

NCP Manchester Sackville
784-B073244

Noise Impact Assessment

LYSANDER ASSOCIATES LIMITED

16th May 2025



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Executive Summary

A noise assessment has been conducted to support a planning application for site alterations at the NCP Sackville carpark, located at Bloom Street, Manchester. The alterations comprise the installation of plant and associated works to facilitate Electric Vehicle charging infrastructure. The assessment indicates that the noise impacts are low in terms of BS 4142:2014 + A1:2019, eliminating the need for specific noise mitigation measures.

The assessment complies with the requirements set by Manchester City Council in terms of industrial and plant noise.

Overall, the assessment concludes that the proposed development will be sufficiently quieter than the existing acoustic environment and thus have a negligible effect on the surrounding environment.

1.0 Introduction

1.1 Purpose of this Report

This report presents the findings of a noise assessment to support a planning application for site alterations at the existing NCP Sackville carpark located at Bloom Street, Manchester. The alterations comprise installation of associated works to facilitate Electric Vehicle (EV) charging infrastructure. A description of the existing noise environment in and around the site is provided. Noise surveys have been undertaken and the results used to verify predictions of the short-term and long-term effects of noise.

A list of acoustic terminology used in this report is provided in Appendix A.

1.2 Legislative Context

This report is intended to provide information relevant to the local planning authority and their consultees in support of a planning application for the above proposed development. Policy guidance with respect to noise is found in the National Planning Policy Framework (NPPF), published in December 2024. With regard to noise and planning, the NPPF contains the following statement at Paragraph 198:

“198. 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 impacts 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 [...]

“200. Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of

development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or ‘agent of change’) should be required to provide suitable mitigation before the development has been completed.

“201. The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.”

Planning Practice Guidance (PPG): Noise provides further guidance with regard to the assessment of noise within the context of Planning Policy. The overall aim of this guidance, tying in with the principles of the NPPF and the Explanatory Note of the Noise Policy Statement for England (NPSE), is to **“identify whether the overall effect of noise exposure is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation.”**

A summary of the effects of noise exposure associated with both noise generating developments and noise sensitive developments is presented within the PPG and repeated below in Table 1.1.

Table 1.1: PPG Noise Exposure Hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
No Observed Effect Level			
Not present	No Effect	No Observed Effect	No Specific Measures Required
No Observed Adverse Effect Level (NOAEL)			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No Specific Measures Required

Perception	Examples of Outcomes	Increasing Effect Level	Action
Lowest Observed Adverse Effect Level (LOAEL)			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level (SOAEL)			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

The PPG also states that neither the NPSE nor the NPPF (which reflects the Noise Policy Statement) expects noise to be considered in isolation, separately from the economic, social and other environmental dimensions of the proposed development.

The NPPF, NPSE and PPG do not, however, present absolute noise level criteria which define NOAEL, LOAEL, and SOAEL which are applicable to all sources of noise in all situations. Therefore, adverse effect levels are thought to be determined on a case by case basis, by a suitably qualified consultant, based on the context of the development and the existing acoustic environment.

1.3 Local & Regional Policy Context

The proposed development lies within the administrative area of Manchester City Council (MCC), therefore the Manchester Local Plan is the overarching local policy relevant to this assessment.

Policy DM1 of the Manchester Core Strategy 2012 to 2027 states:

“Development Management

C. All development should have regard to the following specific issues for which more detailed guidance may be given within a supplementary planning document:

....

Effects on amenity, including privacy, light, noise, vibration, air quality, odours, litter, vermin, birds, road safety and traffic generation. This could also include proposals which would be sensitive to existing environmental conditions, such as noise”

MCC has also produced a guidance document in relation to noise, entitled ‘Planning and Noise Technical Guidance’ (October 2022). The following guidance from the document is applicable to the proposed development:

3.7.1.5 Industrial / commercial developments

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 i.e. prevent ‘noise creep’, 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 a judgement to be made concerning the application and its likely impact on the surrounding area.

In addition to the above, maximum noise levels should also be adequately controlled. Where particular uses generate high noise levels of a short duration (e.g. loud bangs) on a regular basis, these should aim to be controlled so as not to exceed 60 dB (L_{Amax}) at the façade of noise sensitive premises nearby in accordance with the recommendations of the WHO (section 3.6).

Deliveries and collections are usually controlled by restricting operational hours but depending on the extent of these activities, a Noise Management Plan (NMP) may be requested, which would include an assessment of noise. This would usually involve assessing the noise upon arrival, loading/unloading period and then departure.

The NMP may also need to include controls such as acoustically sealed delivery bays, and restrictions on vehicle mounted refrigeration units and audible alarm systems. Where applicable, the noise assessment will take account of multiple noise sources operating simultaneously and report the cumulative impact

1.4 Acoustic Consultants' Qualifications and Professional Memberships

The lead project Acoustic Consultant is Yanko Yankov. The report has been checked and verified by Emily Forster BSc (Hons) AMIOA, Principal Acoustic Consultant. The report has been checked and verified by Pam Lowery, Associate Director - Acoustics.

Yanko has 7 years' experience in noise surveys, modelling and assessment covering a variety of projects including residential, commercial, industrial, transport infrastructure, renewables and entertainment.

Emily has 7 years' experience in environmental noise surveys, modelling and assessments, for residential, industrial, commercial, renewable, health and mineral developments. She completed the IOA Diploma in Acoustics and Noise Control in 2023, where she gained merits in all modules.

Pam has over 23 years' experience in environmental acoustics. She has provided both technical and policy support in the construction and operational assessments of major road, rail and renewable projects for both public and private sector clients in the UK and Ireland. Pam is experienced in data analysis and modelling, as well as preparing submission documents for and participating in the examination of proposed projects.

2.0 Assessment Criteria

Appropriate assessment criteria have been set out based on relevant MCC guidance. In accordance with the MCC Technical Guidance, the rating level of the proposed development should be 5dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location. At this level any plant noise impact should be of a negligible impact which should not give rise to complaints.

It should however be noted that while the MCC threshold will be considered as part of the initial impact assessment, the findings of the noise assessment will be considered in terms of the context of the proposed and existing noise, in line with guidance set out in BS 4142:2014 + A1:2019.

A full bibliography of documents referenced within this report is provided within Appendix B.

3.0 Assessment Methodology

3.1 Noise Modelling Methodology

Three-dimensional noise modelling in SoundPLAN v9.1 has been undertaken based on the monitoring data and data sheets provided by the project team to predict noise levels at nearby noise sensitive receptors. SoundPLAN v9.1 noise modelling software predicts sound levels under light down-wind conditions based on hemispherical sound propagation with corrections for atmospheric absorption, ground effects, screening and directivity based on the procedure detailed in ISO 9613-2¹. Input data and model settings as given in Table 3.1 below have been used.

Table 3.1: Modelling Parameters Sources and Input Data

Parameter	Source	Details
Ground levels – around site	DEFRA	1 m Lidar Composite DTM 2022 Topographical Data
Building heights – around site	Google Earth	Surrounding building heights set at difference between ground level and roof level as shown on Google Earth dated 12/05/2025
Receptor positions*	Tetra Tech	1.5 m for ground floor properties 4.5 m height for first-floor properties 3.0 m per additional storey
Modelling Parameters	Tetra Tech	- Ground Absorption: 0.2 - Order of Reflections: 3
Proposed Plans	Smalley Marsey Rispin Architects	Drawing Title: Ground Level – Floor Plan Drawing No: 7944 - SMR - 05 - ZZ - DR - A - 8001 - S0 - P3

*All receptors modelled 1.0 m from building façade unless otherwise stated.

It is acknowledged that a number of the parameters chosen will affect the overall noise levels presented in this report. However, it should be noted that the values used, as identified above, are considered to be a conservative representation of the site conditions.

¹ ISO 9613-2:2024 'Acoustics – Attenuation of sound during propagation outdoors – Part 2: Engineering method for the prediction of sound pressure levels outdoors'.

3.2 Model Input Data

Information regarding noise emission from the noise sources associated with the proposals has been determined using data provided by the manufacturers and the M&E Engineers involved in the project.

Table 3.2 below presents data for the noise sources considered in the assessment.

Table 3.2: Summary of Noise Input Data (Sound Power Levels)

Noise Source	Type	dB(A) L_w at Octave Band Centre Frequency							Sound Power Level (dB L_{WA})	Source
		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz		
Transformer	Average	-	-	-	-	-	-	-	61	Wilson Power Solutions Data Sheet
Typical Transformer Spectrum	Average	60	82	90	82	93	76	69	94*	Data Library

*spectrum applied and corrected sound power level as provided in Wilson Power Solutions Data Sheet

Incorporated Sound Attenuation

The proposed noise sources are understood to have innate attenuation incorporated into their design. These comprise the housing for the transformer, which is described in further detail below.

Transformer

The GRP enclosure proposed for the transformer is understood to provide an overall sound reduction of 24 dB(A) R_w ² across octave band centre frequencies from 31.5 Hz to 8 kHz, but can achieve up to 35 dB(A) if appropriately designed. To inform a conservative assessment, however, an overall 20 dB R_w has been assumed. The proposed louvred extracts have been assumed to provide 5 dB of attenuation for glancing line of sight screening.

3.3 Modelling Inputs

Table 3.3 below presents the model input information and operational times of the proposed plant, applied to noise data presented within Table 3.2. Rating corrections for any tonality associated with the proposed plant will be applied depending on the noise levels predicted at receptors, as per guidance within BS4142 Section 9.2.

Table 3.3: Modelling Inputs

Noise Source	Height Above Ground Level (m)	Source Type	Operation Time per Reference Period (%)	
			Daytime	Night-Time
Transformer	2.4	Industrial Building	100%	100%

² <https://industrialgrp.co.uk/acoustically-lined-grp-buildings/>

3.4 Sensitive Receptors

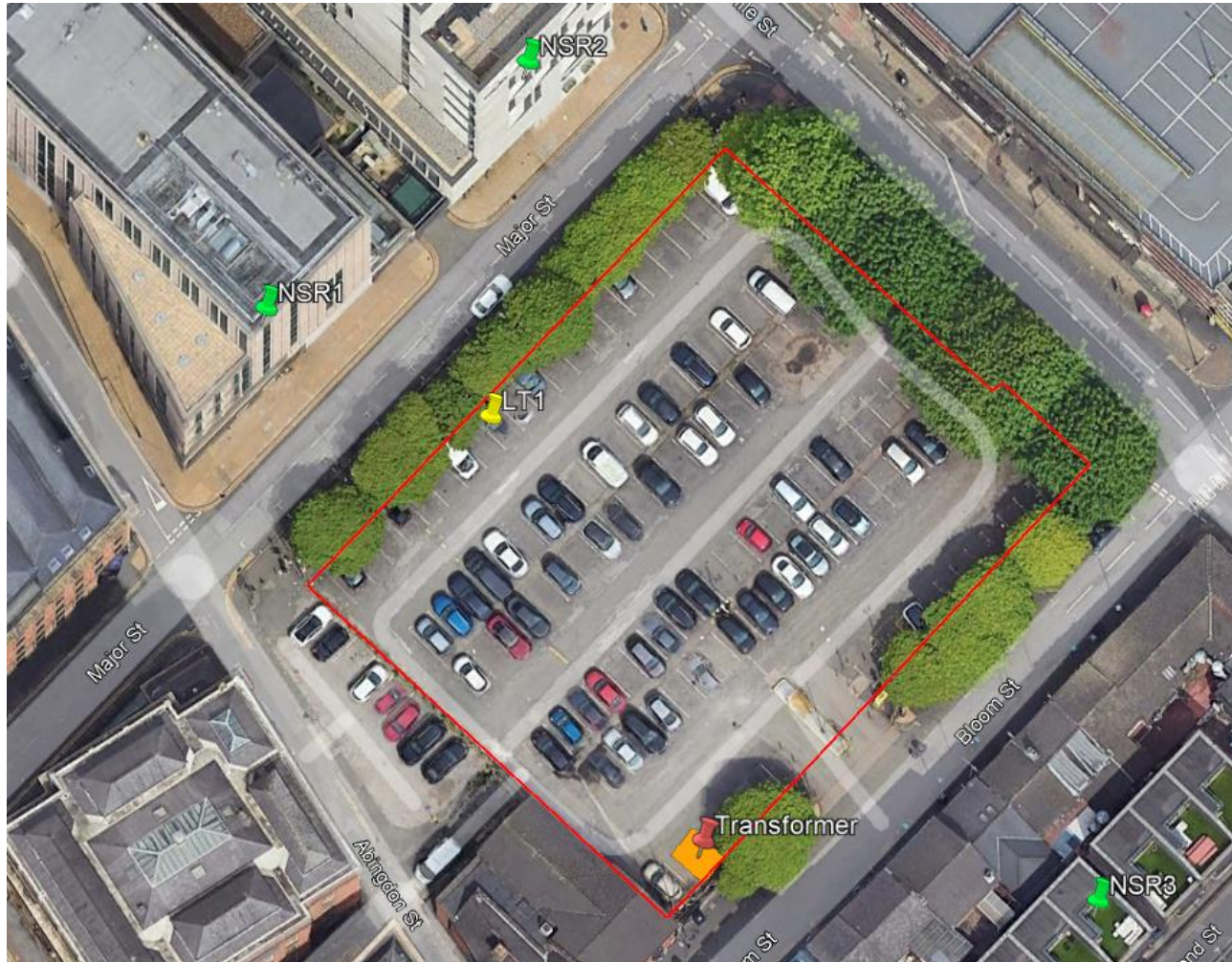
3.4.1 Existing Sensitive Receptor Locations

Table 3.5 below summarises locations that have been selected to represent worst-case noise sensitive receptors (NSRs) with respect to direct noise from the site. Façades of the nearest noise sensitive properties to the development site have been represented. The locations of the receptors are presented within Figure 3.1 below.

Table 3.4: Existing Sensitive Receptor Locations

Ref.	Description	Type of Use
NSR1	voco Manchester	Hotel/Residential
NSR2	Clayton Hotel	Hotel/Residential
NSR3	40-50 Richmond Street	Residential

Figure 3.1: Existing Sensitive Receptor Locations



4.0 Noise Survey

4.1 Noise Survey Details

Attended noise monitoring was carried out to ascertain the existing baseline sound levels across the proposed development site, and at a location representative of the nearest noise sensitive receptors. Noise monitoring was carried out at LT1, on 8th May 2025 during the daytime between 11:18 and 15:00 on 9th May 2025 during the night-time between 02:27 and 04:27. Data gathered during the noise monitoring has been used to establish the existing acoustic environment affecting the nearby NSRs.

Noise monitoring was conducted with a 'Class 1' Rion NL-52 sound level meter (SLM) in accordance with BS 7445-2:1991 '*Description and Measurement of Environmental Noise*'. The SLM was calibrated before and after use, and no significant drift occurred during the measurement period.

Data was logged in A-weighted 100 ms samples at LT1. The data collected was post processed to provide the parameters required in this assessment, including $L_{Aeq,T}$, $L_{A90,15mins}$ and $L_{AF,max}$.

The location was located at the car park boundary, and is considered representative of NSRs. The baseline acoustic environment in this location was dominated by road traffic noise during the day and road traffic and entertainment noise during the night-time.

The noise monitoring locations used to inform this noise assessment are shown in Figure 3.1.

The microphone was mounted on a tripod at 1.2 m above local ground in a free-field, more than 1m from any reflecting surfaces with a WS-15 windscreen attached.

4.2 Meteorological Conditions

No periods of precipitation or wind speeds exceeding 5 m/s were observed during the survey, no periods of unacceptable weather conditions have been excluded from the measurement data.

4.3 Noise Survey Results

Table 4.1 below provides a summary of baseline sound levels measured at LT1 over the survey period.

Table 4.1: Summary of Measured Noise Levels

Monitoring Location	Daytime (07:00 – 23:00)		Night-time (23:00 – 07:00)	
	Residual Noise Levels (dB L _{Aeq,1hr})	Measured Background Sound Levels (dB L _{A90,1hr})	Residual Noise Levels (dB L _{Aeq,15min})	Measured Background Sound Levels (dB L _{A90,15min})
LT1	56 - 63	50 - 54	54 - 57	51 - 52

4.4 Representative Background Noise Levels

BS 4142:2014 + A1:2019 states that there is no “one” background sound level, and the measured background sound levels should be analysed to establish the representative background sound levels. This also complies with the requirements of the Technical Guidance prepared by the MCC, which state the requirement of assessing commercial and industrial noise sources against the typical background sound level. Due to the duration of the survey the lowest measured background sound level has been used for the purpose of this assessment.

The MCC guidance note advises that the noise rating level at the nearest NSRs should be 5 dB below the typical background sound level. This target has been summarised in Table 4.2.

Table 4.2: MCC Sound Emission Level Targets

Assessment Period	Lowest Background Sound Level (dB L _{A90,T})	Rating Level Target (dB(A))
Daytime	50	45
Night-time	51	46

5.0 Assessment of Effects

5.1 Noise Modelling Results

The specific sound levels predicted by the 3D model have informed an assessment in line with the guidance in BS 4142:2014+A1:2019. It has been assumed that the proposed transformer will operate during the daytime and night-time periods. The specific sound levels have been predicted at receptor facades at each floor. The worst-affected floor has been used for the assessment.

Results of the SoundPLAN noise modelling, together with confirmation of any identified acoustic characteristics are summarised in Table 5.1 below.

An analysis has been undertaken of the predicted 1/3-octave frequency data in accordance with 'Annex C – Objective method for assessing the audibility of tones in sound: One-third octave method' of BS 4142:2014+A1:2019. No tonal component was identified during the assessment, therefore no tonal correction has been applied.

The plant is continuous in nature and the plant will not regularly be switched on/off. Therefore, no correction for intermittency or impulsivity has been applied.

The existing acoustic environment consists of traffic noise, therefore noise from the plant might be readily identifiable against the existing acoustic environment, however the residual sound is more than 10 dB above the specific sound therefore no correction for readily identifiable characteristics has been applied in accordance with BS 4142:2014+A1:2019.

Table 5.1: Noise Impact Assessment

Noise Sensitive Receptor	Representative Background Level L_{A90} (dB)	Representative Background Level L_{A90} (dB)	Free-field Specific Sound Level at $L_{Aeq,t}$ (dB)	Character Correction (dB)	Rating level, $L_{Ar,T}$ (dB)	Excess of Rating Level over Representative Background Level (dB)	Excess of Rating Level over Representative Background Level (dB)
	Daytime	Night-time				Daytime	Night-time
NSR1	50	51	21	0	21	-29	-30
NSR2	50	51	20	0	20	-30	-31
NSR3	50	51	10	0	10	-40	-41

As demonstrated within Table 5.1, the results of the assessment indicate that the rating levels at sensitive façades of the NSRs are more than 5 dB below the lowest background sound level. This complies with the requirements of MCC, and therefore no further mitigation measures are required.

When the noise impact of the proposed plant is considered against the background sound levels in accordance with BS 4142:2014 + A1:2019, the exceedance of the rating levels indicates the likelihood of low impact during both the daytime and night-time periods, depending on the context.

5.2 BS 4142:2014 + A1:2019 Context Assessment

British Standard (BS) 4142:2014+A1:2019 – ‘Methods for rating and assessing industrial and commercial sound’ provides a method for rating and assessing the impacts of industrial and commercial sound upon nearby human receptors. The method is applicable to fixed plant installations, sound from industrial and manufacturing process, and other associated activities. BS4142:2014+A1:2019 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 sources exceeds the background sound level and the context in which the sound occurs”*.

It is important that the context of the impacts assessed be considered as part of an assessment in line with BS 4142:2014+A1:2019. The following factors will be considered:

- The absolute sound level;
- The character and level of the residual sound compared to the character and level of the specific sound; and,
- The sensitivity of the receptor.

Absolute Level of Sound

To determine the first context in BS 4142:2014+A1:2019 it is necessary to determine whether the residual and background sound levels are high or low. Section 11 of BS 4142:2014+A1:2019 states:

“Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.

Where residual sound levels are very high, the residual sound might itself result in adverse impacts or significant adverse impacts, and the margin by which the rating level exceeds the background might simply be an indication of the extent to which the specific sound source is likely to make those impacts worse.”

The rating levels at the NSRs are between 13 dB(A) and 24 dB(A) during the daytime and night-time. The lowest background sound level at the NSRs is 51 dB L_{A90} during the night-time period and 50 dB L_{A90} during the daytime period. The rating levels are considered low

and the background sound levels are considered moderate to high during the daytime and night-time periods.

Therefore, the comparison of rating levels to the representative background sound levels shown in Table 5.1 is considered to be an appropriate indication of the noise impact at all receptors.

Character and Level of Residual and Specific Sound

The residual sound at the NSRs comprises road traffic noise from the local road network and entertainment noise during the night-time in the area. The proposed sources of noise are considered to comprise predominantly low to mid frequency noise from the transformers, which is not considered to be very dissimilar in character to that of the residual sound.

The residual sound, as shown in Table 4.1, is between 56 – 63 dB(A) during the daytime, and between 54 – 57 dB(A) during the night-time, while the specific sound level is between 13 – 24 dB(A) at receptors. Therefore, the specific sound from the site is unlikely to be audible at receptors and would have no influence on current residual sound levels in the area (with more than a 10 dB difference between the specific sound and residual sound). This is considered to further reduce the noise impact at the NSRs.

Sensitivity of Receptors

With regard to pertinent factors to be taken into consideration, Section 11 of BS 4142:2014+A1:2019 states:

“The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal design and/or outdoor acoustic conditions, such as:

- i. Façade insulate treatment;*
- ii. Ventilation and/or cooling that will reduce the need to have windows open as to provide rapid or purge ventilation; and*
- iii. Acoustic screening.”*

During the site visit it was observed that NSR1 and NSR2 rely on mechanical ventilation and do not have openable windows. It has been assumed that NSR3 will rely on open windows to maintain sufficient background ventilation. It is generally agreed that an open window

provides 13 dB(A) of attenuation, therefore this allows for a robust assessment of noise levels at receptors. Considering the location of the site, the measured noise levels, and the nature of the nearby receptors, this is considered to be an extremely conservative approach.

During the daytime periods, the residual sound is between 56 – 63 dB(A) and the specific sound level is between 10 and 21 dB(A) at the NSRs. Therefore, it is likely that noise from the proposed development will not be audible at the NSRs during periods.

During the night-time periods, the residual sound is 54 – 57 dB(A) and the specific sound level is between 10 and 21 dB(A) at the NSRs. Therefore, it is likely that noise from the proposed development will not be audible at the NSRs during the night-time.

The predicted specific sound levels during the daytime and night-time periods are below the internal noise guideline levels of 35 dB(A) during the daytime and 30 dB(A) during the night time with reference to BS 8233:2014.

No additional specific mitigation measures are therefore considered to be necessary to protect receptors from commercial noise internally.

BS 4142:2014 + A1:2019 Assessment Summary

A BS 4142:2014+A1:2019 assessment has been undertaken to assess the potential noise impacts due to the proposed development at nearby existing noise sensitive receptors.

Following an initial assessment of the noise impacts, the rating levels predicted at the NSRs are shown to be below the background sound levels by between -29 and -41 dB. This is an indication that **low impact** may occur at all NSRs during both the daytime and night-time periods, depending on context.

When considering the context assessment carried out for the proposals is considered, it is shown that the impact at receptors is likely to remain low than that indicated in Table 5.1. This is considered appropriate and sufficient in national planning terms, and noise should not be considered a material issue.

6.0 Conclusion

A noise assessment has been undertaken in support of a planning application for site alterations at the NCP Sackville carpark, located at Bloom Street, Manchester. The alterations comprise the installation of plant and associated works to facilitate Electric Vehicle charging infrastructure.

Noise generated by the proposed development has been assessed in terms of BS 4142:2014 + A1:2019, and Manchester City Council assessment criteria. The noise assessment has found that noise from the proposed development will comply with Manchester City Council's criteria, and results in a low impact in line with BS 4142.

The NPPF provides test points against which the proposed development has been assessed. Considering these points, the following conclusions can be drawn:

NPPF paragraphs 198 and 201

Based upon the assessments presented, it is considered that the development does not adversely affect or put sensitive receptors at risk from noise pollution, and no significant adverse effects are predicted to occur.

NPPF paragraph 200

Considering the existing use of the site and wider development site, it is not considered that any existing businesses wanting to develop would be restricted by the proposals.

Planning Practice Guidance: Noise

It has been predicted that on-site operational noise effects associated with the Development will be below the NOAEL with proposed mitigation measures in place, and therefore the development will have a negligible impact in relation to noise.

In conclusion, it has been demonstrated that the proposed development is unlikely to give rise to adverse noise impacts at the nearest receptors and thus is unlikely to harm or disrupt the existing residential amenity.

Appendices

Appendix A – Acoustic Terminology

Acoustic Terminology

- dB** Sound levels from any source can be measured in frequency bands in order to provide detailed information about the spectral content of the noise, i.e. whether it is high-pitched, low-pitched, or with no distinct tonal character. These measurements are usually undertaken in octave or third octave frequency bands. If these values are summed logarithmically, a single dB figure is obtained. This is usually not very helpful as it simply describes the total amount of acoustic energy measured and does not take any account of the ear's ability to hear certain frequencies more readily than others.
- dB(A)** Instead, the dB(A) figure is used, as this is found to relate better to the loudness of the sound heard. The dB(A) figure is obtained by subtracting an appropriate correction, which represents the variation in the ear's ability to hear different frequencies, from the individual octave or third octave band values, before summing them logarithmically. As a result the single dB(A) value provides a good representation of how loud a sound is.
- L_{Aeq}** Since almost all sounds vary or fluctuate with time it is helpful, instead of having an instantaneous value to describe the noise event, to have an average of the total acoustic energy experienced over its duration. The L_{Aeq, 07:00 – 23:00}, for example, describes the equivalent continuous noise level over the 16-hour period between 7 am and 11 pm. During this time period the L_{pA} at any particular time is likely to have been either greater or lower than the L_{Aeq, 07:00 – 23:00}.
- L_{Amin}** The L_{Amin} is the quietest instantaneous noise level. This is usually the quietest 125 milliseconds measured during any given period of time.
- L_{Amax}** The L_{Amax} is the loudest instantaneous noise level. This is usually the loudest 125 milliseconds measured during any given period of time.
- L_n** Another method of describing, with a single value, a noise level which varies over a given time period is, instead of considering the average amount of acoustic energy, to consider the length of time for which a particular noise level is exceeded. If a level of x dB(A) is exceeded for, say, 6 minutes within one hour, then that level can be described as being exceeded for 10% of the total measurement period. This is denoted as the L_{A10, 1 hr} = x dB.

The L_{A10} index is often used in the description of road traffic noise, whilst the L_{A90}, the noise level exceeded for 90% of the measurement period, is the usual descriptor for underlying background noise. L_{A1} and L_{Amax} are common descriptors of construction noise.

Appendix B – References

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