



Noise Impact Assessment

Site Address: 74 King Street, Manchester, M2 4NJ

Client Name: Manchester Building Society

Project Reference No: NP-012089



Authorisation and Version Control

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Delivering sustainable development by promoting good health and well-being through effective management of noise.

Contents

1.	INTRODUCTION	4
1.1	Standards, Legislation, Policy & Guidance	4
1.2	Proposal Brief	4
1.3	Local Planning Authority & Background	5
2.	ENVIRONMENTAL NOISE SURVEY	6
2.1	Measurement Methodology	6
2.1	Context & Subjective Impression	6
2.2	Environmental Noise Survey Results	8
3.	BS4142 NOISE IMPACT ASSESSMENT	9
3.1	Proposed External Fixed Plant & Specific Sound Levels	9
3.2	BS4142 Noise Impact Assessment	9
4.	CONCLUSION AND ACTION PLAN	10
	APPENDIX A – ACOUSTIC TERMINOLOGY	11
	APPENDIX B – STANDARDS, LEGISLATION, POLICY, AND GUIDANCE	12
	B.1 – National Planning Policy Framework (2024)	12
	B.2 – Noise Policy Statement for England (2010)	12
	B.3 – BS4142:2014+A1:2019 – ‘Methods for rating and assessing industrial and commercial sound’	13
	APPENDIX C – LOCATION PLANS	17
	APPENDIX D – ENVIRONMENTAL SURVEY	18
	D.1 – Time History Noise Data	18
	D.2 – Surveying Equipment	18
	D.3 – Meteorological Conditions	18
	APPENDIX E – MANUFACTURERS’ DATA SHEETS	20
	APPENDIX F – CALCULATIONS	21

List of Figures

<i>Figure 1 – Proposed Development.....</i>	<i>5</i>
<i>Figure 2 – Measurement Locations and Site Surroundings.....</i>	<i>6</i>
<i>Figure 3 – NSR Window Locations.....</i>	<i>7</i>
<i>Figure 4 – Existing Plant Location</i>	<i>7</i>
<i>Figure 5 – MP1 Operational Hours Background Sound Level Analysis.....</i>	<i>8</i>
<i>Figure 6 – MP1 Noise Survey Time History.....</i>	<i>18</i>

List of Tables

<i>Table 1 – Measurement Methodology</i>	<i>6</i>
<i>Table 2 – Sound Power Levels of Proposed AC Units</i>	<i>9</i>
<i>Table 3 – BS4142 Noise Impact Assessment.....</i>	<i>9</i>
<i>Table 4 – Surveying Equipment.....</i>	<i>18</i>
<i>Table 5 – Survey Weather Conditions</i>	<i>19</i>

1. Introduction

NOVA Acoustics Ltd has been commissioned to prepare a noise impact assessment the installation of 6no. air conditioning ('AC') units ('the proposed development') at 74 King Street, Manchester, M2 4NJ ('the site').

The applicant has received conditional approval for planning application No. 141165/LO/2024 – '*Listed Building Consent for internal alterations to basement, ground, and first floors*' ('the application') from Manchester City Council. None of the conditions are noise-related, however, this report has been prepared to accompany the planning application submitted to the Local Planning Authority ('LPA').

A noise survey has been undertaken to establish the prevailing background sound levels at the closest Noise Sensitive Receptors ('NSR'). The report details the existing background sound climate and the predicted noise emissions associated with the proposed development. Measures required to mitigate noise impact from the proposed development have been recommended where necessary and assessed in accordance with the relevant performance standards, legislation, policy and guidance.

This noise assessment is necessarily technical in nature; therefore, a glossary of terms is included in Appendix A to assist the reader.

1.1 Standards, Legislation, Policy & Guidance

The following performance standards, legislation, policy and guidance have been considered to ensure good acoustic design in the assessment:

- The LPAs technical guidance, specifically; *Manchester City Council 'Planning & Noise Technical Guidance – December 2015 – Section 3.6.1.5 Industrial / Commercial Developments'*.
- National Planning Policy Framework (2024).
- Noise Policy Statement for England (2010).
- British Standard BS4142:2014+A1:2019 – 'Methods for rating and assessing industrial and commercial sound'.

Further information on the legislation can be found in Appendix B.

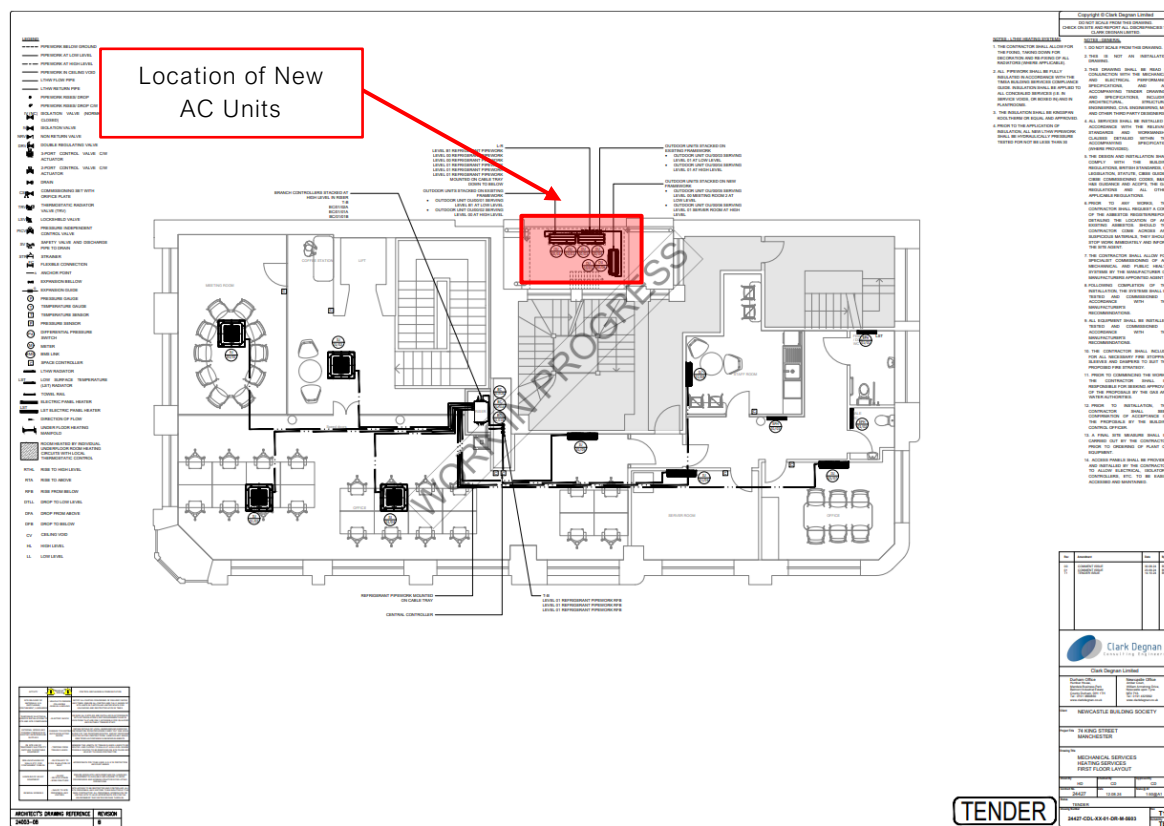
1.2 Proposal Brief

The proposal is for the installation of 6no. new AC condenser units to replace the 4no. existing units at the site as part of the refurbishment and re-fitting to accommodate the new Manchester Building Society. The applicant is proposing to install the following equipment:

- 4no. Samsung AM060BXMDGR/EU (OU/00/01 – OU/00/04)
- 2no. Samsung AC052BXAPKG/EU (OU/00/05 & OU/00/06)

NOVA Acoustics has been informed that the units will be operate during office hours (08:00 – 18:00), exclusively.

The overleaf figure shows the proposed development.



Drawing Ref No. 24427-CDL-XX-01-DR-M-5603_TE.T1 WIP from 'Clark Degnan'

Figure 1 – Proposed Development

1.3 Local Planning Authority & Background

The Manchester City Council 'Planning & Noise Technical Guidance – December 2015 – Section 3.6.1.5 Industrial / Commercial Developments' comments the following:

"BS 4142 should be used to assess the likely impact of noise from industrial and commercial sources at noise sensitive premises (section 3.5). One of the indications of the impact of a BS 4142 assessment is 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. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

The Council consider that new developments should contribute and enhance the area in which they are located and where possible, contribute to the improvement of people's health and quality of life as per the NPSE. With this in mind, the design objective should be:

'The development should be designed so as to achieve a rating level of 5dB (LAeq) below the typical background (LA90) level at the nearest noise sensitive location'.

Where this criterion cannot be achieved, the various noise control measures considered as part of the assessment should be fully explained (i.e. relocation of noise sources, use of quieter equipment, enclosures, screening, restriction of the hours of operation) and the achievable noise level should be identified. This information will allow us to make a judgement concerning the application and its likely impact on the surrounding area."

2. Environmental Noise Survey

2.1 Measurement Methodology

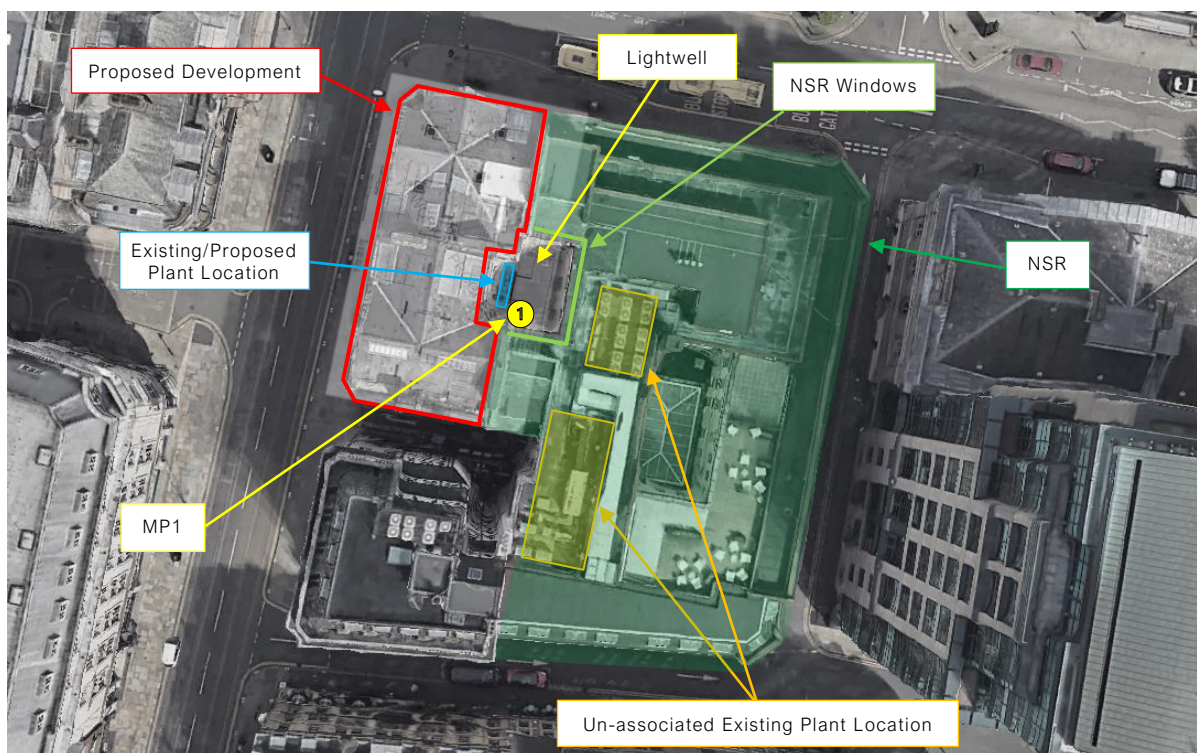
The following table outlines the measurement dates and particulars. Weather conditions recorded during the environmental sound survey can be found in Appendix D.

A 130mm diameter windshield was fitted to the microphone which is effective in windspeeds up to 8m/s. The equipment was field calibrated before and after the survey; negligible drift was noted.

Location	Survey Dates	Measurement Particulars
MP1	07-09/01/2025	Equipment mounted on a tripod within the buildings lightwell. The microphone was positioned approximately 2m above the ground and 1.5m from the NSR's closest and most exposed window – a façade correction has been applied.

Table 1 – Measurement Methodology

The figure below outlines the site surroundings and measurement locations:



Imagery ©2024, Map data ©2024

Figure 2 – Measurement Locations and Site Surroundings

2.1 Context & Subjective Impression

The immediate surrounding areas comprise of commercial properties with residential dwellings on upper levels. The site is bounded to the east by a mixed-use development building with commercial units and apartments. These apartments have windows into the highlighted lightwell and, hence, these windows have been identified as the closest noise sensitive receptors ('NSR').

The image below shows the location of the NSR1 windows.



Figure 3 – NSR Window Locations

During the site visits, the acoustic environment at MP1 was considered high in level, and the noise profile was dominated by noise emissions from non-associated fixed plant units located within the lightwell (AC units and an extraction system).

This above was further corroborated when assessing the noise survey time history shown in Appendix D, where it can be seen that plant noise is dominant throughout the daytime and night-time periods.

Plant noise from the non-associated units located on the flat roof to the east was also audible at MP1. Road traffic noise emissions was also just perceptible although secondary in nature.

The figure below shows the location of the existing associated units (to be replaced) and the non-associated units.



Figure 4 – Existing Plant Location

As can be seen in the figures above, the proposed plant will be located below the existing non-associated plant units attached to the wall. This wall will break the line of sight between the units and those lower NSRs windows, thus providing a degree of acoustic shielding.

2.2 Environmental Noise Survey Results

Background Sound Level Analysis

The following section outlines the measured background sound levels that have been used as the baseline for the BS4142 noise assessment.

The figure below shows a histogram graph of the background sound levels measured during the proposed operational hours throughout the entire noise survey. The time history results can be found in Appendix D.

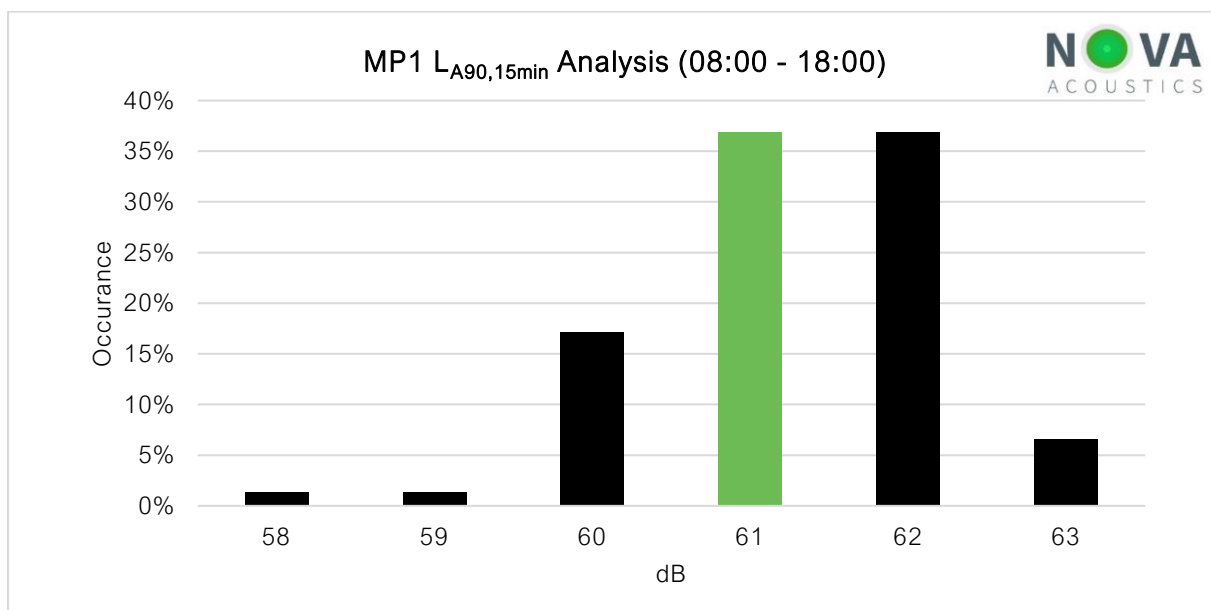


Figure 5 – MP1 Operational Hours Background Sound Level Analysis

As can be seen in the figure above, the 'lowest typical' $L_{A90,15min}$ measurement of 61dB has been used as the baseline for the BS4142 assessment.

3. BS4142 Noise Impact Assessment

In the following section of the report, the impact of the noise emissions generated by the proposed development is assessed.

3.1 Proposed External Fixed Plant & Specific Sound Levels

The following table shows the calculated 1/1 octave frequency band sound power levels of the proposed AC units that have been used in the subsequent calculations.

The manufacturers only state a global A-weighted sound power level, thus, a Z-weighted spectrum for a similar unit has been assumed and corrected so the sum of the linear 1/1 octave and sound levels equated to the target A-weighted sound level. The manufacturers data sheets can be found in Appendix E.

Description	1/1 Octave Frequency Band (Hz, L _w dB)								Overall (dBA)
	63	125	250	500	1k	2k	4k	8k	
4no. AM060BXMDGR/EU	78	86	79	73	70	68	64	56	77
4no. AC052BXAPKG/EU	66	74	67	61	58	56	52	44	65

Table 2 – Sound Power Levels of Proposed AC Units

3.2 BS4142 Noise Impact Assessment

The table below shows the BS4142 assessment for the proposed 6no. AC units. For full specific sound levels calculations please see Appendix F.

Description	1/1 Octave Frequency Band (Hz, dB)								Overall (dBA)
	63	125	250	500	1k	2k	4k	8k	
Cumulative Specific Sound Level at NSR (3 rd floor)	57	65	59	52	49	46	41	32	56
BS4142 Acoustic Feature Correction	No acoustic feature corrections are deemed applicable considering the absolute predicted specific sound level and that the noise emissions are akin to the existing noise profile. In addition, the predicted specific sound level falls 2dB below the lowest measured L _{A90,15min} (58dB)..								0
Rating Sound Level (L _{Ar,Tr})	Specific sound level + above penalties.								56
Background Sound Level	MP1 (08:00 – 18:00) L _{A90,15min} – Figure 5.								61
Exceedance	L _{Ar,Tr} – L _{A90,15min} .								-5
BS4142 Assessment Outcome	'Low impact, dependent on context'.								
NPPF & NPSE Outcome	'No Observed Adverse Effect Level' ('NOAEL').								
LPA Criteria	The rating sound levels complies with the LPA criteria set out in Section 1.3.								

Table 3 – BS4142 Noise Impact Assessment

4. Conclusion and Action Plan

The proposed development has been assessed against the requirements of BS4142, the LPAs criteria, and the NPPF and the NPSE.

The assessment shows that the cumulative BS4142 rating sound level of the proposed AC units is predicted to fall at least 5dB below the 'typical' background sound level at the most affected NSRs. This is an indication of 'low impact' in accordance with BS4142 which in this instance relates to a 'No Observed Adverse Effect Level' ('NOAEL') in line with the NPSE and NPPF. In addition, the assessment shows compliance with the LPA criteria.

The findings of this report will require written approval from the Local Authority prior to work commencing.

Appendix A – Acoustic Terminology

A-weighted sound pressure level, L_{pA}	Quantity of A-weighted sound pressure given by the following formula in decibels (dBA). $L_{pA} = 10 \log_{10} (pA/p_0)^2$. Where: pA is the A-weighted sound pressure in pascals (Pa) and p_0 is the reference sound pressure (20 μ Pa)
Background Sound	Underlying level of sound over a period, T , which might in part be an indication of relative quietness at a given location
Equivalent continuous A-weighted sound pressure level, $L_{Aeq,T}$	Value of the A-weighted sound pressure level in decibels (dB) of a continuous, steady sound that, within a specified time interval, T , has the same mean-squared sound pressure as the sound under consideration that varies with time
Facade level	Sound pressure level 1 m in front of the facade
Free-field level	Sound pressure level away from reflecting surfaces
Indoor ambient noise	Noise in a given situation at a given time, usually composed of noise from many sources, inside and outside the building, but excluding noise from activities of the occupants
Noise Criteria	Numerical indices used to define design goals in a given space
Noise Rating (NR)	Graphical method for rating a noise by comparing the noise spectrum with a family of noise rating curves
Octave Band	Band of frequencies in which the upper limit of the band is twice the frequency of the lower limit
Percentile Level, $L_{AN,T}$	A-weighted sound pressure level obtained using time-weighting “F”, which is exceeded for $N\%$ of a specified time interval
Rating Level, $L_{Ar,Tr}$	Equivalent continuous A-weighted sound pressure level of the noise, plus any adjustment for the characteristic features of the noise
Reverberation time, T	Time that would be required for the sound pressure level to decrease by 60 dB after the sound source has stopped
Sound Pressure, p	root-mean-square value of the variation in air pressure, measured in pascals (Pa) above and below atmospheric pressure, caused by the sound
Sound Pressure Level, L_p	Quantity of sound pressure, in decibels (dB), given by the formula: $L_p = 10 \log_{10}(p/p_0)^2$. Where: p is the root-mean-square sound pressure in pascals (Pa) and p_0 is the reference sound pressure (20 μ Pa)
Weighted sound reduction index, R_w	Single-number quantity which characterizes the airborne sound insulating properties of a material or building element over a range of frequencies

Appendix B – Standards, Legislation, Policy, and Guidance

This report is to be primarily based on the following standards, legislation, policy and guidance.

B.1 – National Planning Policy Framework (2024)

Government policy on noise is set out in the National Planning Policy Framework (NPPF), published in 2024. This replaced all earlier guidance on noise and places an emphasis on sustainability. In section 15, Conserving and enhancing the natural and local environment, paragraph 187e, it states:

Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans;

Paragraph 198 states:

Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- a) Mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
- b) Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and*
- c) Limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.*

B.2 – Noise Policy Statement for England (2010)

Paragraph 198 of the NPPF also refers to advice on adverse effects of noise given in the Noise Policy Statement for England (NPSE). This document sets out a policy vision to:

Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.

To achieve this vision the Statement identifies the following three aims:

Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- Avoid significant adverse impacts on health and quality of life;
- Mitigate and minimise adverse impacts on health and quality of life;
- Where possible, contribute to the improvement of health and quality of life.

In achieving these aims the document introduces significance criteria as follows:

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur. It is stated that “significant adverse effects on health and quality of life should be avoided while also considering the guiding principles of sustainable development”.

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected. It is stated that the second aim above lies somewhere between LOAEL and SOAEL and requires that: “all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also considering the guiding principles of sustainable development. This does not mean that such adverse effects cannot occur.”

NOEL – No Observed Effect Level

This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise. This can be related to the third aim above, which seeks: “where possible, positively to improve health and quality of life through the pro-active management of noise while also considering the guiding principles of sustainable development, recognising that there will be opportunities for such measures to be taken and that they will deliver potential benefits to society. The protection of quiet places and quiet times as well as the enhancement of the acoustic environment will assist with delivering this aim.”

This is further expanded using the updated “Noise Exposure Hierarchy Table” which includes an additional level of impact referred to as the ‘No Observed Adverse Effect Level’ (‘NOAEL’). It is stated that at this level: *“noise can be heard, but does not cause any change in behaviour, attitude or other physiological response”*. In addition, noise at this level *“can slightly affect the acoustic character of the area but not such that there is a change in the quality of life”*.

The NPSE recognises that it is not possible to have a single objective noise-based measure that is mandatory and applicable to all sources of noise in all situations and provides no guidance as to how these criteria should be interpreted. It is clear, however, that there is no requirement to achieve noise levels where there are no observable adverse impacts but that reasonable and practicable steps to reduce adverse noise impacts should be taken in the context of sustainable development and ensure a balance between noise sensitive and the need for noise generating developments.

Any scheme of noise mitigation outlined in this report will, therefore, aim to abide by the above principles of the NPPF and NPSE whilst recognizing the constraints of the site.

B.3 – BS4142:2014+A1:2019 – ‘Methods for rating and assessing industrial and commercial sound’

Overview

BS4142:2014 sets out a method to assess the likely effect of sound from factories, industrial premises or fixed installations and sources of an industrial nature in commercial premises, on people who might be inside or outside a dwelling or premises used for residential purposes in the vicinity.

The procedure contained in BS4142:2014 for assessing the effect of sound on residential receptors is to compare the measured or predicted sound level from the source in question, the $L_{Aeq,T}$ 'specific sound level', immediately outside the dwelling with the $L_{A90,T}$ background sound level.

Where the sound contains a tonality, impulsivity, intermittency and other sound characteristics, then a correction depending on the grade of the aforementioned characteristics of the sound is added to the specific sound level to obtain the $L_{A,r}$ 'rating sound level'. A correction to include the consideration of a level of uncertainty in sound measurements, data and calculations can also be applied when necessary.

Rating Penalty

Section 9 of BS4142:2014 describes how the rating sound level should be derived from the specific sound level, by deriving a rating penalty.

BS4142:2014 states:

"Certain acoustic features can increase the significance of impact over that expected from a basic comparison between the specific sound level and the background sound level. Where such features are present at the assessment location, add a character correction to the specific sound level to obtain the rating level. This can be approached in three ways:

- a) subjective method;*
- b) objective method for tonality;*
- c) reference method."*

Due to the nature of the development the subjective method has been adopted to derive the rating sound level from the specific sound level. This is discussed in Section 9.2 of BS4142:2014, which states:

"Where appropriate, establish a rating penalty for sound based on a subjective assessment of its characteristics. This would also be appropriate where a new source cannot be measured because it is only proposed at that time, but the characteristics of similar sources can subjectively be assessed. Correct the specific sound level if a tone, impulse or other characteristics occurs, or is expected to be present, for new or modified sound sources."

BS4142:2014 defines four characteristics that should be considered when deriving a rating penalty, namely; tonality; impulsivity; intermittency; and other sound characteristics, which are defined as:

a) Tonality

A rating penalty of +2 dB is applicable for a tone which is "just perceptible", +4 dB where a tone is "clearly perceptible", and +6 dB where a tone is "highly perceptible".

b) Impulsivity

A rating penalty of +3 dB is applicable for impulsivity which is "just perceptible", +6 dB where it is "clearly perceptible", and +9 dB where it is "highly perceptible".

c) Other Sound Characteristics

BS4142:2014 states that where "the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distance against the residual acoustic environment, a penalty of +3 dB can be applied."

d) Intermittency

BS4142:2014 states that when the “specific sound has identifiable on/off conditions, the specific sound level ought to be representative of the time period of length equal to the reference time interval which contains the greatest total amount of on time ... if the intermittency is readily distinctive against the residual acoustic environment, a penalty of +3 dB can be applied.”

Background Sound Level

The background sound level is the underlying level of sound over a period, T, and is indicative of the relative quietness at a given location. It does not reflect the occurrence of transient and/or higher sound level events and is generally governed by continuous or semi-continuous sounds.

To ensure the background sound level values used within the assessment are reliable and suitably represent both the particular circumstance and periods of interest, efforts have been made to quantify a ‘typical’ background sound level for a given period. The purpose has not been to simply select the lowest measured value. Diurnal patterns have also been considered as they can have a major influence on background sound levels, for example, the middle of the night can be distinctly different (and potentially of lesser importance) compared to the start or end of the night time period for sleep purposes.

Since the intention is to determine a background sound level in the absence of the specific sound that is under consideration, it is necessary to understand that the background sound level can in some circumstances legitimately include industrial and/or commercial sounds that are present as separate to the specific sound.

Assessment of Impact

BS4142:2014 states: “The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs”. An estimation of the impact of the specific sound can be obtained by the difference of the rating sound level and the background sound level and considering the following:

- “Typically, the greater this 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.”
- “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. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a negligible impact, depending on the context.”

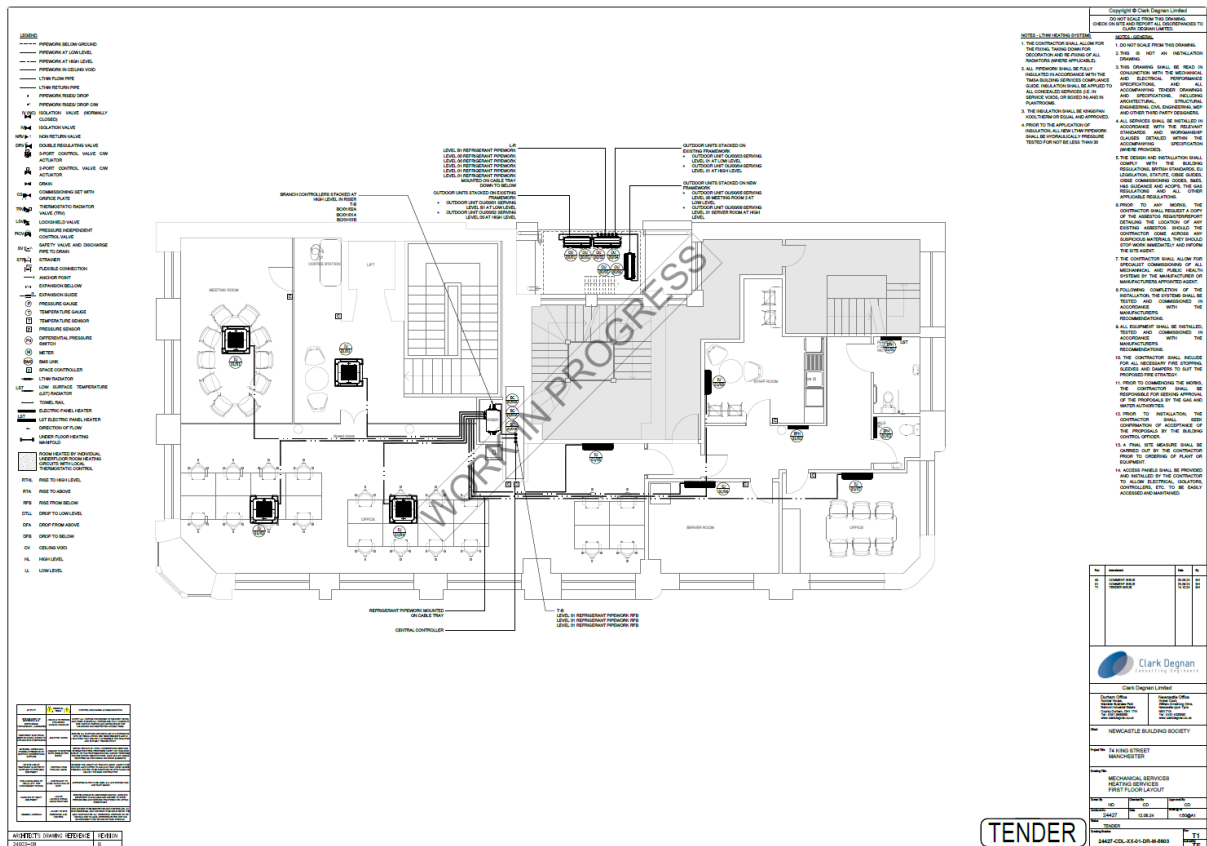
Interpreting the guidance given in BS4142:2014, with consideration of the guidance given in the NPSE and NPPG Noise, an estimation of the impact of the rating sound is summarised in the following text:

- A rating sound level that is +10 dB above the background sound level is likely to be an indication of a Significant Observed Adverse Effect Level;

- A rating sound level that is +5 dB above the background sound level is likely to be an indication of a Lowest Observed Adverse Effect Level;
- The lower the rating sound 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. Where the rating sound level does not exceed the background sound level, this is an indication of the specific sound source having a negligible impact and would therefore be classified as No Observed Adverse Effect Level.

During the daytime, the assessment is carried out over a reference time period of 1-hour. The periods associated with day or night, for the purposes of the Standard, are 07.00 to 23.00 and 23.00 to 07.00, respectively.

Appendix C – Location Plans



Appendix D – Environmental Survey

D.1 – Time History Noise Data

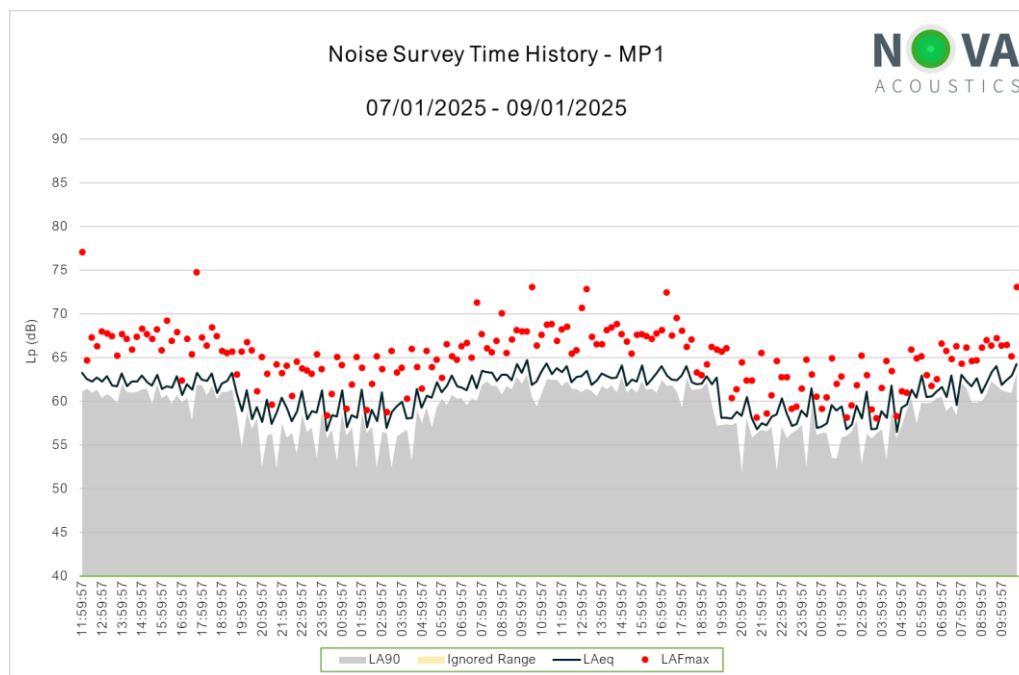


Figure 6 – MP1 Noise Survey Time History

D.2 – Surveying Equipment

Piece of Equipment	Serial No.	Calibration Deviation
Svantek SV971A Class 1 Sound Level Meter	141425	≤0.1
Svantek SV36 Class 1 Calibrator	106876	

Table 4 – Surveying Equipment

All equipment used during the survey was field calibrated at the start and end of the measurement period with a negligible deviation of ≤ 0.1 dB. All sound level meters are calibrated every 24-months and all calibrators are calibrated every 12 months by a third-party calibration laboratory. All microphones were fitted with a protective windshield for the entire measurements period. Calibration certificates can be provided upon request.

D.3 – Meteorological Conditions

As the environmental noise survey was carried out over a long un-manned period no localised records of weather conditions were taken. However, all measurements have been compared with met office weather data of the area, specifically the closest weather station, and the data from the weather station is outlined in the table below. When reviewing the time history of the noise measurements, any scenarios that were considered potentially to be affected by the local weather conditions have been omitted.

The analysis of the noise data includes statistical and percentile analysis and review of minimum and maximum values, which aids in the preclusion of any periods of undesirable weather conditions. The weather conditions were deemed suitable for the measurement of environmental noise in accordance with

BS7445 Description and Measurement of Environmental Noise. The table below presents the average temperature, wind speed and rainfall range for each 24-hour period during the entire measurement.

Weather Conditions – Chorlton (Approx. 4.6km SW of Site)				
Time Period	Air Temp (°C)	Rainfall (mm/h)	Prevailing Wind Direction	Wind Speed (m/s)
07/01/25: 00:00 – 23:59	-0.8 – 2.0	0.0 – 3.0 ^[1]	SSW	0.0 – 3.5
08/01/25: 00:00 – 23:59	-4.3 – 0.3	0.0	ESE	0.0 – 0.1
09/01/25: 00:00 – 23:59	-5.8 – -0.5	0.0	SE	0.0 – 0.5

Notes:

[1] The rainfall was recorded before the survey began (11:31 – 11:36) and was not deemed to have influenced the acoustic climate at MP1.

Table 5 – Survey Weather Conditions

Appendix E – Manufacturers' Data Sheets

Specifications

[Expand all](#)

Overview



Features

5.2kW-1Φ-Mini 4way

Model Name

AC052RNNDKG/EU

Outdoor Unit

AC052RXADKG/EU

Capacity

1.30 / 5.00 / 6.20

Fan (Outdoor Unit)



Sound (Outdoor Unit)



Sound Pressure (Cooling / Heating)
[dB(A)]

48/48

Sound Power (Cooling) [dB(A)]

62

External Dimension (Outdoor Unit)



Specifications

[Expand all](#)

Features



Model Name



Outdoor Unit

AM060NXMDGR/EU

Refrigerant



Noise Level



Sound Pressure

51 dBA

Sound Power

71 dBA

Appendix F – Calculations

The figure below shows the complete specific sound levels calculations based on the following:

- The worst-case NSR window is on the 3rd floor. This has been calculated based on the distance between the fixed plant and the windows and the screening provided by the 1.6m wall adjacent to the gantry where the plant shall be situated.
- Acoustic screening is assumed only for the AM060BXMDGR/EU units, and they are approximately 0.5m from the wall.
- The AC052BXAPKG/EU units will have direct line of sight to the upper floor windows of the closest NSR.
- A Q factor of 8 has been assumed for all units as they will be installed in proximity to three reflective surfaces.
- All plant is assumed to operate continuously over the reference BS4142 daytime period of 1-hour.

Description	Item	Source Term	Parameter	dBA	1/1 Octave Frequency Band (Hz, dB)							
Model / Unit	AC052BXAPKG/EU	Global Lw dBA	Lw	62	63	125	250	500	1k	2k	4k	8k
No. of	2		Typical Spectrum	46	46.5	54.5	48	41.5	39	36.5	33	25
			Corrected Spectrum	62	63	71	64	58	55	53	49	41
Data Type	Manufacturers Data		Total Lw	65	66	74	67	61	58	56	52	44
Source Mitigation Yes												
Description	e.g. Caice Enclosure			65	66	74	67	61	58	56	52	44
Time Corrected Lw of Fixed Plant	On-Time (min)	Time Period	Correction (dB)									
	60	Day	0	65	66	74	67	61	58	56	52	44
Propagation Loss to NSR1 (Point Source)	Distance (m)	Q Factor	Loss (dB)		Shielding (dB)							
	5	8	-16		No							
Specific Sound Level at NSR1				49	50	58	51	45	42	40	36	28

Description		Item	Source Term		Parameter	dBA	1/1 Octave Frequency Band (Hz, dB)							
Model / Unit		AM060BXMDGR/EU	Global Lw dBA	Lw		71	63	125	250	500	1k	2k	4k	8k
No. of		4		Typical Spectrum		46	46.5	54.5	48	41.5	39	36.5	33	25
				Corrected Spectrum		71	72	80	73	67	64	62	58	50
Data Type		Manufacturers Data		Total Lw		77	78	86	79	73	70	68	64	56
Source Mitigation No														
Description		e.g. Caice Enclosure												
Time Corrected Lw of Fixed Plant		On-Time (min)	Time Period	Correction (dB)										
		60	Day	0		77	78	86	79	73	70	68	64	56
Propagation Loss to NSR1 (Point Source)		Distance (m)	Q Factor	Loss (dB)			Shielding (dB)							
		5	8	-16			-5	-5	-5	-5	-6	-7	-9	-11
Specific Sound Level at NSR1						55	57	65	58	52	48	45	39	29

Description	dB(A)											
	63	125	250	500	1k	2k	4k	8k				
AM060BXMDGR/EU	55	57	65	58	52	48	45	39	29			
AC052BXAPKG/EU	49	50	58	51	45	42	40	36	28			
Cumulative Specific Sound Level	56	57	65	59	52	49	46	41	32			



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