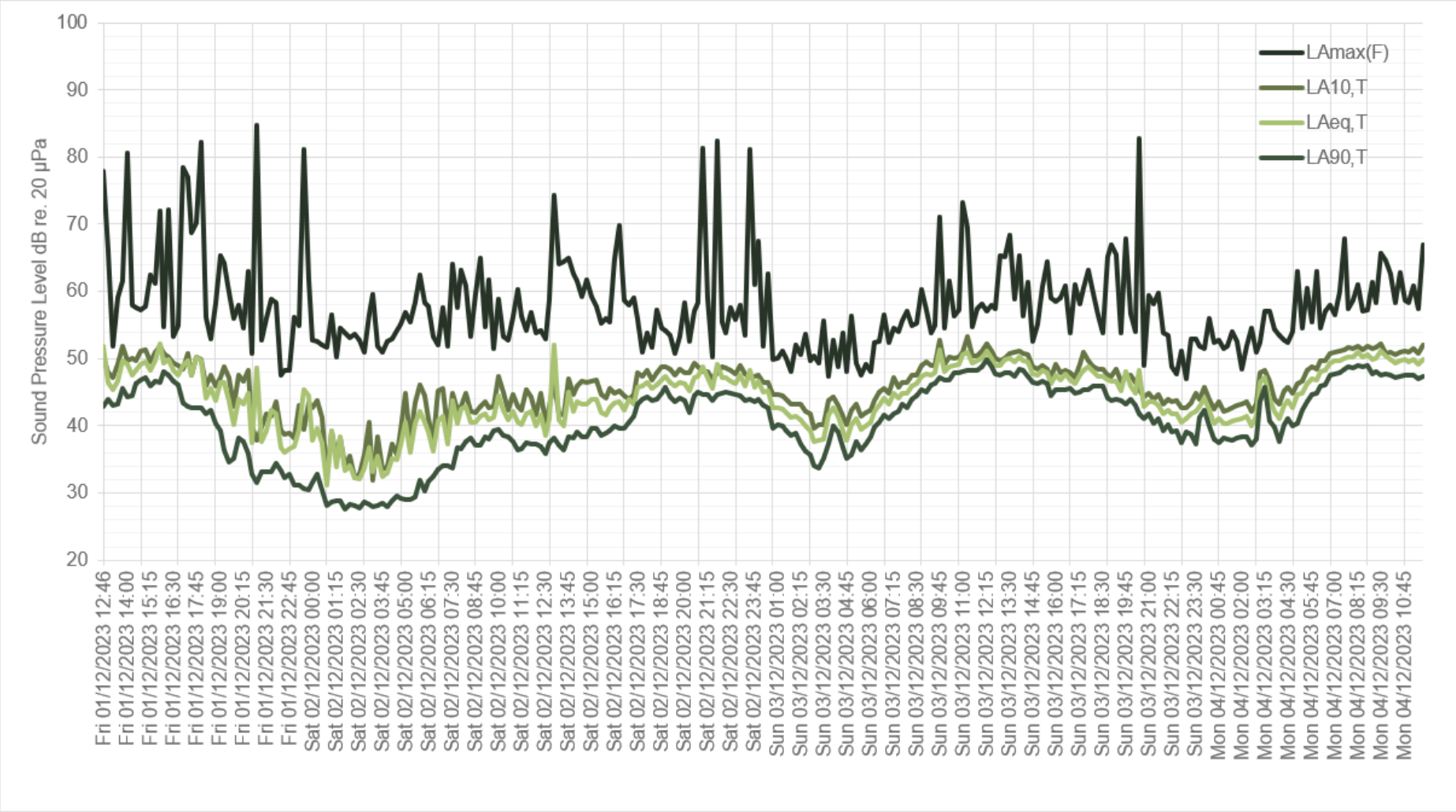


Figure 11-2: Histogram of Weekday $L_{Aeq,T}$ at Blake Road

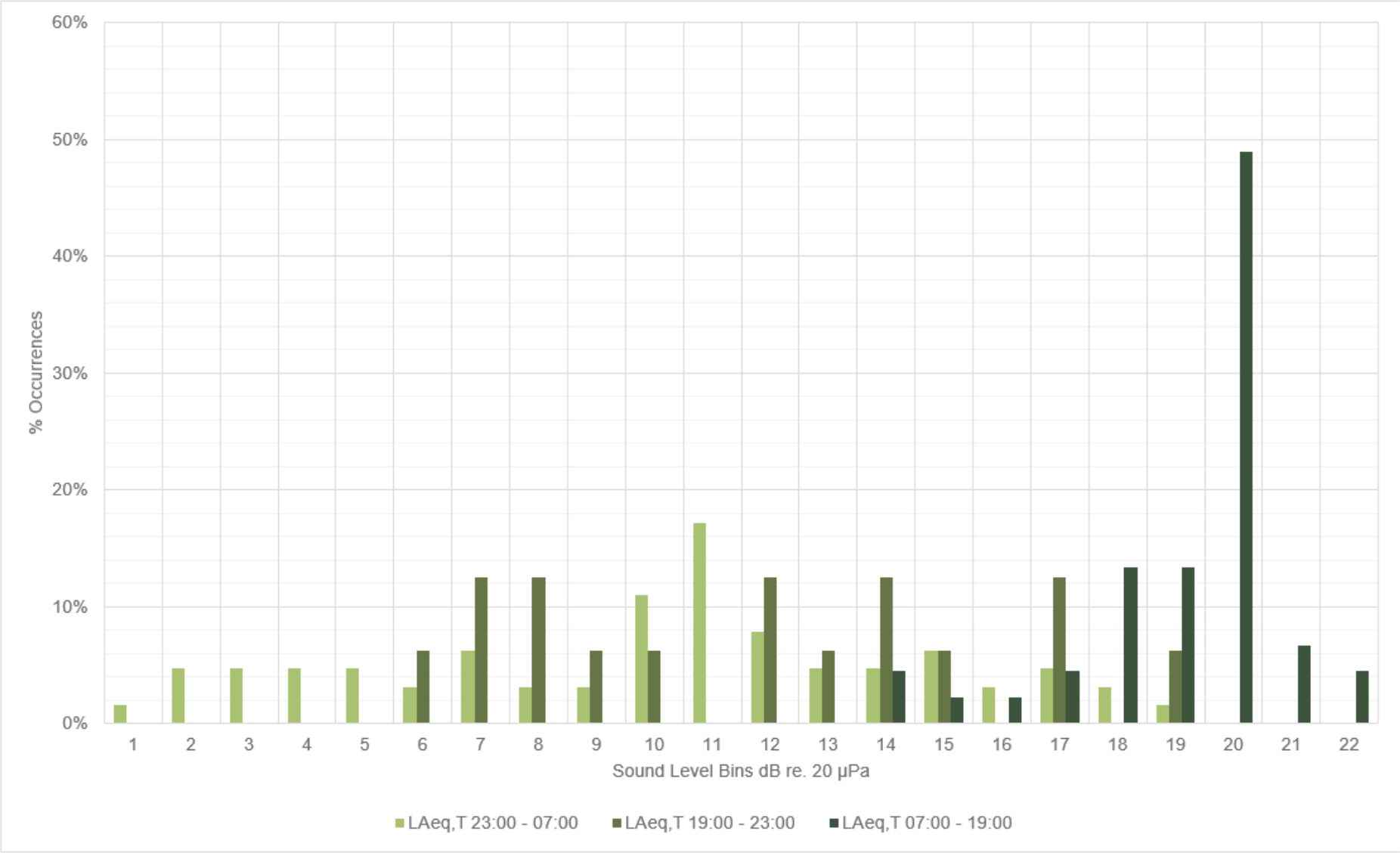


Figure 11-3: Histogram of Measured Weekday L_{A90} at Blake Road

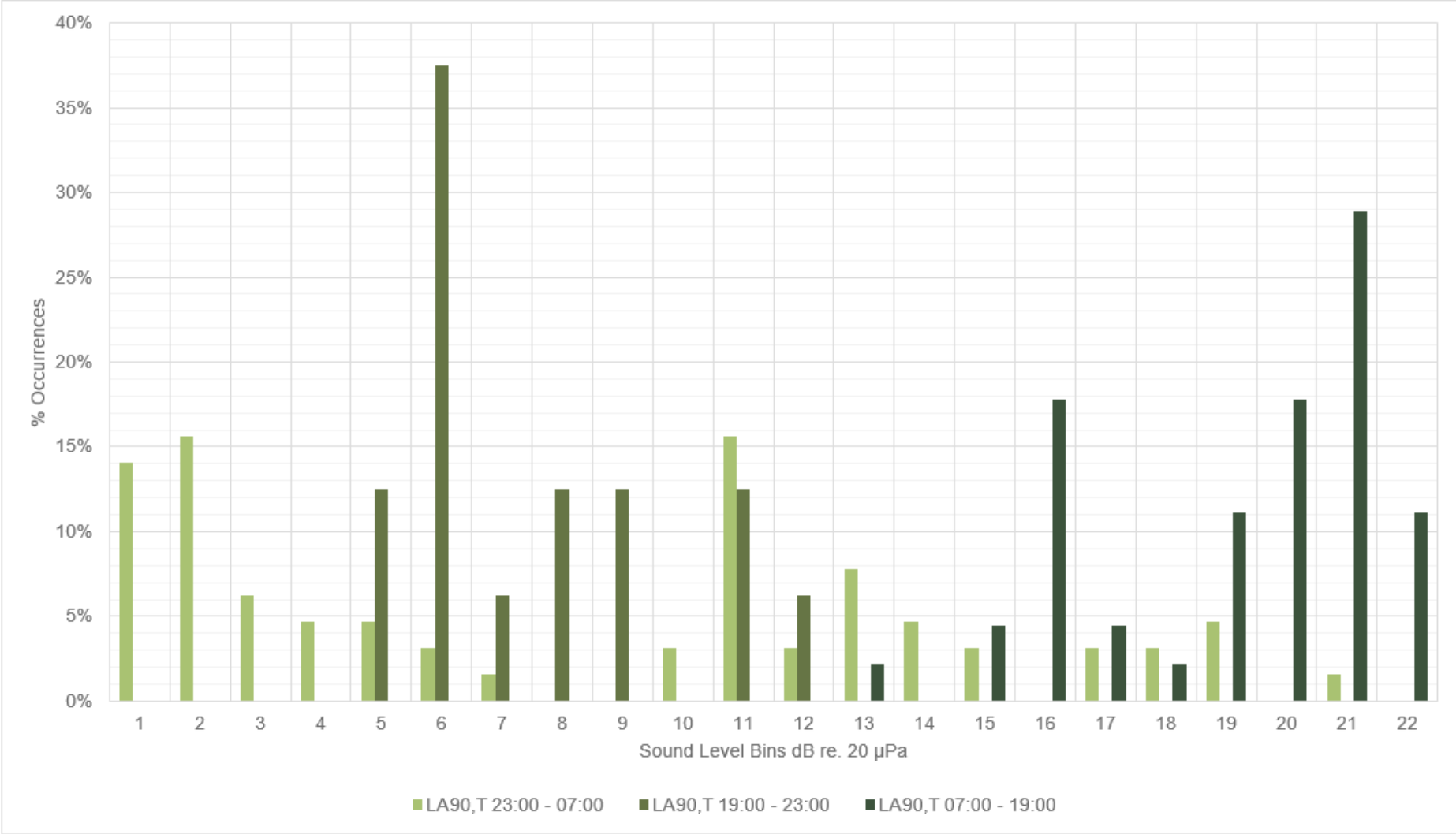


Figure 11-4: Histogram of Weekend $L_{Aeq,T}$ at Blake Road

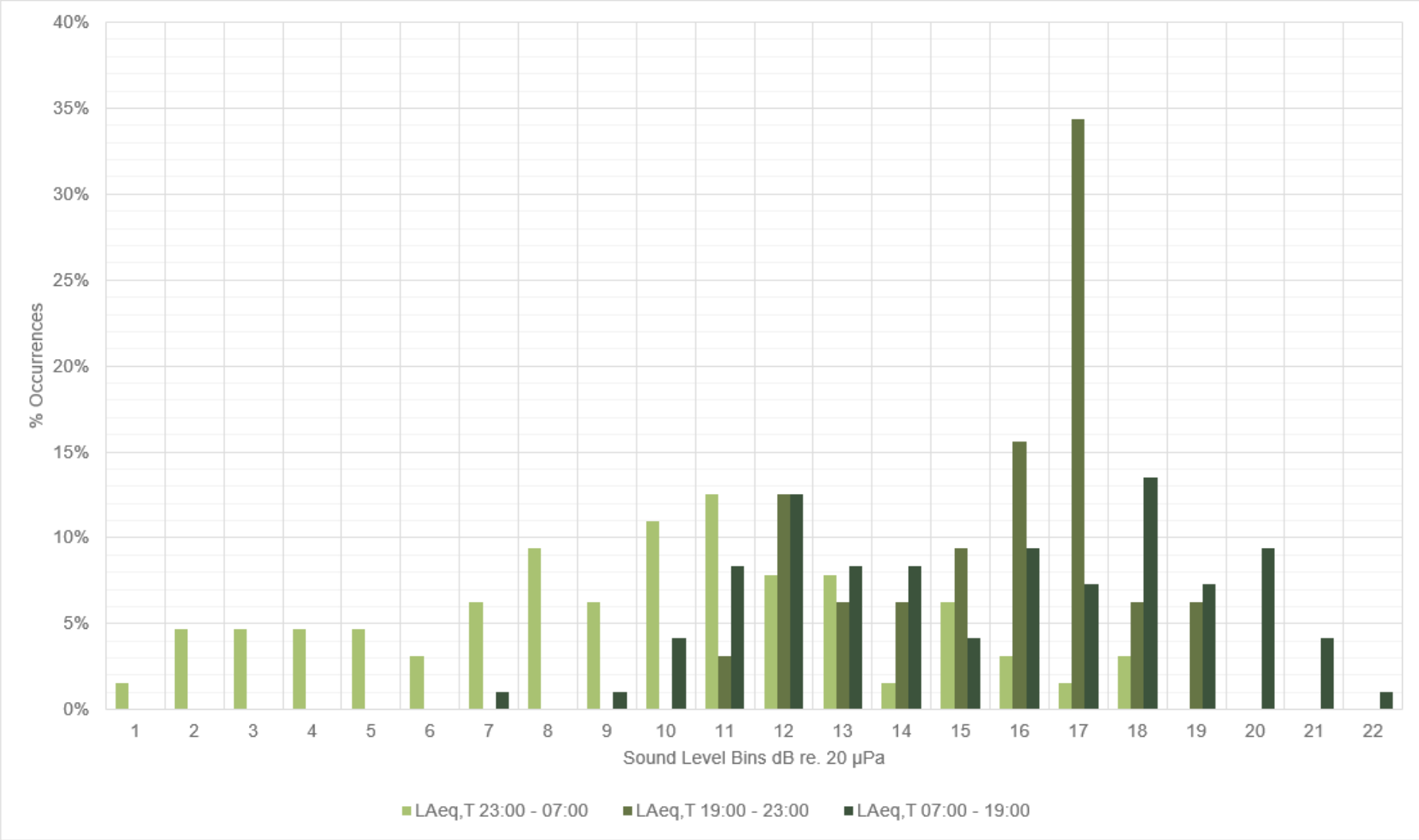
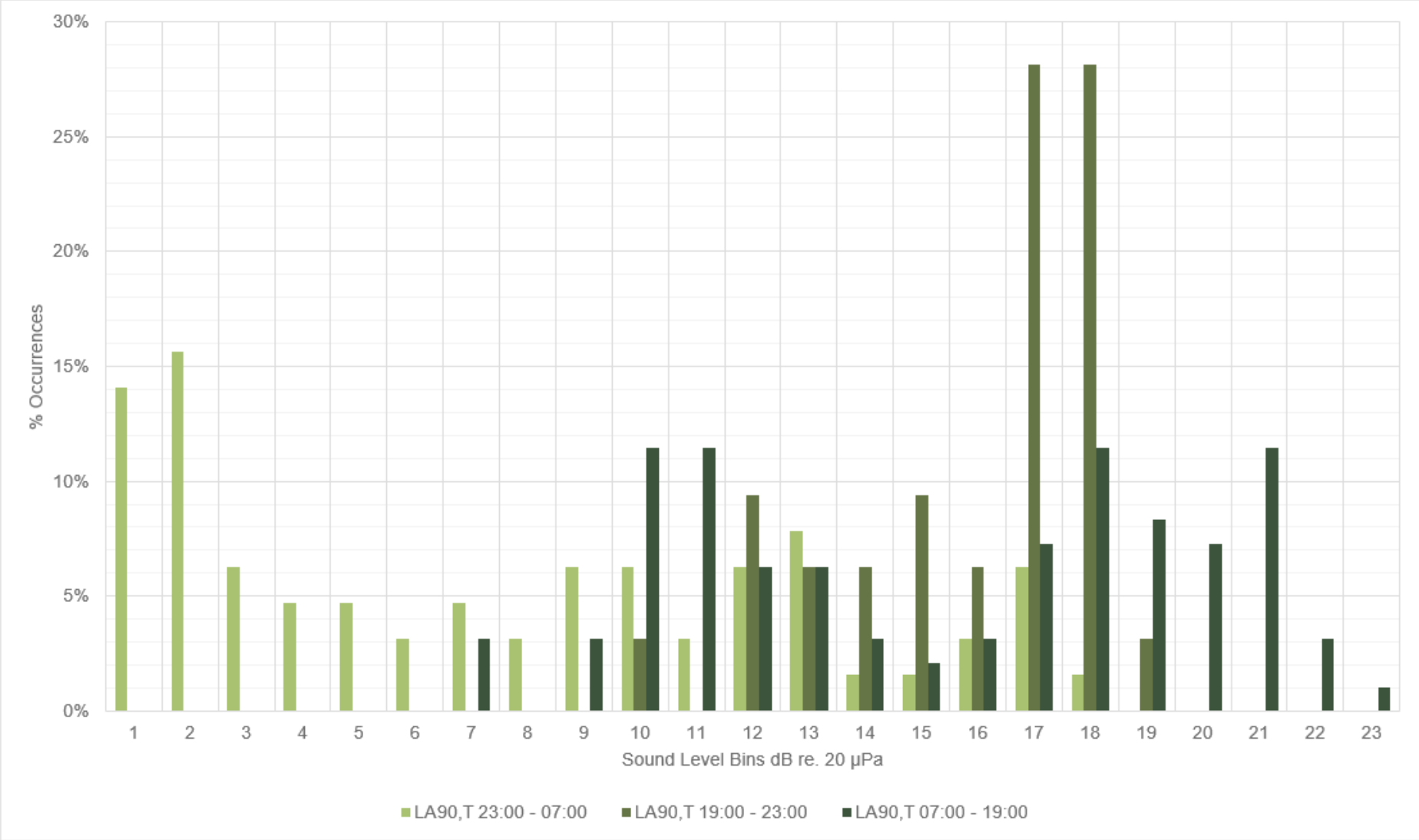


Figure 11-5: Histogram of Weekend L_{A90} at Blake Road



F.2 Location 5 Rock Road

Figure 11-6: Time-History Graph of Measured Noise Levels at Rock Road

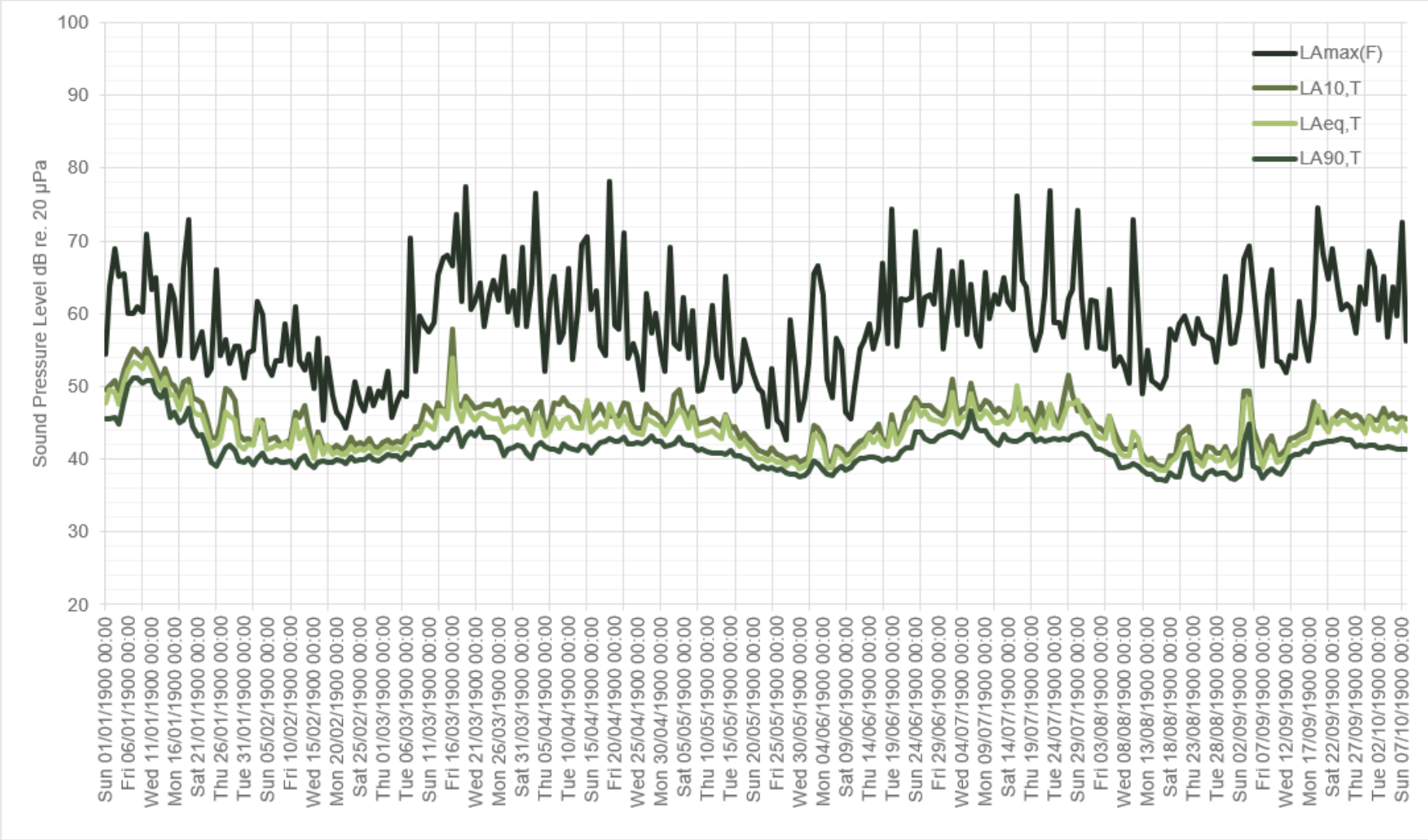


Figure 11-7: Histogram of Weekday $L_{Aeq,T}$ at Rock Road

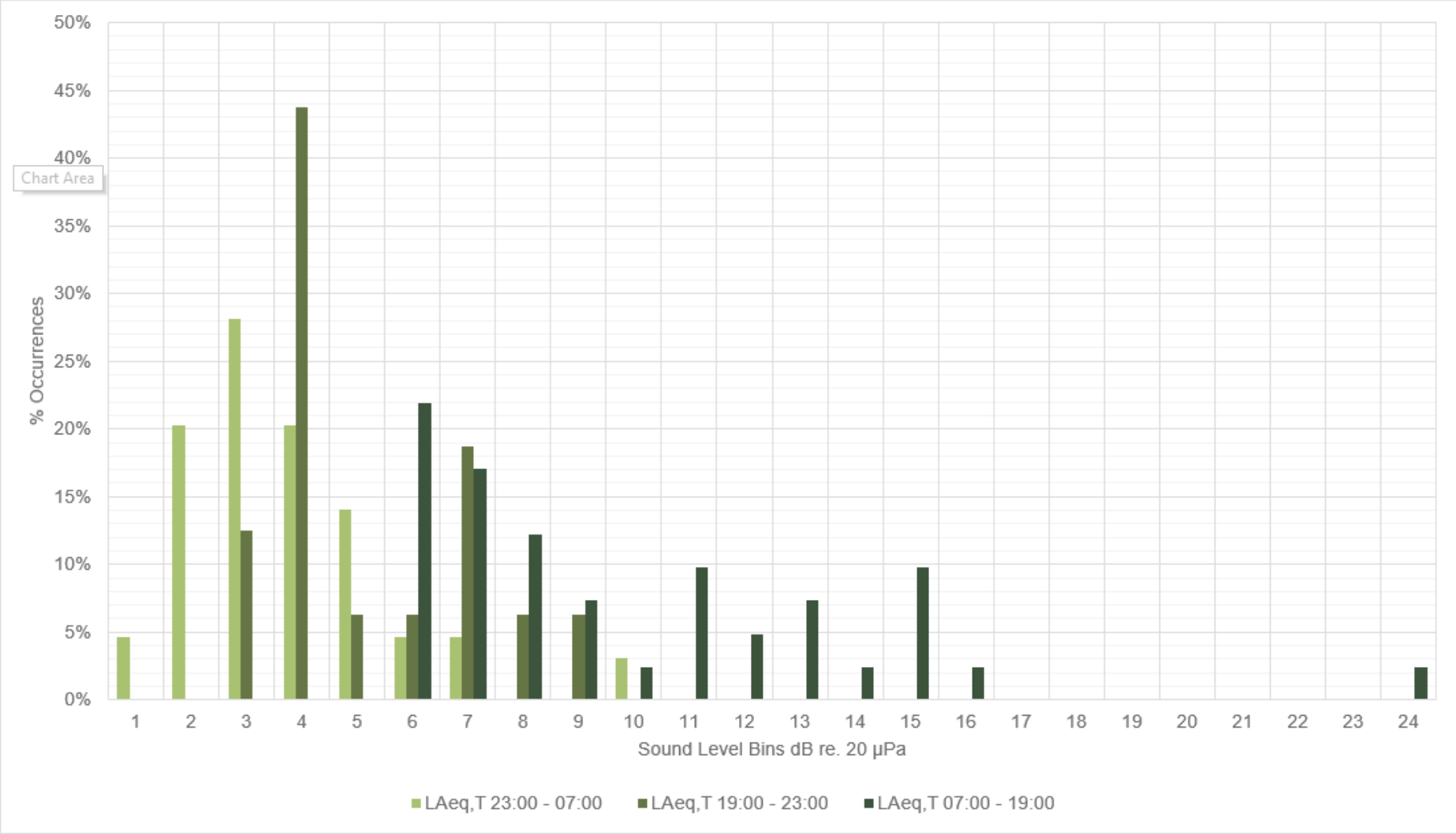


Figure 11-8: Histogram of L_{A90} at Weekday Rock Road

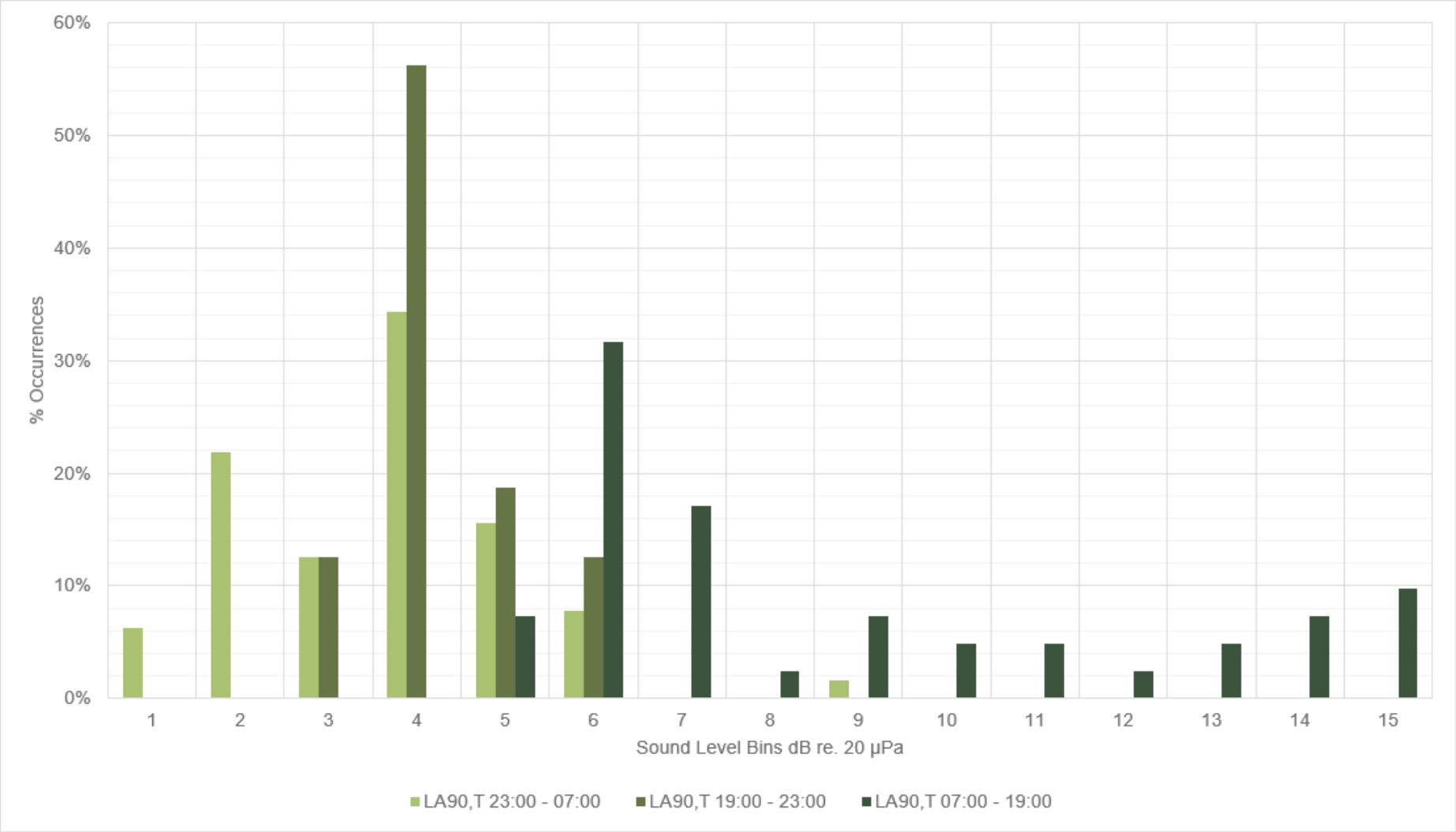


Figure 11-9: Histogram of Weekend $L_{Aeq,T}$ at Rock Road

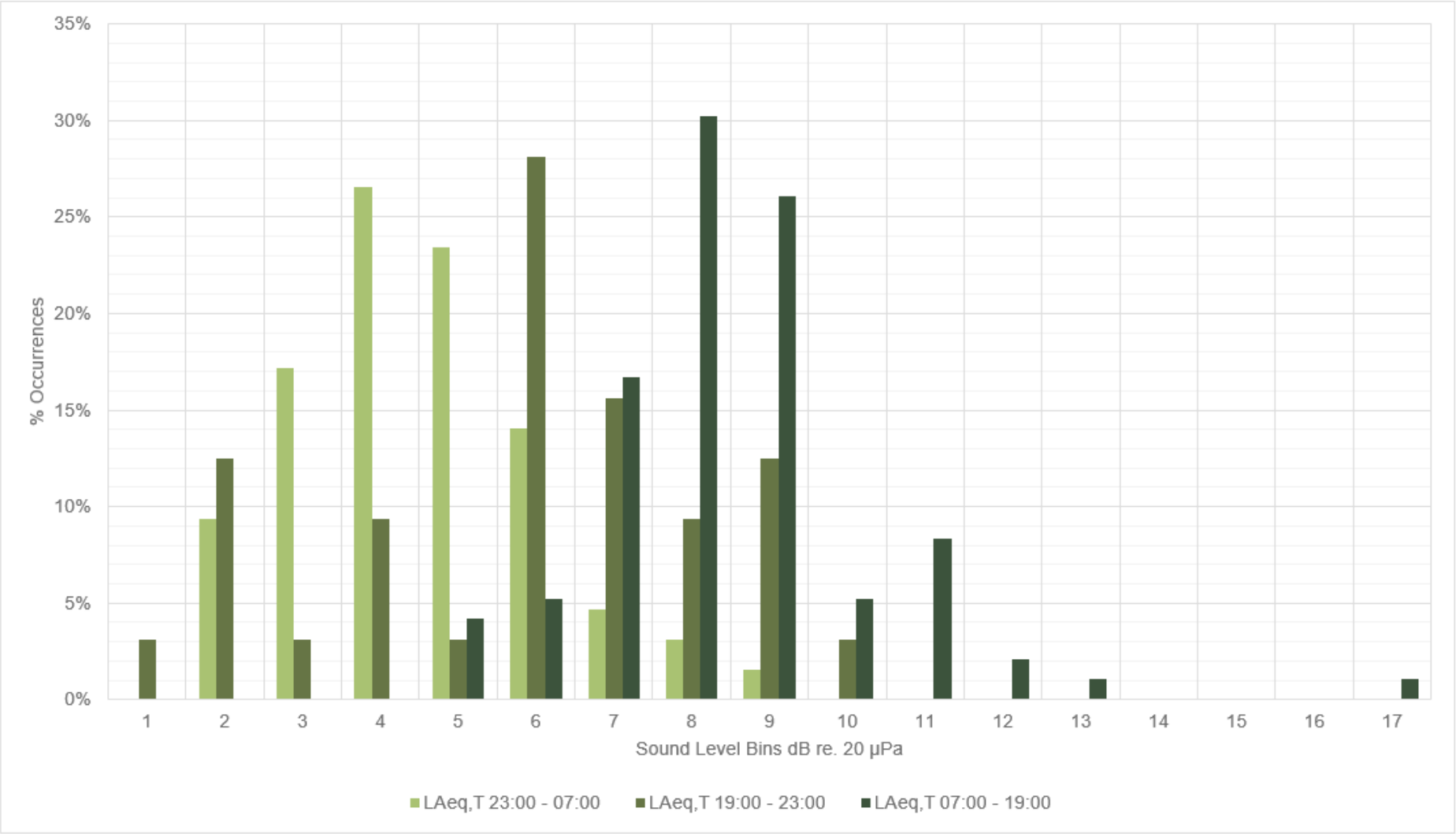
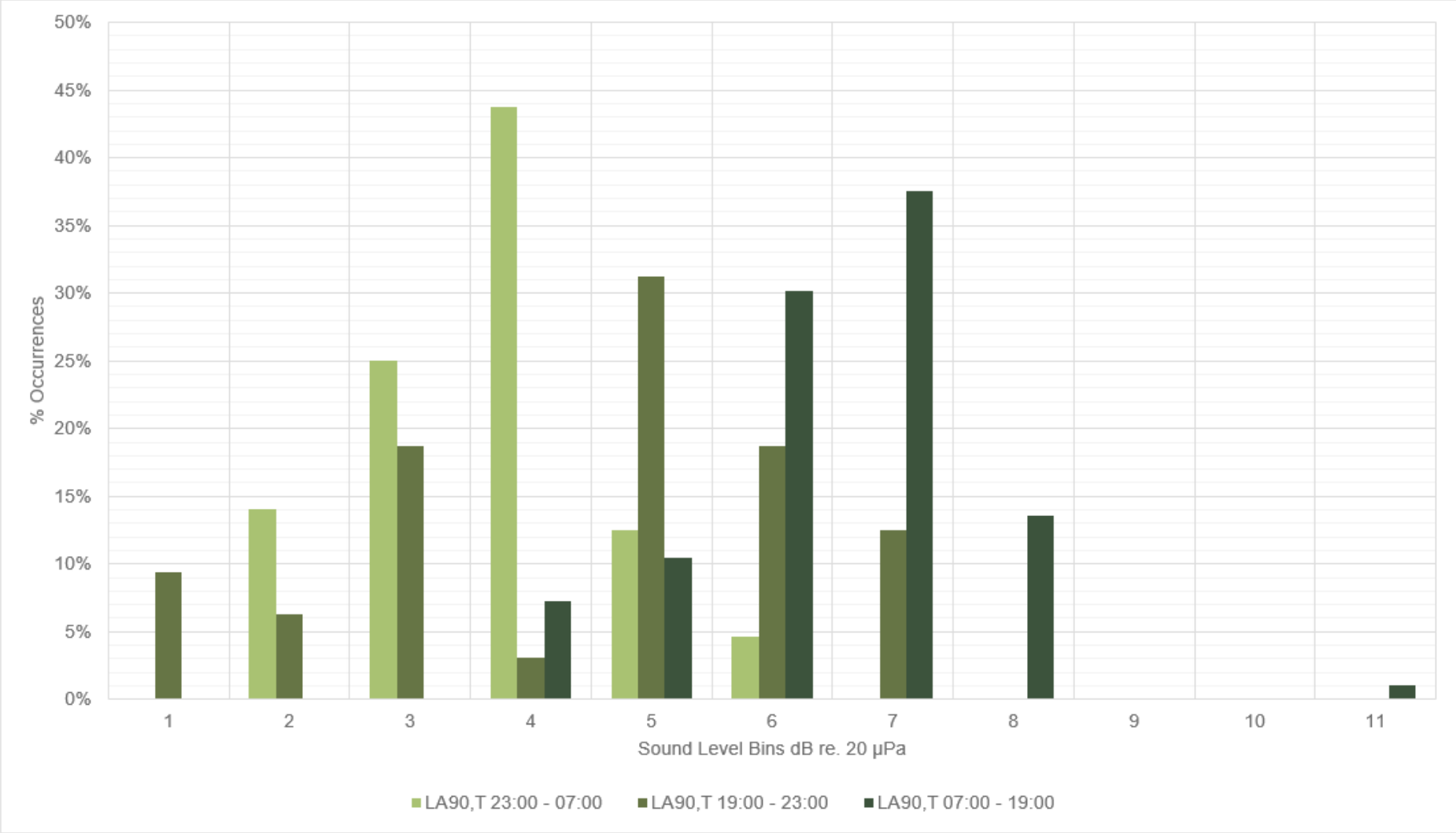


Figure 11-10: Histogram of Weekend L_{A90} at Rock Road



F.3 Location 6 Orchard Way

Figure 11-11: Measured Noise Levels at Orchard Way

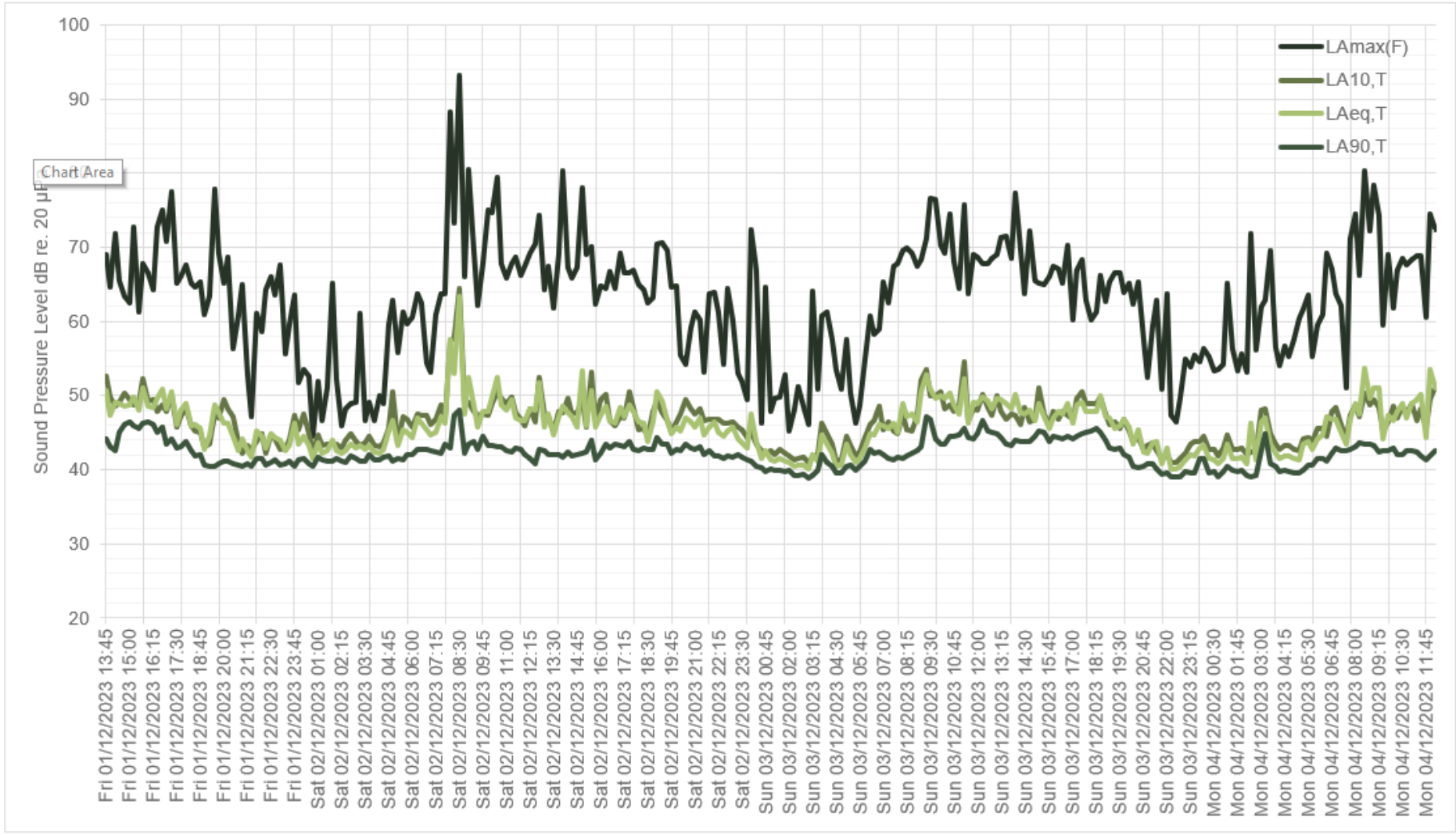


Figure 11-12: Histogram of Weekday $L_{Aeq,T}$ at Orchard Way

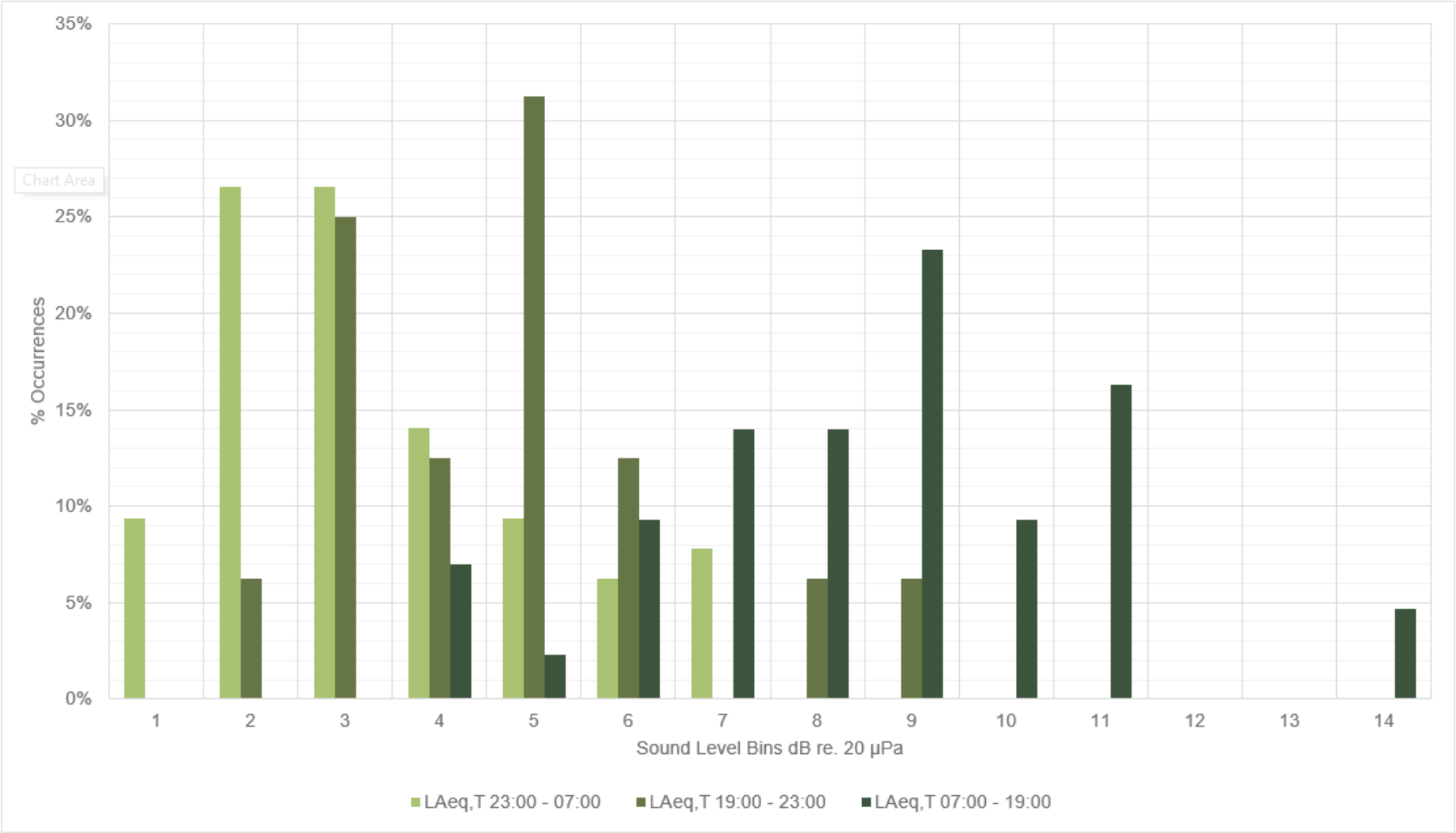


Figure 11-13: Histogram of Weekday L_{A90} at Orchard Way

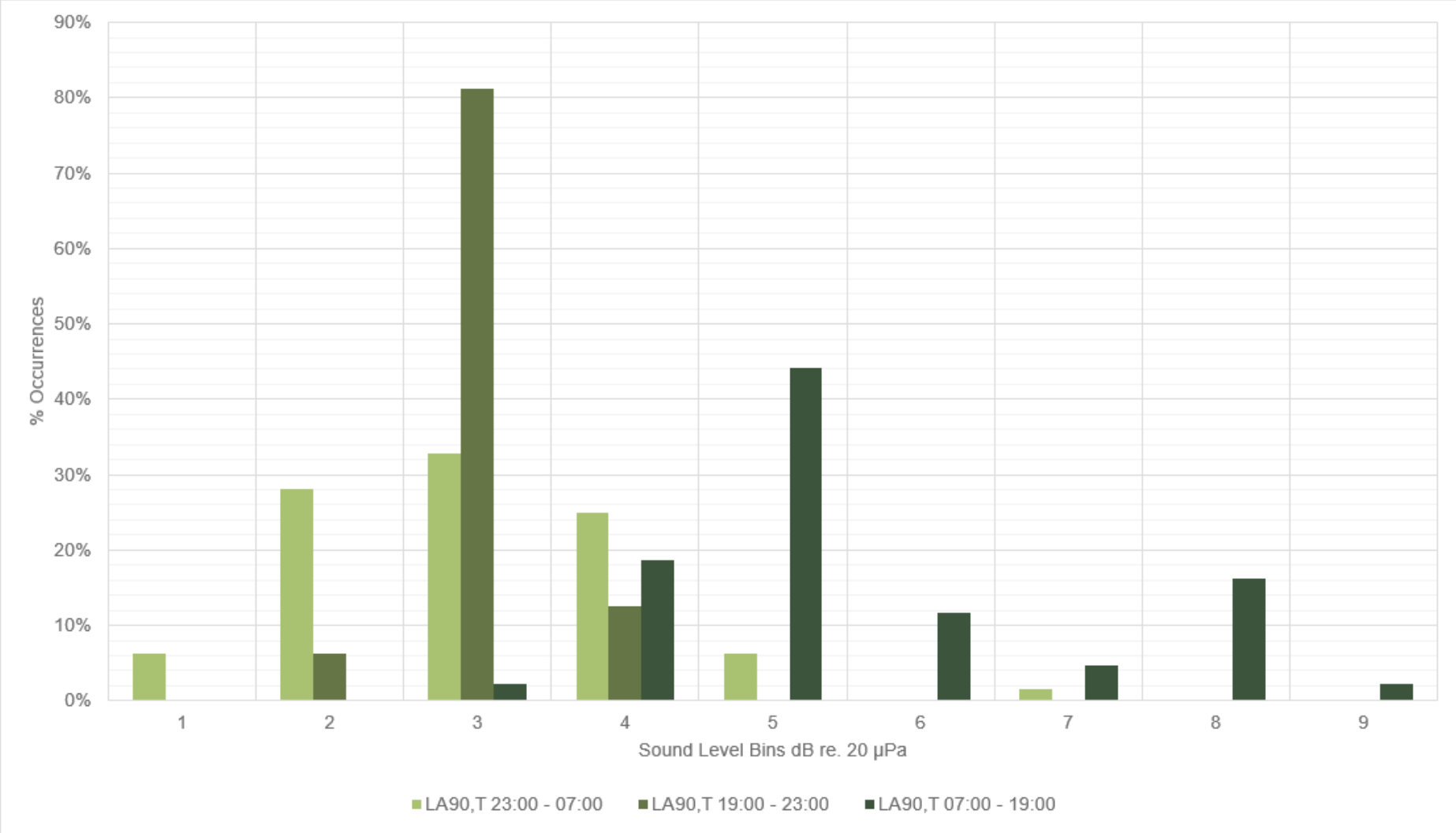


Figure 11-14: Histogram of Weekend $L_{Aeq,T}$ at Orchard Way

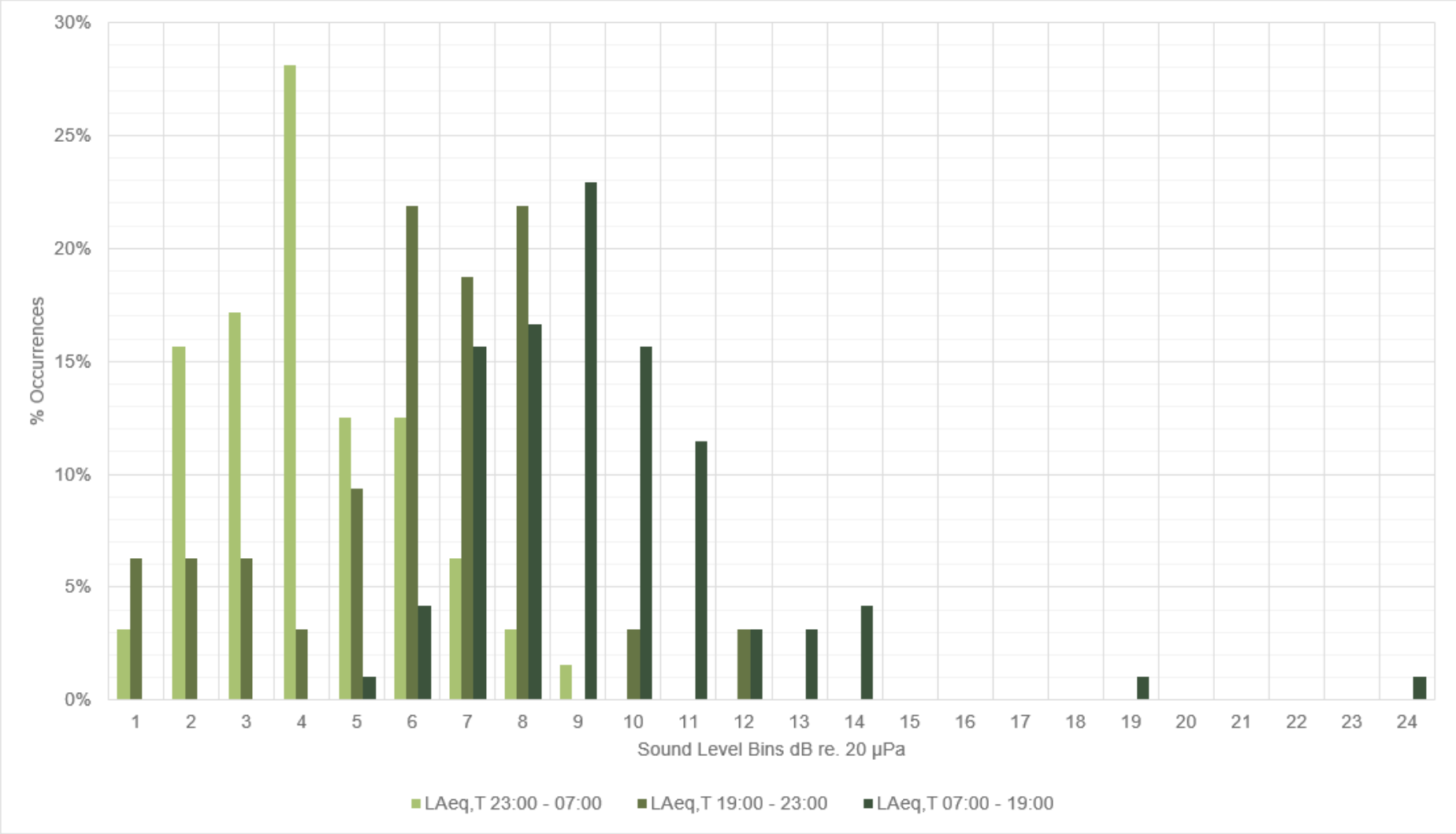
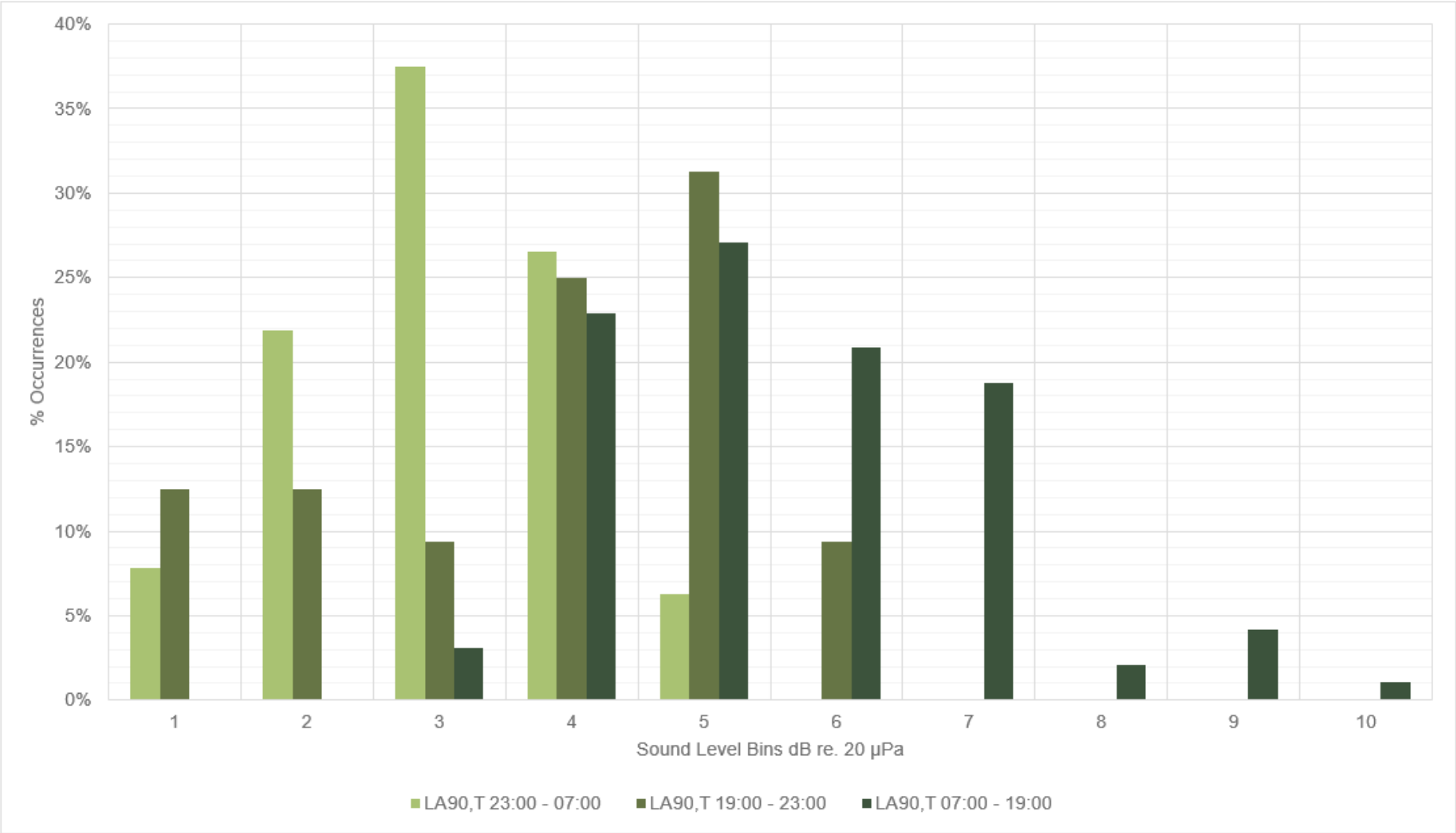


Figure 11-15: Histogram of Weekend L_{A90} at Orchard Way



Appendix G BS4142 Assessment - Existing Site

Noise Impact Assessment

Royston Environmental Permit Application

Johnson Matthey

SLR Project No.: 416.065394.00001

28 October 2024

G.1 BS4142 Assessment Existing Site

It is stated in the INVC Report (Dated 9th October 2020, Ref 9706) that:

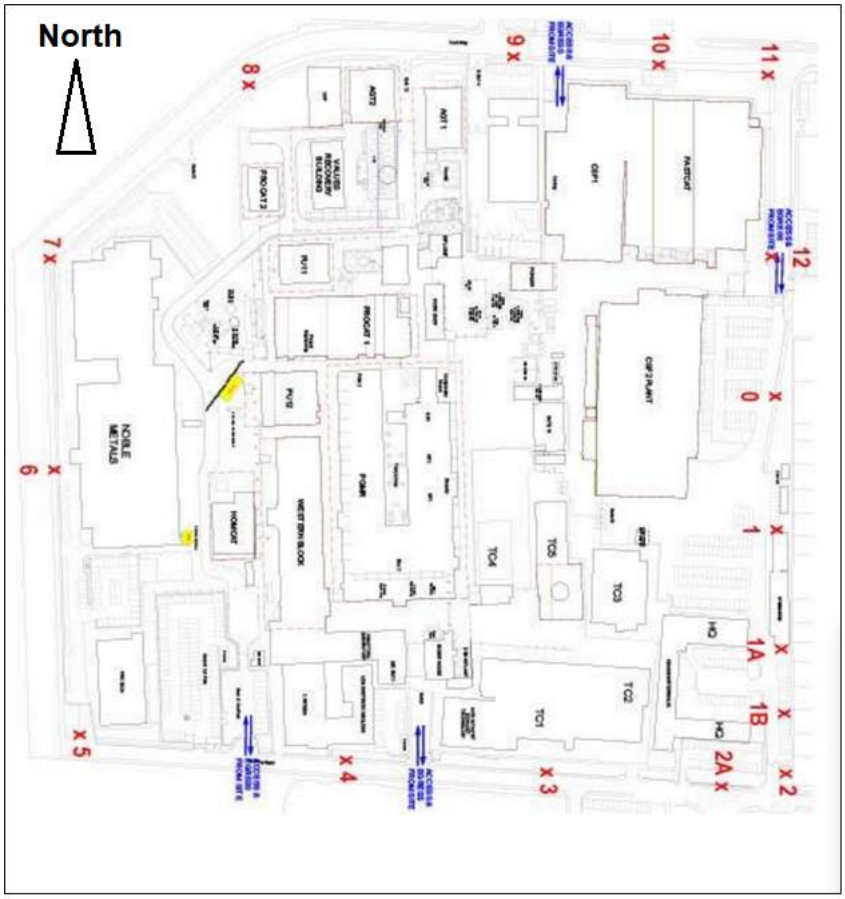
"Johnson Matthey operates 24 hours a day, 7 days a week. The noise from the site is therefore almost constant, although there will be some small fluctuation in level as individual noise sources are turned on and off. However, all of the boundary positions are affected by extraneous noise including intermittent road traffic on York Way and Orchard Road, constant road traffic on the A505, occasional aircraft and trains, other industrial units, intermittent construction noise from the new building on the Johnson Matthey site, and (during the day) birdsong. The background noise readings (LA90) are therefore likely to be a better measure of the noise from the site than the equivalent continuous noise readings (LAeq), which are more affected by intermittent extraneous noise".

On that basis the specific sound level of the Johnson Matthey Site at the eastern boundary of the Site may be inferred from the baseline background sound levels measured by INCV in 2020 at boundary positions 1, 1a, 11, and 12. However, to present a robust assessment, the measured LAeq,T data will be used. The date, weather, and equipment used during the survey is detailed in Section 4 of this Report.

G.2 Survey Locations

Sound levels were measured at the following eastern boundary positions 1, 1A, 11 and 12. The on-site survey locations are shown in Figure 11-16 below.

Figure 11-16: Eastern Boundary Measurement Positions



G.3 Specific Sound Level Results

A summary of the background survey results at Locations 1, 1A, 11 and 12, is shown in Table 11-2 below. The full survey results are available in the INVR Report[8].

Table 11-2: Summary of 2020 Survey Results dB(A)

Location	Period	Measured L_{Aeq}[9]	Inferred Specific Sound Level
1	Daytime	55	55
	Night-Time	51	51
1A	Daytime	53	53
	Night-Time	41	41
11	Daytime	66	66
	Night-Time	49	49
12	Daytime	61	61
	Night-Time	58	58

G.4 Noise Model

To determine the specific sound level of the Existing Site at the NSR locations a noise model has been developed.

The sound predictions in this assessment have been undertaken using a proprietary software-based noise model, CadnaA, which implements the full range of UK noise-based calculation methods. The calculation algorithms set out in ISO 9613-2:1996 Acoustics – Attenuation of sound during propagation outdoors – Part 2 General method of calculation have been used and the model assumes:

- A ground absorption factor of 0.25.
- Contour Data to include OS terrain data.
- A reflection factor of 3.

To determine the specific sound level off-site two area sources have been modelled across the Johnson Matthey Site. The area sources have been calibrated to ensure that the specific sound level at each boundary location agrees with Table 6-110. The area sources have been modelled at a height of 4m and with a sound power level per unit area of 100dB(A) to 115dB(A) (daytime) and 98dB(A) and 109dB(A) (night-time).

The resultant specific sound level at the boundary locations and at the off-site Receptors locations can be seen in Figure 11-17 for the daytime, and Figure 11-18 for the night-time.

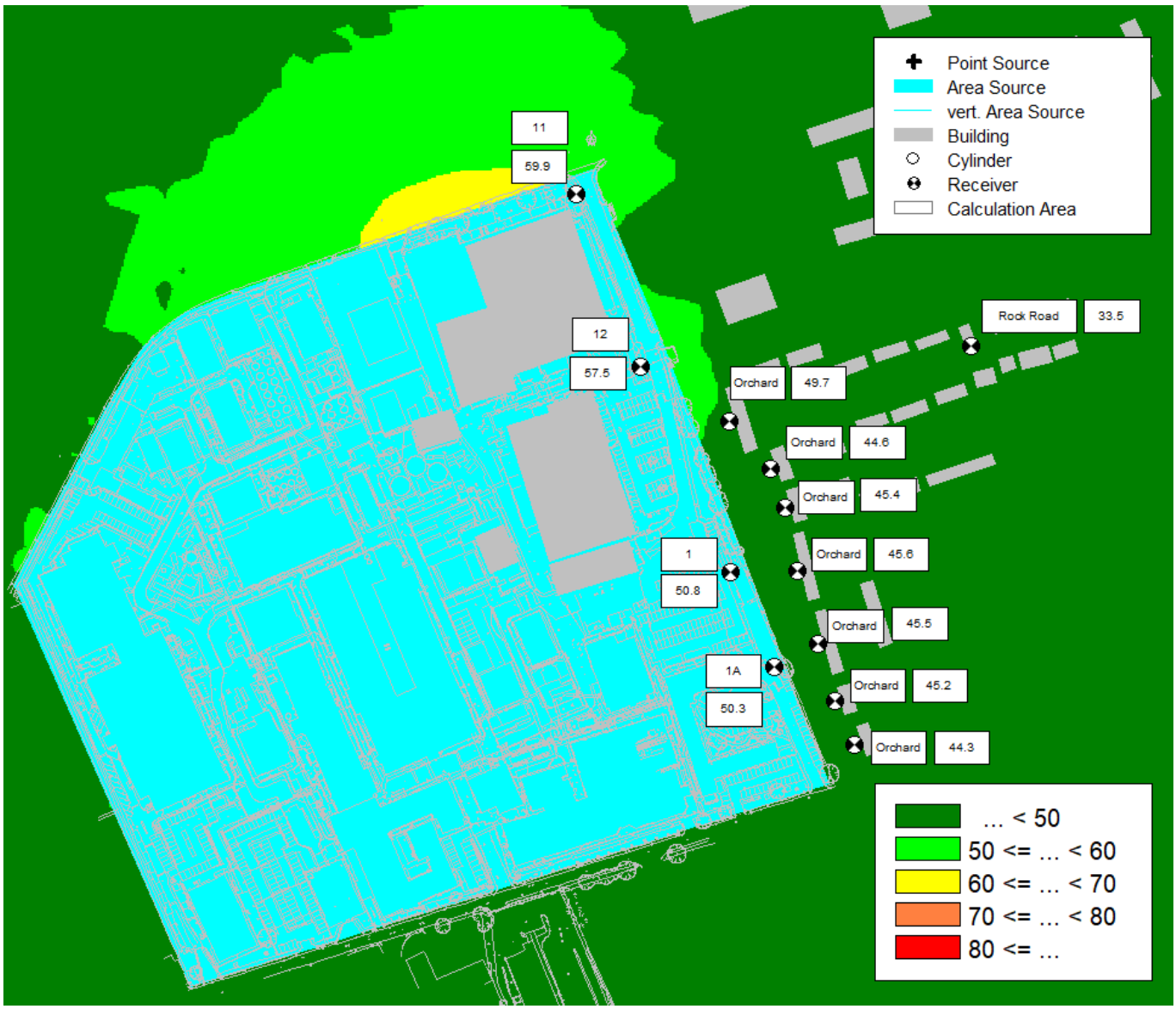
[8] INVC Report 9706 Dated 9th October 2020

[9] See Page 13 of INVC Report second table on page.

[10] Daytime: Within 1dB(A) or higher.

Figure 11-17: Existing Daytime Site-Specific Sound Level at 1.5m

Figure 11-18: Existing Night-Time Site-Specific Sound Level at 1.5m



G.5 Character Corrections

The character of the noise source and the sound penalty that will be applied in the BS4142assessment are detailed below:

- Tonality: SLR has not undertaken the BS4142 *Objective method for assessing the audibility of tones in sound: one third octave method*. However, within the INVC Report it is stated that tones were identified in the datasets at the three off-site NSR that may be attributable to Site plant. Therefore, a 2dB(A) character correction will be applied.
- Impulsivity: Noise from the Site is not considered impulsive.
- Other sound characteristics: When operating, the proposals may be readily distinctive against the residual acoustic environment. A 3dB correction will therefore be required.
- Intermittency: Over the BS4142 reference period of 1-hour in the daytime (07:00 – 23:00) and 15-minutes at night-time (23:00 – 07:00), it is anticipated that the noise sources would be constant; therefore, no intermittency correction is required.

Based on the above, a 5dB penalty is applicable to the predicted specific sound level at the nearest noise-sensitive receptors to derive the corresponding rating levels.

G.6 Existing Site BS4142 Assessment Results

The corrections described above have been added to the specific sound levels shown in Figure 11-17 and Figure 11-18 to derive the rating levels at the nearest noise-sensitive receptors. The rating level has then been compared to the derived background sound level.

The results of the BS4142 assessment are shown in Table 11-3 below. It must be noted that the rating levels and the representative background sound levels have been rounded to the nearest decibel.

Table 11-3: Existing Site BS4142 Assessment, dB

Receptor	Period	Assessment	Predicted Specific Sound Level, $L_{Aeq,T}$	Predicted Rating Level, $L_{Ar,T}$	Derived Background Sound Level L_{A90}	Difference
Orchard Way[11]	Weekday	Daytime	54	59	41	+18
		Night-Time	50	55	40	+15
	Weekend	Daytime	54	59	43	+16
		Night-Time	50	55	41	+14
Rock Road	Weekday	Daytime	37	42	40	+2
		Night-Time	34	39	38	+1
	Weekend	Daytime	37	42	42	0
		Night-Time	34	39	39	0
Eliot Road	Weekday	Daytime	31[12]	36	38	-2
		Night-Time	25[13]	30	34	-4
	Weekend	Daytime	31	36	39	-3
		Night-Time	25	30	34	-4

It can be seen from Table 6-2 that the rating level of existing operations exceeds the background sound level at Orchard Way and at Rock Road during the weekday period.

[11] Highest level taken from Figures 6-2 and 6-3

[12] Not on Figure 6-1 due to distance but this is the value.

[13] Not on Figure 6-1 due to distance but this is the value.

Appendix H BS4142 Assessment – Variation 16

Noise Impact Assessment

Royston Environmental Permit Application

Johnson Matthey

SLR Project No.: 416.065394.00001

28 October 2024

H.1 BS4142 Assessment - Cumulative Site

H.2 Project 3CR

The main noise sources that are expected to be audible externally are detailed in Table 11-4 below.

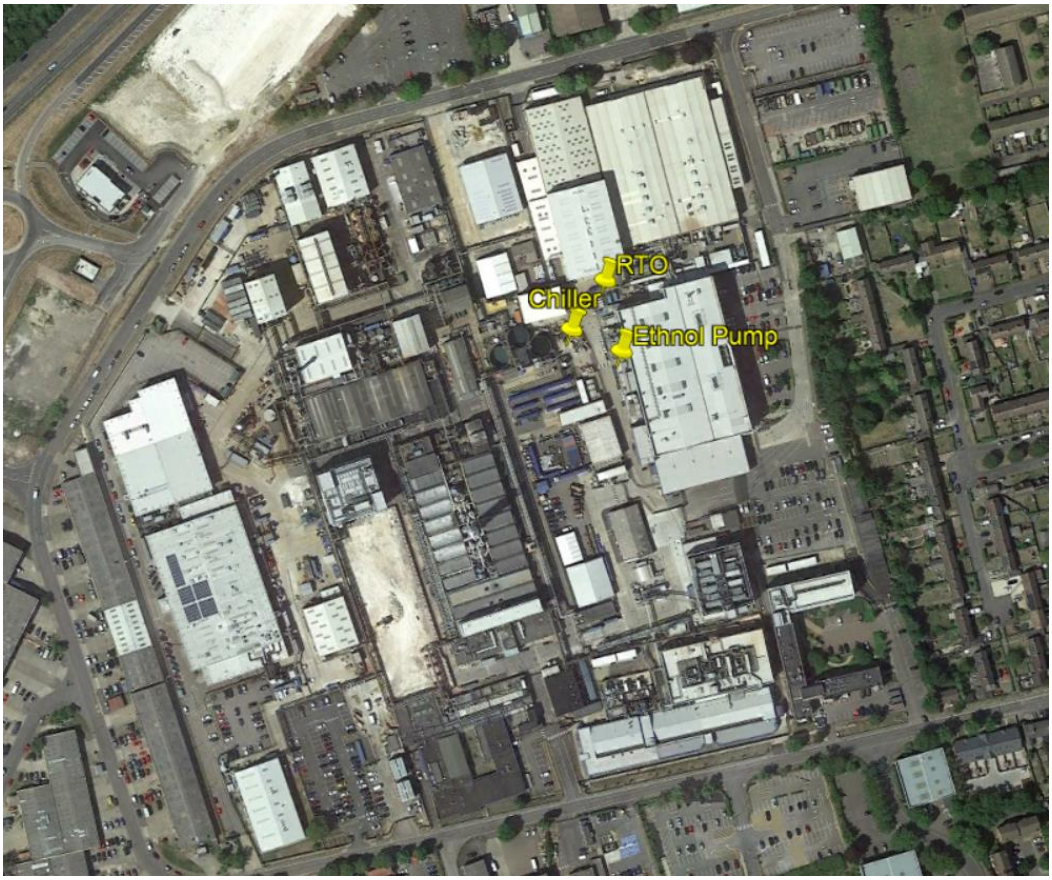
Table 11-4: Project 3CR Plant Noise Data – dB

Plant	Sound Power Level dB(A)
Regenerative Thermal Oxidiser[14] (RTO) TO Fan	83
RTO Stack	83
RTO Furnace	83
Chiller	90
Ethanol Pump	83

The location of the Plant can be seen in Figure 11-19. It is stated in the Environment Permit Variation Application Best Available Techniques & Operating Techniques (dated October 2022), at Section 3.6.6, that Project 3CR Plant will be designed to ensure no increase of noise will be detectable at the installation boundary.

[14] It I stated in the *Environment Permit Variation Application Best Available Techniques & Operating Techniques* that (dated October 2022) "*The RTO will be fitted with acoustic insulation, silencers and noise hoods. The environmental noise level when measured at site boundary (Approx.90m) shall not exceed 55dBA"*

Figure 11-19: Location of Proposed 3CR Plant



The approximate distances between the proposed 3CR Plant and the NSR locations are detailed in Table 11-5 below.

Table 11-5: Distance Between 3CR Plant and NSR Locations

3CR Plant	Distance to NSR (m)		
	Orchard Way	Rock Road	Eliot Road
RTO Fan	274	285	715
RTO Stack	274	285	715
RTO Furnace	274	285	715
Chiller	302	302	727
Ethanol Pump	238	281	724

H.3 Boiler Replacement

JM will replace the three existing boilers in the main boiler house with up-to-date state of the art boilers and burners. This will improve efficiency and remove the requirement to manage wet steam.

At Section 6.5.5 of the Environment Permit Variation Application Best Available Techniques & Operating Techniques that (dated October 2022) it is stated:

"The boilers will be designed in accordance with European noise standards; the equipment will be subject to regular preventative maintenance in accordance with the manufacturer's requirements. It is considered unlikely that the proposed changes will give rise to noise or vibration nuisance at the

site boundary. The new boilers are considered to be less noisy than their predecessors as the equipment is brand new.

A noise survey was undertaken by Industrial Noise and Vibration Centre in October 2020 (reference R9706). The report concluded that JM operates 24 hours a day, 7 days a week and therefore the noise from the site is therefore almost constant, although there will be some small fluctuation in level as individual noise sources are turned on and off. Many of the main noise sources on site are shielded from the surrounding area by acoustic screens and/or other buildings, so the noisiest sources may not necessarily be audible at the boundary.

Potential sources of noise that may impact the site boundary from the boilers are listed below:

- *Fans and blowers from the boilers.*

These elements will be designed to ensure no increase of noise will be detectable at the installation boundary.

All fans will be fitted with anti-vibration mounts. The site carries out noise monitoring every two years and reports this to the EA as part of the current EP requirement; the survey will be reviewed and extended to ensure no noise from the boiler house is present at the boundary".

H.4 Noise Model

The sound predictions in this assessment have been undertaken using a proprietary software-based noise model, CadnaA, which implements the full range of UK noise-based calculation methods. The calculation algorithms set out in ISO 9613-2:1996 Acoustics – Attenuation of sound during propagation outdoors – Part 2 General method of calculation have been used and the model assumes:

- A ground absorption factor of 0.5.
- Contour Data to include OS terrain data.
- A reflection factor of 3.

The characteristics of the proposed noise sources as modelled in CadnaA are presented in Table 7-3.

Table 11-6: Plant Characteristics in CadnaA

Plant	X/Y	CadnaA Noise Type	Height above ground	Sound Power dB(A)
Regenerative Thermal Oxidiser (RTO) TO Fan	534862, 241554	Point Source	7.2m	83
RTO Stack	534863, 241555	Point Source	25m	83
RTO Furnace	Centre 534863, 241557	Area and Vertical Sources	7m	83
Chiller	Centre 534847, 241539	Area and Vertical Sources	2.6m	90
Ethanol Pump	534852, 241539	Point Source	0.5m	83

H.5 Specific Sound Level of Proposed Plant

The calculated specific sound level of the proposed plant at each location are presented in Table 7-4. The daytime and night-time CadnaA images of the $L_{Aeq,T}$ dB specific sound level are presented

in Figure 11-20 and Figure 11-21. Within Table 7-4 the highest predicted sound level for Orchard Way has been presented.

Table 11-7: Specific Sound Level of Proposed Plant – dB(A)

Receptor	Assessment	Predicted Additional Plant Specific Sound Level, $L_{Aeq,T}$
Orchard Way	Week Daytime	39.1
	Week Night-Time	39.4
	Weekend Daytime	39.1
	Weekend Night-Time	39.4
Rock Road	Week Daytime	31.5
	Week Night-Time	32.2
	Weekend Daytime	31.5
	Weekend Night-Time	32.2
Eliot Road	Week Daytime	26.3
	Week Night-Time	29.4
	Weekend Daytime	26.3
	Weekend Night-Time	29.4

Figure 11-20: Daytime Specific Sound Level at a Height of 1.5m

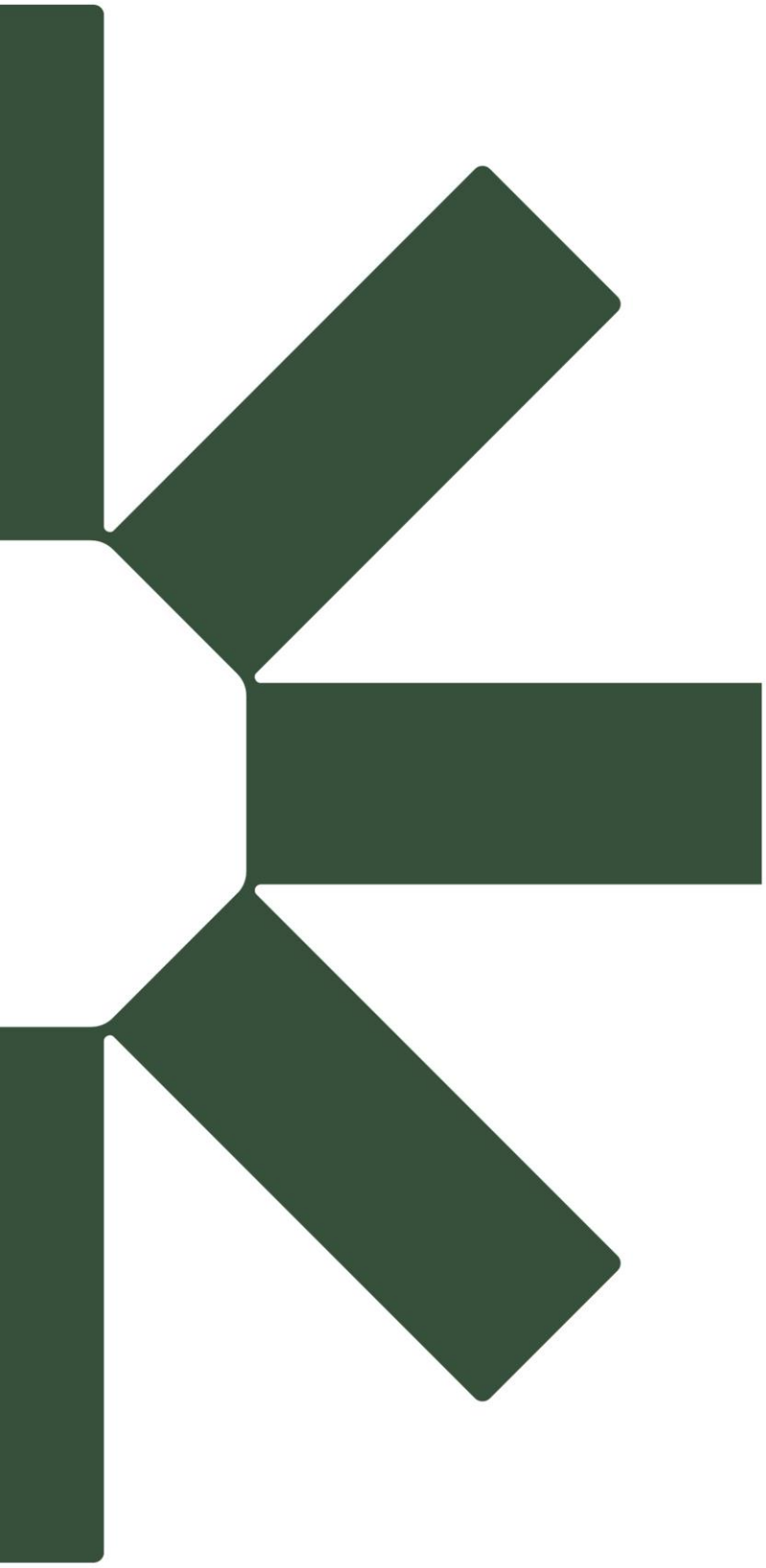
Figure 11-21: Night-Time Specific Sound Level at a Height of 4m

H.6 Cumulative Sound Level of Existing and Additional Plant

The specific sound level of the exiting plant and additional plant at No.2 Orchard is presented in Table 11-8 below.

Table 11-8: Cumulative Specific Sound Level of Existing and Proposed Plant – dB(A)

Receptor	Assessment	Predicted Existing Plant Specific Sound Level, $L_{Aeq,T}$	Predicted Additional Plant Specific Sound Level, $L_{Aeq,T}$	Cumulative Plant Specific Sound Level, $L_{Aeq,T}$
Orchard Way	Week Daytime	54	39	54
	Week Night-Time	50	39	50
	Weekend Daytime	54	39	54
	Weekend Night-Time	50	39	50
Rock Road	Week Daytime	37	32	38
	Week Night-Time	34	32	36
	Weekend Daytime	37	32	38
	Weekend Night-Time	34	32	36
Eliot Road	Week Daytime	31	26	32
	Week Night-Time	25	29	30
	Weekend Daytime	31	26	32
	Weekend Night-Time	25	29	30



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