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Project:

Waitrose Biggin Hill

Title:

Plant Noise Impact Assessment

quietly moving forward



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1 INTRODUCTION

- 1.01 Environmental Equipment Corporation Limited has been commissioned by John Lewis Partnership to undertake a noise assessment of a number of new plant items serve the existing supermarket premises of Waitrose Biggin Hill.
- 1.02 This noise assessment has been conducted in accordance with the policies and requirements of the London Borough of Bromley (LBB) and is based on a noise survey carried out at the site over a typical weekday period.
- 1.03 This assessment includes:
 - the setting of plant noise limits in accordance with the requirements of LBB and national planning policy, standards and guidance; and
 - the prediction of noise impacts at the worst affected noise sensitive receptors based on the proposed items of plant and their location.
- 1.04 This report is prepared solely for John Lewis Partnership. Environmental Equipment Corporation Limited accepts no responsibility for its use by any third party. Note that the contents contained herein are produced for the purposes of review by relevant Planning Authority departments and do not constitute a detailed design or specification document to be used for the purposes of construction. Subsequent development of noise mitigation schemes shall engage EEC Ltd and John Lewis Partnership so as to support the conclusions of this report.
- 1.05 Whilst every effort has been made to ensure that this report is easy to understand, it is necessarily technical in nature. To assist the reader, an explanation of the terminology used in this report is contained in Appendix A.

2 SITE

- 2.01 Waitrose Biggin Hill is an existing supermarket premises located in a predominantly residential area of Biggin Hill.
- 2.02 This application is for a number of new plant items which are to be located in two plant areas, as presented in Appendix B and in Table 2.1 below.

Plant Reference Number	Plant Model Reference	Plant Area
DAC1	ASL-CAP-EC-143-ECMP-352-H	A – roof top acoustic louvred compound
DAC2	WDAC162DB	B – Waitrose Service Yard
HT3	CUB02 UMT WG T067 MTDX	A – roof top acoustic louvred compound
HT4	CUB02 UMT WG T045 MTDX	A – roof top acoustic louvred compound
HT5	CUB02 UMT WG T030 MTDX	A – roof top acoustic louvred compound
HT6	CUB02 UMT WG T030 MTDX	A – roof top acoustic louvred compound

Table 2: Proposed Plant Items and Installation Locations

2.03 The closest noise sensitive receptors to the proposed plant items in Area A are the following:

- 31 Sutherland Avenue.

2.04 The closest noise sensitive receptors to the proposed plant items in Area B are the following:

- 37 Sutherland Avenue.

2.05 The proposed plant to be installed in Area A on the roof of the store will be enclosed on all sides with three sides being an existing acoustic louvred screen, with a raised parapet wall around the perimeter of the building edge on the fourth side. There will be no direct line of sight to the plant – the minimum insertion loss provided by the acoustic screen will be 10dB.

2.06 The proposed plant to be installed in service yard to the store (Area B) will be screened from the surrounding dwellings by a closed board, continuous timber fence approximately 1,800mm H.

2.07 All other noise sensitive receptors are at a greater distance from the proposed location of the units, or are protected by more screening by the intervening structures, and as such will be subject to lower levels of noise.

3 GUIDANCE

3.01 Local and National Planning Policy for the London Borough of Bromley is presented in Appendix C of this document.

Policy 119 below from the London Borough of Bromley's Local plan (2019) provides guidance on design criteria for noise emissions generated by new fixed plant items to meet.

Noise Pollution

- In order to minimise adverse impacts on noise sensitive receptors, proposed developments likely to generate noise and or vibration will require a full noise/ vibration assessment to identify issues and appropriate mitigation measures.
- In most cases where there is a risk of cumulative impact on background level over time or where an area is already subject to an unsatisfactory noise environment, applicants will be required to ensure that the absolute measured or predicted level of any new noise source is 10dB below the existing typical background LA90 noise level when measured at any sensitive receptor.
- New noise sensitive development should be located away from existing noise emitting uses unless it can be demonstrated that satisfactory living and working standards can be achieved and that there will be no adverse impacts on the continued operation of the existing use.

4 MEASUREMENTS

4.01 Environmental noise measurements were carried out over a weekday period, between 1115 hours on Thursday 18th January 2024 and concluded 1030 hours the following day, to establish the existing noise levels at the site. The survey methodology and results are set out below.

4.02 Noise measurements have been carried out at the following position, as shown in Appendix B and described as:

- Position 1: located at a height of approximately 1.5 metres above ground level in a treeline outside of the boundary of the Waitrose Car Park – the boundary fence screened the measurement location from activity within the Waitrose car park. The measurement was not located within 3.5 metres of any reflecting surfaces, other than the mounting surface.

4.03 This position is considered to be representative of the nearest windows to both plant installation locations.

5 EQUIPMENT

5.01 The equipment used for the survey was as follows:-

- 01dB Fusion Integrating Sound Level Meter conforming to Class 1 BS EN 61672, Type 1 BS EN 60804 & BS EN 60651: 1994;
- GRAS 40CD Condenser Microphone, PRE22 S Pre-amp and Connecting Leads;
- Tripod.

5.02 The equipment holds current accreditation and serial numbers as follows:

Sound Level Meter 01dB Fusion	Serial No.	14014
	Calibration Date	2 nd May 2023
	Cal Certificate No.	U44157
½" Condenser Mic. GRAS 40CD	Serial No.	383172
	Calibration Date	2 nd May 2023
	Cal Certificate No.	44156
Calibrator CAL 31	Serial No.	94723
	Calibration Date	2 nd May 2023
	Cal. Certificate No.	U44155

N.B. Copies of calibration certificates are available upon request.

5.03 The equipment was calibrated both before and after the survey with no difference noted in the levels.

6 RESULTS

- 6.01 The weather during the survey was suitable for noise measurement, it being dry with little wind for the duration of the survey.
- 6.02 Noise sources at the site include local and distant road traffic and some activity noise generated by general use of the supermarket although a lot of this was screened by the boundary fence to the car park. There were no other significant sources of noise during the survey.
- 6.03 A list of the levels measured is included in Appendix D and represented graphically in Appendix E.
- 6.04 A summary of the time averaged ambient levels and lowest measured background levels over the measurement periods are shown in Table 6.1. The minimum L_{A90} is the lowest fifteen-minute measurement in the specified period.

Position	Period	Average $L_{Aeq,T}$ – dB	Minimum L_{A90} – dB
1	Day time (0700-1900 hrs)	51	39
	Evening (1900-2300 hrs)	47	35
	Night-time (2300-0700 hrs)	40	28

Table 6.1: Free-Field Measured Ambient and Lowest Background Noise Levels

7 PLANT ASSESSMENT

- 7.01 This application is for the installation of a number of new plant items to be installed in two existing plant areas.
- 7.02 Based on the standard requirements of LBB and the lowest measured background noise level in each time period, Table 7.1 sets out the recommended noise limits that the proposed items of plant should meet.
- 7.03 In accordance with the requirements of LBB, the proposed noise limits are based on being 10 dB below the measured background noise level.

Location	Period	Measured Existing $L_{A90,T}$	Proposed Noise Limit L_{Ar}
Nos 31 & 37 Sutherland Road	Day	39 dB	29 dB
	Evening	35 dB	25 dB
	Night	28 dB	18 dB

Table 7.1: Suggested Plant Noise Emission Limits Based on Lowest Measured L_{A90} , Free-field dB

- 7.04 Note that the limits suggested above are rating levels and as such any design should take into account the acoustic characteristics of the plant. In this instance the proposed units display none of the characteristics whereby the acoustic correction should be applied.
- 7.05 Assuming the proposed items meet the noise limits set out in Table 7.1 noise will be below the NOEL with respect to the NPPF.
- 7.06 The manufacturer stated sound pressure level measured at a distance of 10m for each item of plant is presented in Table 7.2 below. Copies of the manufacturer's plant data sheets are included in Appendix F. The plant noise levels are based on the plant operating at its maximum capacity.

The plant will be required to operate at any time over a 24 hour period, however it will operate at a reduced capacity overnight that reduces the plant noise levels by at least 3dB.

Plant Reference Number	Manufacturer Stated Sound Pressure Level at 10m
DAC1 (A)	25 dB(A)
DAC2 (B)	33 dB(A)
HT3 (A)	41 dB(A)
HT4 (A)	41 dB(A)
HT5 (A)	41 dB(A)
HT6 (A)	41 dB(A)

Table 7.2: Proposed Plant Items and Installation Locations

Plant Area	Cumulative Sound Pressure Level at 10m
Rooftop Plant Area A	47 dB(A)
Service Yard Plant Area B	33 dB(A)

Table 7.3: Cumulative Sound Pressure Levels at 10m for Each Plant Location

- 7.07 Plant items installed in Area A will be housed with existing acoustic louvred screen, whilst plant items in Area B will be screened by an 1,800mm high closed board timber fence.
- 7.08 Predicted noise levels have been calculated at the closest noise sensitive windows, the top floor windows of Nos 31 and 37 Sutherland Avenue.
- 7.09 Other residential receptors located further from the site will be subject to lower noise levels than those predicted at the above locations.
- 7.10 Tables 7.4 – 7.6 present the results of worst-case plant noise predictions at the worst-case locations.

Plant Area A - Rooftop

Item	Noise Level		Notes
	DAY	NIGHT	
Proposed Plant Items	47 dB(A)	44 dB(A)	Cumulative sound pressure level at 10m 3dB reduction for night set-back
Reflections	0 dB		No additional reflections
Noise Control	- 17 dB		Existing Acoustic Louvred Screen and roof edge
Spherical area Losses from 10 to 27 metres	- 9 dB		Distance to closest window
Resultant Noise Level	21 dB(A)	18 dB(A)	No 31 Sutherland Avenue Top Floor Windows

Table 7.4: No 31 Sutherland Avenue Plant Noise Calculation

Plant Area B – Service Yard

Item	Noise Level	Notes
Proposed Plant Item	33 dB(A)	Sound pressure level at 10m
Reflections	0 dB	No additional reflections
Noise Control	- 7 dB	Open-top, continuous timber fencing
Spherical area Losses from 10 to 50 metres	- 14 dB	Distance to closest window
Resultant Noise Level	12 dB(A)	No 37 Sutherland Avenue Top Floor Windows

Table 7.5: No 37 Sutherland Avenue Plant Noise Calculation

Property	Period	Proposed Noise Limit L_{Ar}	Predicted $L_{Aeq,T}$	Exceedance of noise limit
No 31 Sutherland Avenue	Daytime	29 dB	21 dB	- 8 dB
	Evening	25 dB	21 dB	- 4 dB
	Night-time	18 dB	18 dB	0 dB
No 37 Sutherland Avenue	Daytime	29 dB	12 dB	- 17 dB
	Evening	25 dB	12 dB	- 13 dB
	Night-time	18 dB	12 dB	- 6 dB

Table 7.6: Assessment of Predicted Noise Levels Based on Proposed Noise Limit, Free-field dB(A)

- 7.11 It can be seen from the above tables that the noise limits are not exceeded during any period at either of the identified Noise Sensitive Receivers.
- 7.12 Assuming that the proposed plant is included in the installation, predicted noise levels will meet the requirements of the Local Authority during all periods of operation and at the closest noise sensitive receptors.
- 7.13 With respect to the NPPF, achieving the noise limits would be classified as being below the NOEL.

8 CONCLUSIONS

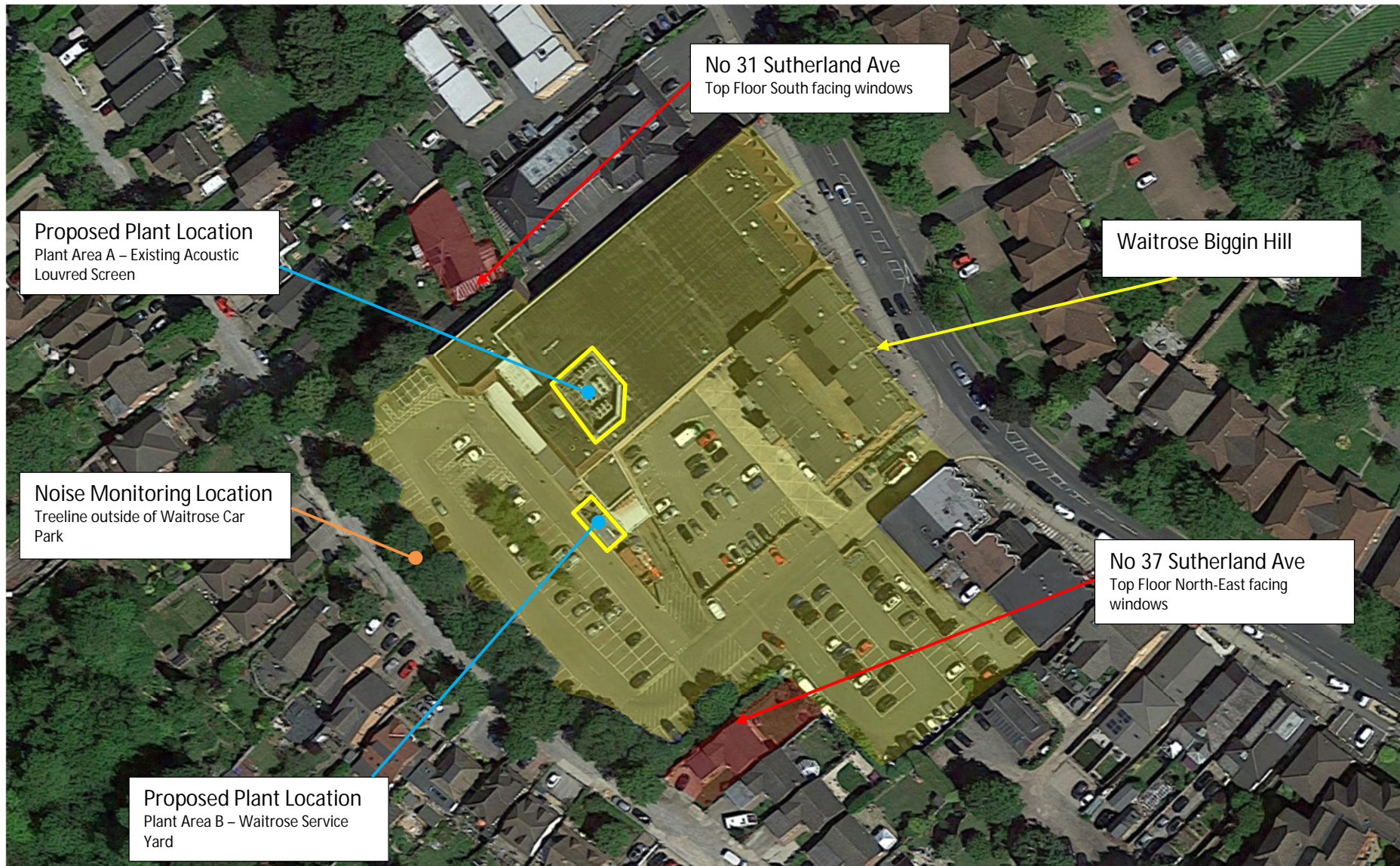
- 8.01 John Lewis Partnership has appointed Environmental Equipment Corporation Limited to undertake a noise assessment for a number of new plant items to serve the existing supermarket premises of Waitrose Biggin Hill.
- 8.02 The assessment has been carried out in accordance with national planning guidance and the requirements of the London Borough of Bromley, and is based on an environmental noise survey conducted at the site over a mid-week period.
- 8.03 A noise assessment has been undertaken to evaluate the potential noise impact of the proposed plant at the closest existing residential receptors.
- 8.04 Plant noise limits have been set based on the methodology contained in BS4142, the results of a background noise survey and the requirements of LBB, to control the noise from the proposed plant items. In accordance with the London Borough of Bromley, the noise limit has been set 10 dB below the lowest measured background noise level.
- 8.05 Predictions have shown that the noise criterion is met at all assessment locations during all periods of operation of the proposed plant items, assuming, the plant is installed in the proposed locations.
- 8.06 Assessing the site in accordance with the principles of the National Planning Policy Framework has shown that predicted noise levels would be below the level at which no effects are observed to occur, the NOEL.
- 8.07 On the basis of this assessment it is considered that noise does not pose a material constraint to the operation of the plant items.

APPENDIX A
GLOSSARY OF TECHNICAL TERMS

ACOUSTIC TERMINOLOGY

Absorption Classes	The sound absorption of a material is rated from Class A to Class E, where Class A materials provide the highest level of sound absorption.
Ambient Noise Levels	Noise levels measured in the absence of noise requiring control, frequently measured to determine the situation prior to the additional of a new noise source.
dB	Decibel. The logarithmic unit of sound level.
dB(A)	A-weighted decibel. The A-weighting approximates the response of the human ear.
$D_{nT,w}$	Weighted standardized level difference. A single number quantity of the sound level difference between two rooms. $D_{nT,w}$ is typically used to measure the on-site sound insulation performance of a building element such as a wall, floor or ceiling. Measured in accordance with BS EN ISO 16283-1 and weighted in accordance with BS EN ISO 717-1.
$D_{n,e,w}$	The weighted element-normalized level difference. A single number rating of the sound reduction provided by a sound passing through an individual element. $D_{n,e,w}$ is typically used to define the sound insulation provided by ventilators. Measured in accordance with BS EN ISO 10140-2:2010 and rated in accordance with BS EN ISO 717-1.
Flanking	Transmission of sound energy through paths adjacent to the building element being considered. For example, sound may be transmitted around a wall by travelling up into the ceiling space and then down into the adjacent room.
Frequency	Sound can occur over a range of frequencies extending from the very low, such as the rumble of thunder, up to the very high such as the crash of cymbals. Sound is generally described over the frequency range from 63Hz to 4kHz, roughly equal to the range of frequencies on a piano.
Impact Sound	Sound produced by an object impacting directly on a building structure, such as footfall noise or chairs scrapping on a floor.
$L_{Aeq,t}$	The equivalent continuous sound level measured in dBA. This is commonly referred to as the average noise level. 't' is the interval time for the measurement. Typically 't' of 16hrs and 8hrs is used for day and night time ambient noise respectively or 't' is defined by the period of interest in BS4142 assessments.
$L_{A90,t}$	The noise level exceeded for 90% of the measurement period, measured in dBA. This is commonly referred to as the background noise level.
$L'_{nT,w}$	Weighted, standardized impact sound pressure level. A single number rating of the impact sound insulation of a floor/ceiling when impacted on by a standard "tapper" machine. The lower the $L'_{nT,w}$, the better the acoustic performance. Measured in accordance with BBS EN ISO 140-7 and rated in accordance with BS EN ISO 717-2.
NR	Noise Rating. A single number rating which is based on the sound level in the octave bands 31.5Hz – 8kHz inclusive, generally used to assess noise from mechanical services in buildings.
Octave Band	Frequencies are often grouped together into octaves for analysis. Octave bands are labelled by their centre frequency which are: 63Hz, 125Hz, 250Hz, 500Hz, 1kHz, 2kHz and 4kHz.
Reverberation Time (T_{mf})	Reverberation time is used for assessing the acoustic qualities of a space. It is defined as the time it takes for an impulse to decay by 60dB. T_{mf} is the arithmetic average of the reverberation time in the mid frequency bands (500Hz, 1kHz and 2kHz).
R_w	Weighted sound reduction index. A single number rating of the sound insulation performance of a specific building element. R_w is measured in a laboratory. R_w is commonly used by manufacturers to describe the sound insulation performance of building elements such as plasterboard and concrete. Measured in accordance with BS EN ISO 10140-2:2010 and rated in accordance with BS EN ISO 717-1.
Sound Absorption	When sound hits a surface, some of the sound energy is absorbed by the surface material. Sound absorption refers to the ability of a material to absorb sound, rated from 0, complete reflection, to 1, complete absorption.
Sound Insulation	When sound hits a surface, some of the sound energy travels through the material. 'Sound insulation' refers to the ability of a material to prevent the travel of sound.
Structure-borne transmission	Transmission of sound energy as vibrations via the structure of a building.

APPENDIX B
SITE PLAN
&
MEASUREMENT LOCATION



APPENDIX C
PLANNING POLICY
AND GUIDANCE

Bromley Local Plan (2019)

7.0.41 The broad approach to reducing potential negative impacts of noise upon people's health and wellbeing has been set out in the Noise Policy Statement for England (DEFRA 2010). The NPSE sets out the Government's vision for a co-ordinated approach to noise policy. It promotes the "effective management" of noise within the context of sustainable development with the following aims:

Avoid significant adverse impacts on health and quality of life

Mitigate and minimise adverse impacts on health and quality of life; and

Where possible, contribute to the improvement of health and quality of life.

7.0.42 The NPSE refers to the World Health Organisation noise impacts levels – from No Observed Effect to Significant Observed Effect – but does not set out actual values for these, acknowledging that this allows for policy flexibility until further evidence and guidance become available.

7.0.43 In turn, the NPPF requires planning policies and decisions to avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development and to mitigate and reduce noise to a minimum. It is recognised that development will often create some noise and that a balance is needed to ensure that existing business should not have unreasonable restrictions put on them because of changes in land use since they were established.

7.0.44 The London Plan states that boroughs should have policies to reduce the adverse impact of noise through the appropriate location of noise producing and noise sensitive uses – that is, uses such as homes, hospitals and day centres - and that any particularly tranquil areas may be afforded extra protection. Development proposals should seek to reduce noise by minimising the existing and potential adverse impacts of noise on, from and within the vicinity of development. New noise sensitive development should be separated from major noise sources wherever practicable through distance, screening or internal layout in preference to sound insulation.

7.0.45 The Mayor's Housing SPG sets out baseline standards for how noise should be managed in new residential development, highlighting the need to consider elements of design that enable the home to become a comfortable place of retreat. The SPG advises, for example, that developments should avoid single aspect dwellings that are exposed to noise levels which affect quality of life and that the layout of dwellings should seek to limit the transmission of noise to sound sensitive rooms.

7.0.46 The Sustainable Design and Construction SPG also outlines practical measures that can be taken to minimise noise being produced and through both engineering solutions, design and layout and management activities. Where noise sensitive uses are proposed, applicants should consider a range of design measures to help mitigate any impacts.

7.0.47 Industry guidance including guidance issued by the Institute of Acoustics in addition to British Standards such as BS8233:2014 and BS4142:2014 provide further details on expected standards in assessment of noise and expected building design and remedial measures.

7.0.48 A risk of cumulative impact on background noise will normally be considered to exist in areas where multiple applications for noise generating sources would be expected over time. This is most likely in High Street locations where ventilation and air condition plant is common and in mixed industrial\commercial and residential areas.

7.0.49 Airborne and impact sound insulation should be appropriate considering the nature of adjoining uses. For restaurants and hot food takeaways adjoining residential dwellings, an airborne insulation of 55dB D'nT,w + Ctr is usually sufficient. Where licensed premises, industrial uses,

places of worship and community halls adjoin residential dwellings, a higher level of sound insulation may be required depending on the likely source noise levels. Where there is doubt over whether the required standard can be met it may be necessary to submit an assessment of existing sound insulation and a scheme of remedial works as part of the application.

7.0.50 In Bromley, the main problems with noise arise from transportation (road and rail), commercial operations (plant such as air conditioning, kitchen ventilation and extraction), industrial activity and from licensed premises. Planning has a role alongside environmental protection legislation to help locate activities appropriately and ensure adequate standards are proposed in new development to minimise future noise problems and reduce existing ones.

National Planning Policy Framework and the Noise Policy Statement for England

The Department for Communities and Local Government published the National Planning Policy Framework (NPPF) on 27th March 2012 (as amended on 20th December 2023) and upon its publication, the majority of planning policy statements and guidance notes were withdrawn, including Planning Policy Guidance 24 Planning and Noise, which previously presented the government's overarching planning policy on noise.

Paragraph 180 in Section 15 of the NPPF, entitled Conserving and enhancing the natural environment, states that:

"Planning policies and decisions should contribute to and enhance the natural and local environment by:

e) 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..."

Paragraph 191 in Section 15 also states that:

"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..."

The Department for Environment Food and Rural Affairs published the Noise Policy Statement for England (NPSE) in March 2010. The explanatory note of NPSE defines the following terms used in the NPPF:

“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.

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

2.21 Extending these concepts for the purpose of this NPSE leads to the concept of a significant observed adverse effect level.

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur.”

The NPSE does not define any of the above effect levels numerically.

The NPSE presents the Noise Policy Aims as:

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

- avoid significant adverse impacts on health and quality of life;
- mitigate and minimise adverse impacts on health and quality of life; and
- where possible, contribute to the improvement of health and quality of life.”

It can be seen that the first two bullet points are similar to Section 11 of the NPPF, with a third aim that seeks to improve health and quality of life. The NPSE later expands on the Noise Policy Aims, stating:

2.23 The first aim of the NPSE states that significant adverse effects on health and quality of life should be avoided while also taking into account the guiding principles of sustainable development (paragraph 1.8).

2.24 The second aim of the NPSE refers to the situation where the impact lies somewhere between LOAEL and SOAEL. It requires that all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development (paragraph 1.8). This does not mean that such adverse effects cannot occur.

2.25 This aim (the third aim), seeks where possible, positively to improve health and quality of life through the pro-active management of noise while also taking into account the guiding principles of sustainable development (paragraph 1.8), 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.”

It is clear that noise described in the NPSE as SOAEL that would lead to significant adverse effects should be avoided, although there is no definition as to what constitutes a significant adverse effect. Similarly, noise should be mitigated where it is high enough to lead to adverse effects, termed the LOAEL, but not so high that it leads to significant adverse effects.

British Standard 4142

To assess the acceptability of the resultant noise levels we have consulted the relevant standards. BS 4142:2014 'Methods for rating and assessing industrial and commercial sound' has been used to assess the likelihood any adverse impacts based on the resultant noise level from the new plant item, including any corrections for the character of the noise against the existing background noise level.

BS4142 gives guidance on assessing the likelihood of adverse impacts by calculating a 'rating level' of the new noise source and comparing its magnitude at noise sensitive locations to the existing or underlying background noise level. The background noise level is subtracted from the 'rating level' to assess the likelihood of complaints:

- The greater the difference the greater the likelihood of complaints.
- A difference of around +10dB or more is an indication of a significant adverse impact, depending on the context.
- A difference of +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 noise level, the less likely it is that the specific sound source will have 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 source having a low sound impact, depending on the context.

This assessment is carried out over a one hour period for the daytime and a fifteen minute period for the night-time. For the purposes of the standard it states that daytime and night-time are typically 07:00 to 23:00 hours and 23:00 to 07:00 hours respectively.

The 'rating level' of the noise source is obtained taking the following factors into consideration:

- The new plant noise (the specific noise) is measured or predicted in terms of L_{Aeq} .
- An additional correction shall be included if the noise contains a distinguishable, discrete continuous note, if the noise contains distinct impulses or if the noise is irregular enough to attract attention. The value for any tonal noise can be an addition of up to 6dB and for impulsive noise of up to 9dB.

BS 4142 goes onto state that:

'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 effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessments and arriving at decisions, therefore, it is essential to place the sound in context.'

BS4142 has been referenced in setting noise limits for any fixed plant proposed as part of the proposed development.

APPENDIX D
SURVEY RESULTS
(TABULAR)

EC 20325 - Waitrose Biggin Hill

Oaksmere Design Limited - Daniel Linton

Tabulated Noise data

Sheet 1 of 1

Time	L _{Aeq}	L _{AMax}	L _{A90}
11:15	51	70	39
11:30	48	74	40
11:45	52	74	40
12:00	49	68	41
12:15	51	74	41
12:30	51	70	43
12:45	53	73	43
13:00	56	82	43
13:15	49	69	42
13:30	45	59	40
13:45	49	77	40
14:00	45	63	40
14:15	49	71	41
14:30	48	66	40
14:45	53	74	42
15:00	49	71	42
15:15	51	74	42
15:30	52	71	41
15:45	48	66	40
16:00	48	68	40
16:15	52	75	42
16:30	51	74	42
16:45	50	71	42
17:00	53	72	41
17:15	47	71	41
17:30	50	65	43
17:45	46	61	43
18:00	52	76	43
18:15	50	73	42
18:30	49	69	41
18:45	51	74	40
19:00	52	72	41
19:15	50	70	39
19:30	46	67	40
19:45	48	69	39
20:00	47	64	40
20:15	45	63	38
20:30	47	69	37
20:45	43	63	37
21:00	46	65	38
21:15	44	59	38
21:30	44	60	40
21:45	46	70	36
22:00	46	78	37
22:15	42	65	36
22:30	46	70	35
22:45	43	69	35
23:00	48	71	36

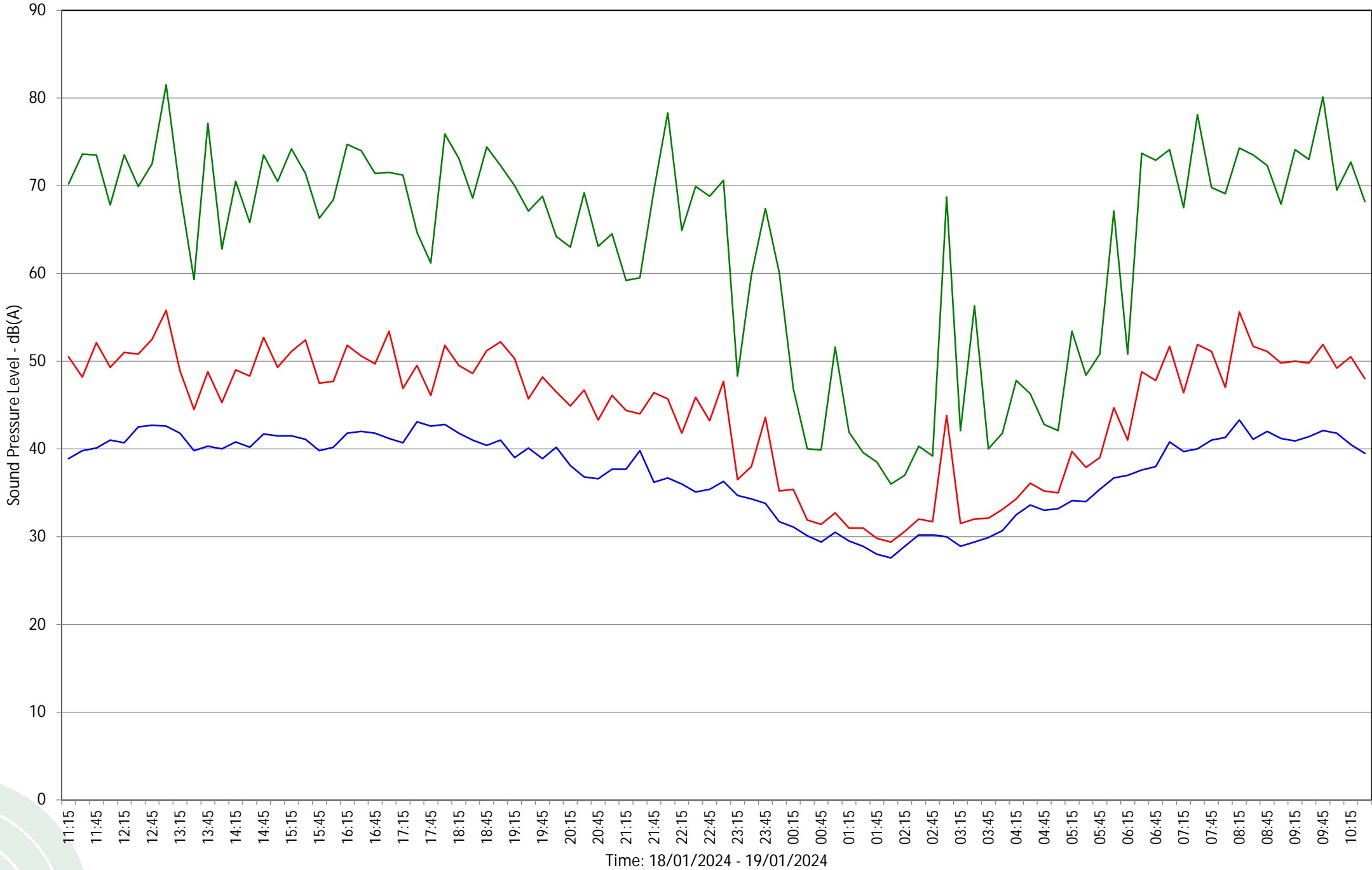
Time	L _{Aeq}	L _{AMax}	L _{A90}
23:15	37	48	35
23:30	38	60	34
23:45	44	67	34
00:00	35	60	32
00:15	35	47	31
00:30	32	40	30
00:45	31	40	29
01:00	33	52	31
01:15	31	42	30
01:30	31	40	29
01:45	30	39	28
02:00	29	36	28
02:15	31	37	29
02:30	32	40	30
02:45	32	39	30
03:00	44	69	30
03:15	32	42	29
03:30	32	56	29
03:45	32	40	30
04:00	33	42	31
04:15	34	48	33
04:30	36	46	34
04:45	35	43	33
05:00	35	42	33
05:15	40	53	34
05:30	38	48	34
05:45	39	51	35
06:00	45	67	37
06:15	41	51	37
06:30	49	74	38
06:45	48	73	38
07:00	52	74	41
07:15	46	68	40
07:30	52	78	40
07:45	51	70	41
08:00	47	69	41
08:15	56	74	43
08:30	52	74	41
08:45	51	72	42
09:00	50	68	41
09:15	50	74	41
09:30	50	73	41
09:45	52	80	42
10:00	49	70	42
10:15	51	73	41
10:30	48	68	40

APPENDIX E
SURVEY RESULTS
(GRAPHICAL)

Noise Level Time History at Waitrose Biggin Hill



— LAeq — LAFmax — LAF90



APPENDIX F
PUBLISHED PLANT NOISE DATA

DRY AIR COOLER (DAC) SELECTION									
STORE RELATED			PLANT SELECTION						
DAC REFERENCE NUMBER	YEAR OF INSTALL	STATUS Existing New	SUPPLIER	DAC MODEL REFERENCE	COASTAL / CORROSIVE ATMOSPHERE	COIL / FIN MATERIAL CONSTRUCTION	APPROXIMATE UNIT WEIGHT INCLUDING FLUID (KG)	UNIT NOISE RATING DB(A) @ 10M	DE
DAC1	2020	EXISTING	CLADE	ASL-ZAP-EC-143-ECMP-352-H	NO	Cu/AlMg	870	25	

DRY AIR COOLER (DAC) SELECTION									
STORE RELATED			PLANT SELECTION						
DAC REFERENCE NUMBER	YEAR OF INSTALL	STATUS Existing New	SUPPLIER	DAC MODEL REFERENCE	COASTAL / CORROSIVE ATMOSPHERE	COIL / FIN MATERIAL CONSTRUCTION	APPROXIMATE UNIT WEIGHT INCLUDING FLUID (KG)	UNIT NOISE RATING DB(A) @ 10M	DE
DAC2	2024	NEW	WEATHERITE	WDAC162DB	NO	Cu/AlMg	2,263	33	

WATER COOLED COLDROOM CONDENSING UNITS (TABLE A)									
STORE RELATED			PLANT SELECTION				INSTALLATION		
PLANT REFERENCE NUMBER	YEAR OF INSTALL	STATUS Existing New Refurbished Offsite Ref.	SUPPLIER	PLANT MODEL REFERENCE	SST (°C)	APPLICATION	APPROXIMATE UNIT WEIGHT (KG)	UNIT NOISE RATING DB(A) @ 10M	DE
HT3	2024	NEW	SCM	CUB02 UMT WG T067 MTDX	-8	MEAT / DELI / FRV	150	41	
HT4	2024	NEW	SCM	CUB02 UMT WG T045 MTDX	-8	MEAT / FRV	150	41	
HT5	2024	NEW	SCM	CUB02 UMT WG T030 MTDX	-5	DAIRY	150	41	
HT6	2024	NEW	SCM	CUB02 UMT WG T030 MTDX	-5	DAIRY	150	41	