KP Acoustics Ltd.
info@kpacoustics.com
1 Galena Road, W6 0LT London, UK
+44 (0) 208 222 8778
www.kpacoustics.com

Nisa Local, Greenbrow Road Wythenshawe

Planning Compliance Report
Report 28490.PCR.01

Sevi Paridar
Nisa Local
376 Greenbrow Road
Wythenshawe
M23 2XQ

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Written by:	Checked by:	Approved by:
Jamie Murray MIOA Principal Acoustic Consultant	**John Cane MSc MIOA** Senior Acoustic Consultant	**Marie Gauthier MIOA** Senior Acoustic Consultant

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1.0 INTRODUCTION

KP Acoustics Ltd has been commissioned by Sevi Paridar, Nisa Local, 376 Greenbrow Road, Wythenshawe, M23 2XQ, to undertake verification noise measurements of an installed plant installation serving the building at Nisa Local, 376 Greenbrow Road, Wythenshawe, M23 2XQ.

Measurements of the plant installation have been undertaken on site to compare against the typical background sound levels previously established by Hepworth Acoustics (P21-507-R02v1, April 2022), in accordance with the requirements of Manchester City Council (MCC).

This report presents the methodology and results from the on-site measurements, followed by calculations to demonstrate compliance with the requirements of Manchester City Council.

2.0 SITE DESCRIPTION

2.1 Site Context

As shown in Figure 2.1, the site is bounded by Simonsway to the north, Greenbrow Road to the west, Deptford Avenue to the south, and a residential care building (Shore Green) to the east. The plant installation area and nearest noise sensitive receptors are shown below.

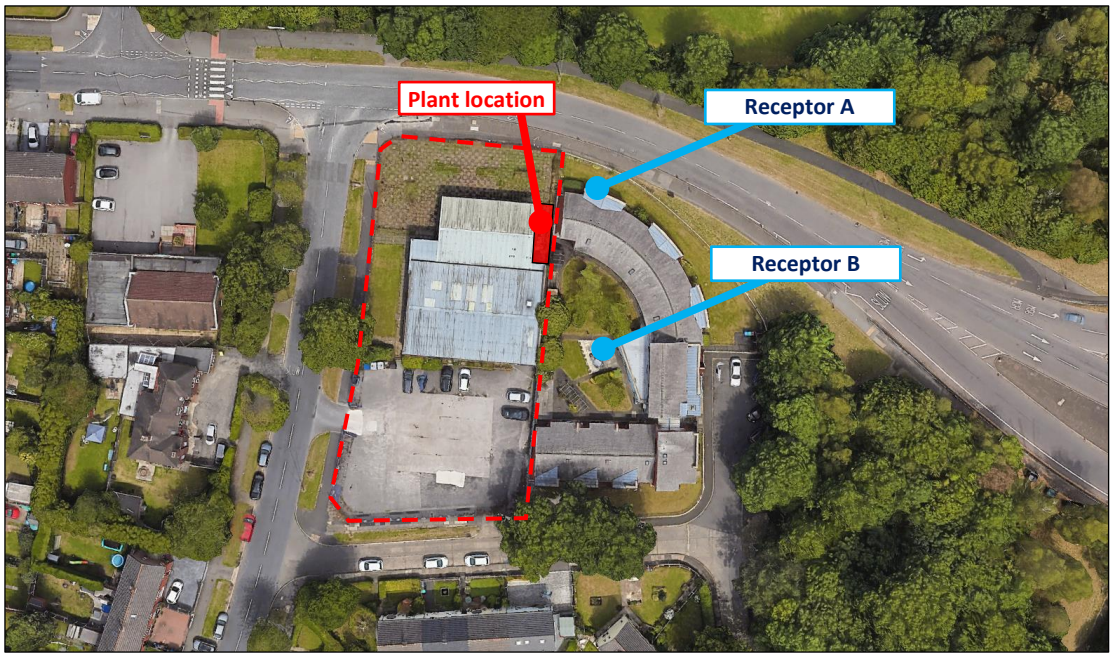


Figure 2.1 Site Location Plan (Image Source: Google Maps)

Note that the windows to the rear of the nearby residential care building (Shore Green) are corridor windows and do not serve noise sensitive spaces. The nearest receptors have therefore been taken as the noise sensitive windows at the front of the building (overlooking Simonsway) and the paved external amenity area to the rear of the building.

2.2 Plant Installation

There are 8No. external heat rejection units located in the area indicated on Figure 2.1, the configuration of the plant area is as shown below in Figure 2.2.



Figure 2.2 Plant unit installation

Herein, each plant item shall be referred to using the references indicated above (A-H).

3.0 NOISE ASSESSMENT GUIDANCE

3.1 Local Authority Guidance

The development falls within the jurisdiction of Manchester City Council (MCC) and has been granted planning permission (135433/FO/2022) with conditions. The relevant condition relating to noise arising from the plant installation is provided below, for reference.

*"**9) a)** Externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB (LAeq) below the typical background (LA90) level at the nearest noise sensitive location. Prior to commencement of the use hereby approved the scheme shall be submitted to and approved in writing by the City Council as local planning authority in order to secure a reduction in the level of noise emanating from the site. The scheme shall be implemented in full before*

the use commences or as otherwise agreed in writing by the City Council as local planning authority.

***b)** Prior to the operation of the scheme a verification report shall be submitted to and approved in writing by the City Council as local planning authority to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic report. The report shall also undertake post completion testing to confirm that the noise criteria have been met. Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the agreed noise criteria.*

***Reason** - To safeguard the amenities of the occupiers of nearby residential accommodation, pursuant to policies SP1 and DM1 of the Manchester Core Strategy."*

3.2 BS4142: 2014 '*Methods for rating and assessing industrial and commercial sound*'

British Standard BS4142:2014 '*Methods for rating and assessing industrial and commercial sound*' describes a method for rating and assessing sound of an industrial and/or commercial nature, which includes:

- Sound from industrial and manufacturing processes
- Sound from fixed installations which comprise mechanical and electrical plant and equipment
- Sound from the loading and unloading of goods and materials at industrial and/or commercial premises, and
- Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes.

This Standard compares the Rating Level due to the noise source/s under assessment for a one-hour period during the daytime (07:00 – 23:00 hours) and a fifteen-minute period during the night-time (23:00 – 07:00 hours) with the existing background noise level in terms of an L_{A90} when the noise source is not operating.

It should be noted that the Rating Level is the Specific Sound Level in question ($L_{Aeq,\ Tr}$), including any relevant acoustic feature corrections, as follows:

- **Tonality** – '*For sound ranging from not tonal to prominently tonal the Joint Nordic Method gives a correction of between 0dB and +6dB for tonality. Subjectively, this can*

be converted to a penalty of 2dB for a tone which is just perceptible at the noise receptor, 4dB where it is clearly perceptible, and 6dB where it is highly perceptible'

- **Impulsivity** – '*A correction of up to +9dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be converted to a penalty of 3dB for impulsivity which is just perceptible at the noise receptor, 6dB where it is clearly perceptible, and 9dB where it is highly perceptible'*
- **Intermittency** – '*If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied'*
- **Other sound characteristics** – '*Where the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied'*

Once the Rating Level has been obtained, the representative background sound level is subtracted from the Rating Level to obtain an initial estimate of the impact, as follows:

- Typically, the greater this difference, the greater the magnitude of the impact
- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context
- A difference of around +5 dB could 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 there will be an adverse impact or significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound having a low impact, depending on the context

NOTE: Adverse impacts may include but not be limited to annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact.

The initial estimate of the impact may then be modified by taking consideration of the context in which the sound occurs.

4.0 ENVIRONMENTAL NOISE SURVEY

An environmental noise survey has been undertaken previously by Hepworth Acoustics (P21-507-R02v1, April 2022) to establish typical background sound levels and has been submitted to MCC as part of the planning submission.

The report established the following typical background sound levels at the nearest receptor and are considered to be reasonably 'worst-case' (i.e. measured during the quietest periods).

Time Period	Typical Background Noise Level
Daytime (07:00-23:00)	50 dB $L_{A90,1hour}$
Night-time (23:00-07:00)	46 dB $L_{A90,15min}$

Table 4.1 Typical background noise levels

The background noise profile at the nearest receptors was dominated by nearby road traffic noise from the nearby motorway.

5.0 POST-COMPLETION VERIFICATION NOISE MEASUREMENTS

The site was attended on 30/04/24 to undertaken on-site noise measurements at 1 m from all plant items (A-H). The plant items were turned on/off one by one, such that only the plant item being measured was operational at any one time.

The equipment calibration was verified before and after use and no abnormalities were observed. The equipment used is described within Table 2.2.

Instrument	Manufacturer and Type	Serial Number
SLM4 Precision integrating sound level meter & analyser	NTi Audio, XL2-TA Calibration No: UCRT23/1957, UCRT23/1965 & UCRT23/1964 Calibration Dates: 20/07/2023 Calibration Due: 19/07/2025	A2A-09207-E0
CAL3 Calibrator 3	Larson Davis CAL200 Calibration No: UCRT23/1949 Calibration Date: 19/07/2023 Calibration Due: 18/07/2024	8932

Table 5.1 Measurement instrumentation

The noise level at 1 m from each plant item (as measured on-site, in-situ) is presented below in Table 5.2. The equipment was observed to operate free from tonality or impulsivity and is understood to operate with smooth ramp on/off periods.

Unit	Sound Pressure Level at 1 m (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
A	58	68	59	53	54	49	44	37	59
B	56	57	55	55	57	50	40	35	59
C	59	58	57	56	57	52	45	40	60
D	71	66	65	60	59	52	45	37	63
E	65	62	61	59	58	53	47	40	62
F	66	63	62	59	59	54	48	41	63
G	65	63	62	60	61	56	50	43	64
H	61	64	62	59	60	54	48	41	63

Table 5.2 Plant noise emissions as measured on-site

6.0 NOISE IMPACT ASSESSMENT

6.1 Assessment Criteria

In accordance with the requirements of Manchester City Council, the following plant noise limits have been considered for each receptor.

Time Period	Plant Noise Emission Limits (ref. MCC)	
	Receptor A	Receptor B
Daytime (07:00-23:00)	45 dB $L_{Ar,1hour}$	45 dB $L_{Ar,1hour}$
Night-time (23:00-07:00)	43 dB $L_{Ar,15min}$	n/a

Table 6.1 Plant noise emission limits

6.2 Assessment Parameters

Considering the layout/configuration of the plant area in relation to the nearest receptors, the following pessimistic screening losses have been considered when calculating the resultant noise level at the nearest receptor. Screening losses have been calculated pessimistically in accordance with ISO 9613-2.

Receptor	Unit(s)	Screening Loss (dB) at Octave Band Centre Frequency (Hz)							
		63	125	250	500	1k	2k	4k	8k
A	A-H	-7	-9	-11	-13	-16	-18	-20	-20
B	A-D	-5	-5	-5	-5	-5	-5	-5	-5
	E-H	None							

Table 6.2 Screening losses calculated in accordance with ISO 9613-2

Losses due to distance have been calculated as follows:

- Receptor A: -18 dB (8 m)
- Receptor B: -26 dB (21 m)

6.3 Calculations

Considering the measured noise level for each plant item presented in Table 5.2 and the losses indicated in Section 6.2, the predicted noise levels at the nearest receptors are presented below with all units running simultaneously.

Unit	Sound Pressure Level at Receptor (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
A	33	41	30	22	20	13	6	-1	28
B	31	30	26	24	23	14	2	-3	27
C	34	31	28	25	23	16	7	2	27
D	46	39	36	29	25	16	7	-1	32
E	39	35	32	28	24	17	9	2	30
F	41	36	33	28	25	18	10	3	30
G	40	36	33	29	27	20	12	4	31
H	36	37	33	28	26	18	10	3	31
Cumulative	**49**	**46**	**41**	**36**	**34**	**26**	**18**	**11**	**39**

Table 6.3 Predicted plant noise level at Receptor A

Unit	Sound Pressure Level at Receptor (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
A	26	37	28	22	23	18	12	6	27

Unit	Sound Pressure Level at Receptor (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
B	25	26	24	24	26	18	9	4	28
C	28	26	26	25	26	20	13	9	29
D	39	34	33	29	27	21	14	6	32
E	38	36	35	32	32	27	21	14	36
F	39	37	35	32	33	28	22	15	36
G	38	36	35	33	34	29	23	16	38
H	35	37	35	33	34	27	21	15	37
Cumulative	**45**	**44**	**42**	**39**	**40**	**34**	**28**	**22**	**43**

Table 6.4 Predicted plant noise level at Receptor B

As demonstrated above, the predicted noise level at the nearest noise sensitive receptors arising from the plant installation complies with the requirements of Manchester City Council.

7.0 CONCLUSION

On-site noise measurements have been undertaken of a plant installation at Nisa Local, 376 Greenbrow Road, Wythenshawe, M23 2XQ to demonstrate compliance with the requirements of Manchester City Council.

The on-site measurements have been used to calculate the noise level at the nearest receptors with all plant running simultaneously. The criteria have been based on measurements by others.

It has been concluded that noise emissions from the plant units would comply with the requirements of Manchester City Council.