

# KR07092

Booker Distribution Warehouse

## Noise Impact Assessment...

**Standard:** British Standard 4142: 2014

**Site:** Booker Distribution Warehouse

**Address:** Hatfield Business Park

Frobisher Way

Hatfield

**Postcode:** AL10 9TR

**Customer:** Tesco Stores Ltd

**Address:** Shire Park

Kestrel Way

Welwyn Garden City

Hertfordshire

**Postcode:** AL7 1GA

**Issue:** Version 1.0

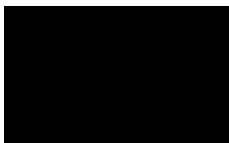
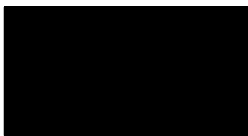
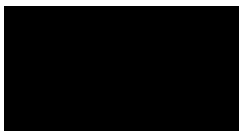
**Date:** 15<sup>th</sup> May 2022

**Status:** Current Document

KR Associates (UK) Ltd

## Quietly confident...

## Revisions...

<b>KR07092</b>	Project	Booker Distribution Warehouse			
	Title	Noise Impact Assessment - Replacement Plant			
	Standard	British Standard 4142: 2014 + A1: 2019			
Issue	Date	Details of Revision			
v1_0	15/05/2022	Description	Report issue for submission to Local Authority		
		Signature			
		Name	Mr. R. Scrivener	Miss N Truman	Mr R Scrivener
		Position	Technical Director	Project Manager	Technical Director

## Disclaimer...

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## KR Associates...

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## Table of Contents....

1. Executive Summary.....	5
1.1. Instruction .....	5
1.2. Executive Summary (Repeated at Section 6).....	5
1.2.1 Assessment Position .....	5
1.2.2 Background Noise Measurements .....	5
1.2.3 Plant Criterion .....	5
1.2.4 Assessment of Noise Levels .....	5
1.2.5 Conclusions .....	5
2. Site Location.....	6
2.1. General Location of Site .....	6
2.2. Key Positions (Source, Assessment & Background).....	7
2.3. Free Field Source Sound Pressure Levels at 10m .....	7
3. Background Noise Levels.....	8
3.1. Weather During Survey .....	8
3.1.1 Wind Speed, Gust and Direction.....	8
3.1.2 Rainfall, Temperature and Dew Point.....	8
3.1.3 Impact of Weather .....	8
3.2. 24-hour Background Measurements.....	9
3.3. Modal Analysis of Background Data.....	9
4. Criterion.....	10
4.1. National Planning Policy Framework 2021.....	10
4.1.1 Scope of Standard.....	10
4.1.2 Conserving and Enhancing the Natural Environment.....	10
4.1.3 Appropriate Development .....	10
4.2. Noise Policy Statement for England: 2010 .....	10
4.2.1 Scope of Standard.....	10
4.2.2 Criterion .....	11
4.3. Night Noise Guidelines (“NNG”).....	11
4.3.1 Recommendation for Health Protection .....	11
4.3.2 Description of Effect of Change in Noise Level .....	11
4.4. British Standard 4142: 2014 + A1: 2019 .....	12
4.4.1 Testing Standard.....	12
4.4.2 Criterion .....	12
4.4.3 Feature Correction.....	12
4.5. Local Authority Requirements.....	13
4.5.1 Local Plan .....	13
4.5.2 Existing Planning Permission .....	13
4.5.3 Proposed Criterion.....	13

5. Calculations of Noise Levels...	14
5.1. ISO 9613 – Part 2:1996	14
5.1.1 Source Directivity ( $D_c$ )	14
5.1.2 Geometric Divergence ( $A_{div}$ )	14
5.1.3 Ground Absorption ( $A_{gr}$ )	14
5.1.4 Atmospheric Absorption ( $A_{atm}$ )	14
5.1.5 Barrier Effect ( $A_{bar}$ )	15
5.2. Calculation of Plant Noise Levels (Day Time 07:00 to 23:00)	15
5.2.1 Day Time (07:00 to 19:00)	15
5.2.2 Night Time (23:00 to 07:00)	15
5.3. Assessment of Average Noise Levels (BS 4142: 2014 + A1: 2019)	15
6. Conclusions	16
6.1. Assessment Position	16
6.2. Background Noise Measurements	16
6.3. Plant Criterion	16
6.4. Background Noise Measurements	16
6.5. Conclusions	16
6.6. Uncertainty	16
7. Appendix A - BS 4142:2014 + A1: 2019 Information to Be Reported..	17
7.1. a) Competency	17
7.2. b) Source Under Investigation	17
7.3. c) Subjective Impression of Source at Assessment Position	17
7.4. d) Existing Contexts	17
7.5. e) Relative Positions	18
7.6. f) Noise Measurement Equipment Calibration	18
7.7. g) Noise Measurement Equipment Operation Test	18
7.8. h) Weather Conditions	19
7.9. i) Date of Measurements	19
7.10. j) Measurement Time Interval	19
7.11. k) Reference Time Interval	19
7.12. l) Specific Noise / m) Background Noise / n) Rating / o) Assessment / p) Conclusions	19

# 1. Executive Summary....

## 1.1. Instruction

KR Associates (UK) Ltd have been instructed by Booker Distribution to undertake an environmental noise survey at the Booker Distribution Warehouse located at Hatfield Business Park in Frobisher Way, Hatfield to determine the underlying background noise levels and a noise criterion for the replacement refrigeration plant proposed to be located in the new ground floor plant compound in the north east corner of the site adjacent to the main building.

## 1.2. Executive Summary (Repeated at Section 6)

### 1.2.1 Assessment Position

There are two noise sensitive properties both of which are around 350m from the proposed plant area. NSP1 is located at 54 Fillingham Way on the south eastern corner of the site and NSP2 is located at 68 Cornflower Way to the east of the north eastern corner of the site.

### 1.2.2 Background Noise Measurements

Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
L <sub>Amax,1h</sub>	L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	L <sub>Amax,1h</sub>	L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	L <sub>Amax,15m</sub>	L <sub>Aeq,15m</sub>	L <sub>A90,15m</sub>
56 – 93 dB	52 – 67 dB	41 – 56 dB	56 – 93 dB	52 – 67 dB	41 – 56 dB	55 – 89 dB	51 – 63 dB	39 – 51 dB
Minimum Background		41 dB	Minimum Background		41 dB	Minimum Background* <sup>1</sup>		35 dB

Note \*1 – It was considered appropriate to use a lower background level.

### 1.2.3 Plant Criterion

The combined sound pressures levels 10m from the edge of the plant area in free field must not exceed the following.

Day Time (07:00 – 19:00)		Evening (19:00 – 23:00)		Night Time (23:00 – 07:00)	
L <sub>Aeq,1h</sub>	60 dB(A)	L <sub>Aeq,1h</sub>	60 dB(A)	L <sub>Aeq,1h</sub>	65 dB(A)

### 1.2.4 Assessment of Noise Levels

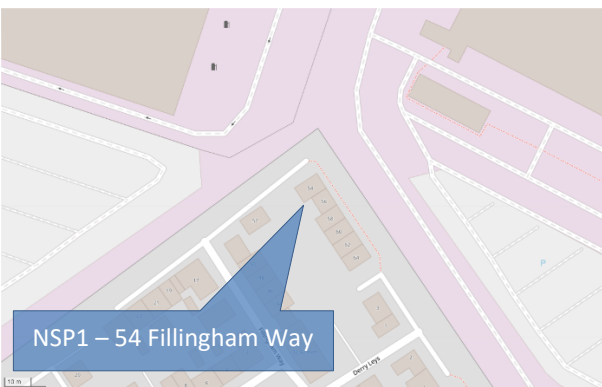
Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	BS4142	L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	BS4142	L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	BS4142
27 dB	41 dB	-14 dB	27 dB	40 dB	-13 dB	22 dB	35 dB	-13 dB

### 1.2.5 Conclusions

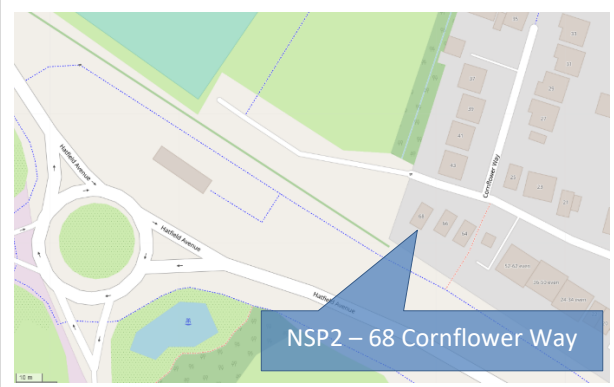
If the proposed replacement mechanical services plant is selected to comply with the plant criterion, then the resultant noise levels at the two nearest noise sensitive properties will be at least 10 dB below the underlying background noise levels and will be unlikely to disturb the residents.

## 2. Site Location...

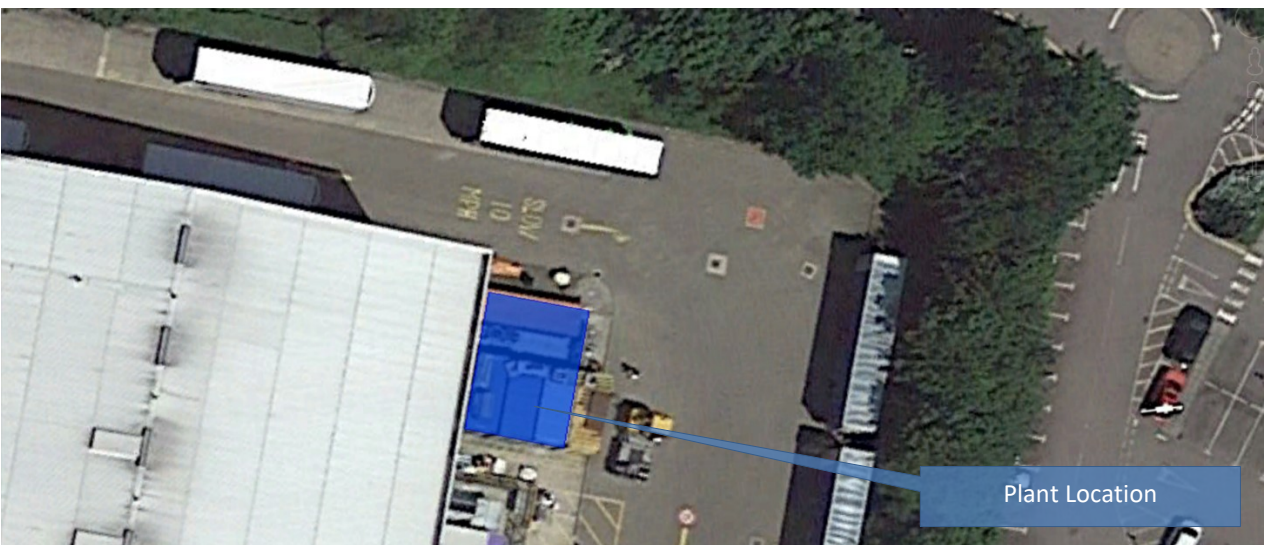
### 2.1. General Location of Site



NSP1 – 54 Fillingham Way



NSP 2 – 68 Cornflower Way



Plant Location – North East Corner of Building

Site Plan (Imagery © Google 2022)

## 2.2. Key Positions (Source, Assessment & Background)



Position	Description	Latitude	Longitude	Elevation
Sources	Plant area in north east corner of the site	51.772855 <sup>0</sup>	-0.246265 <sup>0</sup>	2 m
Assessment 1	NSP1 – 54 Fillingham Way (350m away)	51.769639 <sup>0</sup>	-0.247298 <sup>0</sup>	5 m
Assessment 2	NSP2 – 68 Cornflower Way (350m away)	51.773435 <sup>0</sup>	-0.241158 <sup>0</sup>	5 m
Background	On the boundary of the site	51.772261 <sup>0</sup>	-0.246116 <sup>0</sup>	3 m

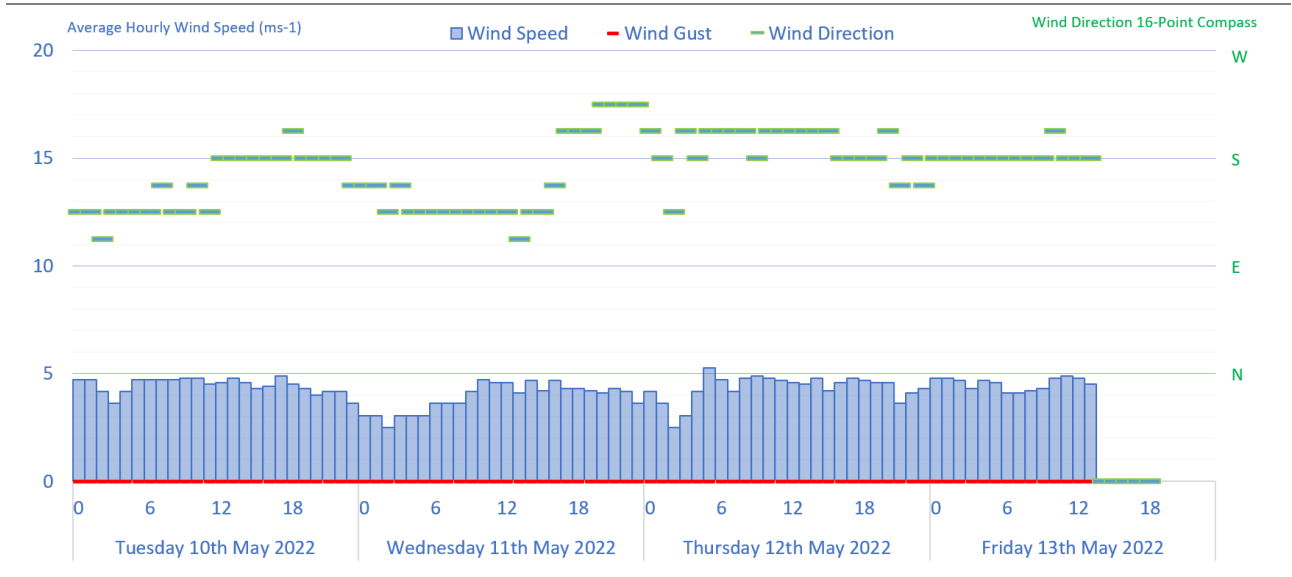
## 2.3. Free Field Source Sound Pressure Levels at 10m

Source	Description of Source	Sound Pressure at 10m – Annex C 13487: 2003		
		07:00 – 19:00	19:00 – 23:00	23:00 – 07:00
Source 1	Mechanical Equipment Criterion (Combined Levels)	L <sub>p(10)</sub> 60 dB	L <sub>p(10)</sub> 60 dB	L <sub>p(10)</sub> 55 dB

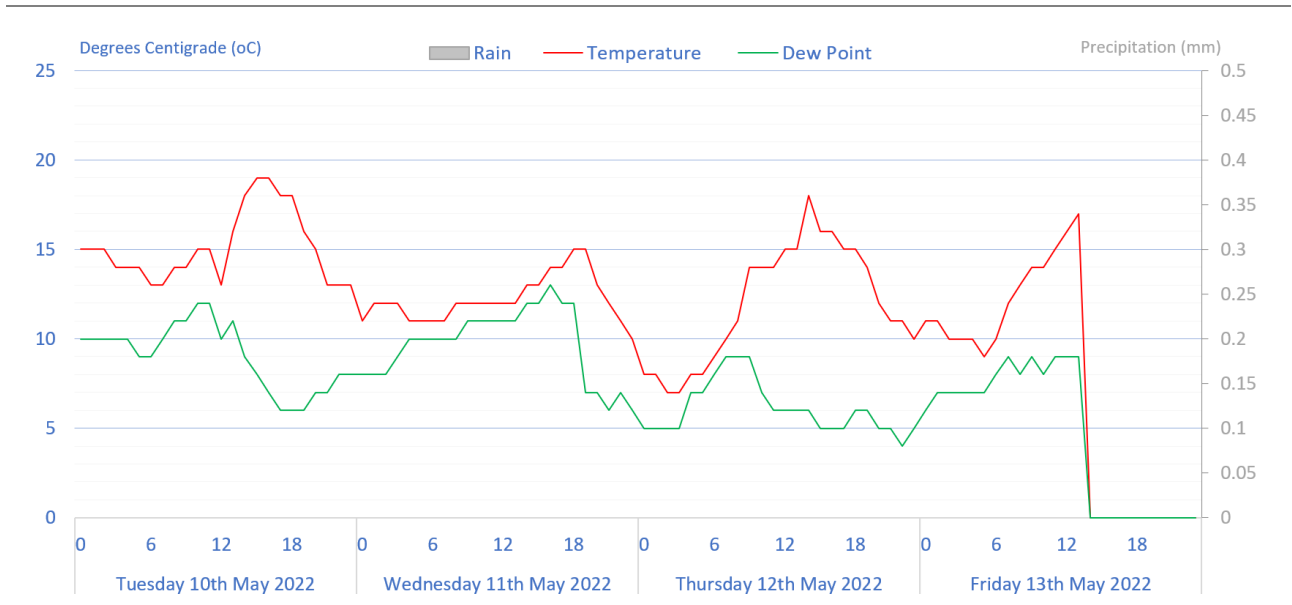
### 3. Background Noise Levels...

#### 3.1. Weather During Survey

##### 3.1.1 Wind Speed, Gust and Direction



##### 3.1.2 Rainfall, Temperature and Dew Point

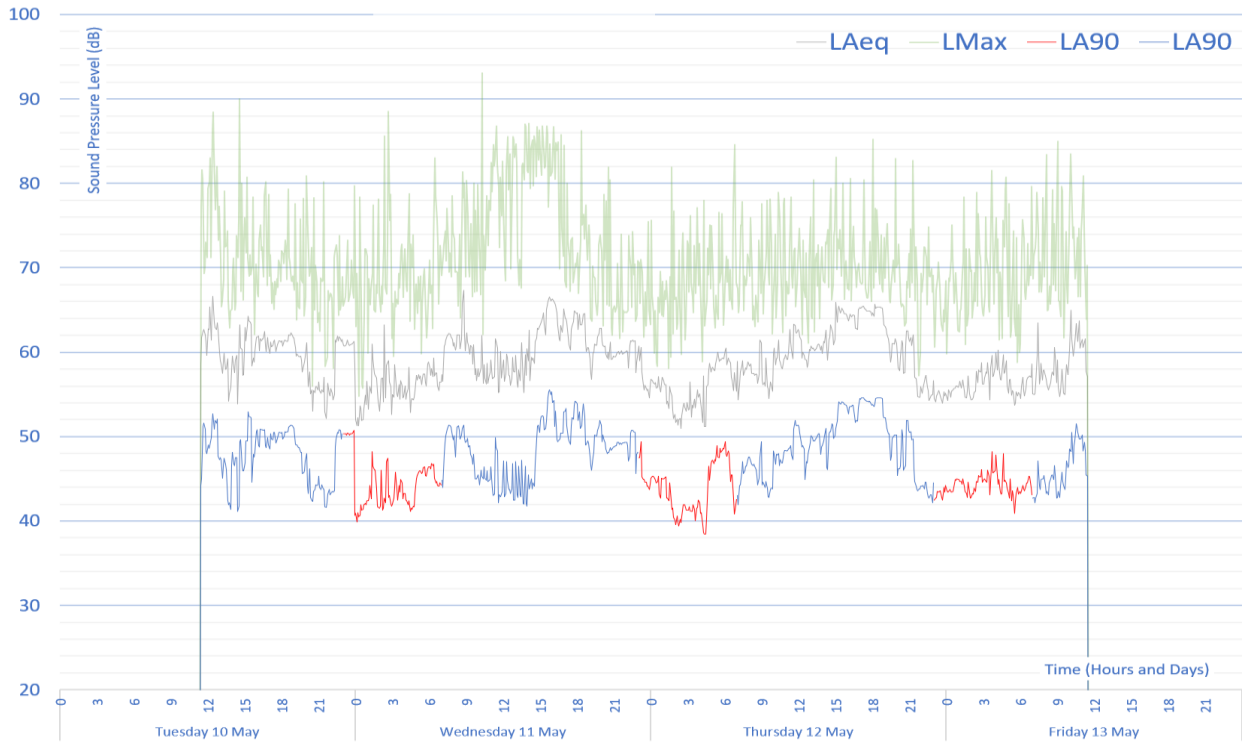


##### 3.1.3 Impact of Weather

An analysis of the background data recorded on site indicates that the prevailing weather did not adversely impact the results. The wind speed was on average below 5.0ms<sup>-1</sup> and there was no precipitation during the survey period.



### 3.2. 24-hour Background Measurements



Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
L <sub>Amax,1h</sub>	L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	L <sub>Amax,1h</sub>	L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	L <sub>Amax,15m</sub>	L <sub>Aeq,15m</sub>	L <sub>A90,15m</sub>
56 – 93 dB	52 – 67 dB	41 – 56 dB	56 – 93 dB	52 – 67 dB	41 – 56 dB	55 – 89 dB	51 – 63 dB	39 – 51 dB

### 3.3. Modal Analysis of Background Data



Day Time (07:00 to 19:00)		Evening (19:00 to 23:00)		Night Time (23:00 to 07:00)	
Standard Deviation ( $\sigma$ )	3.81	Standard Deviation ( $\sigma$ )	2.60	Standard Deviation ( $\sigma$ )	3.48
Modal Value	41 dB	Modal Value	40 dB	Modal Value	35 dB

## 4. Criterion...

### 4.1. National Planning Policy Framework 2021

#### 4.1.1 Scope of Standard

The revised National Planning Policy Framework published in 2021 provides an assumption in favour of sustainable development that meets the three overarching objectives: economic, social, and environmental. Paragraph 11 provides guidance for decision makers:

*“For decision-taking this means:...*

*c) approving development proposals that accord with an up-to-date development plan without delay; or*

*d) ...granting permission unless...*

*i) the application of policies in this Framework... provides a clear reason for refusing development proposed; or*

*ii) any adverse impacts of doing so would significantly and demonstrably outweigh the benefits....”*

#### 4.1.2 Conserving and Enhancing the Natural Environment

Paragraph 174 of the NPPF provides the following guidance on noise:

*“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 ...noise pollution...”*

#### 4.1.3 Appropriate Development

Paragraph 185 of the NPPF requires the development to be appropriate for its location:

*“Planning... decisions should also ensure that new development is appropriate for its location...*

*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;<sup>65</sup>*

*b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value...*

*65 See Explanatory Note to the Noise Policy Statement for England: 2010”*

### 4.2. Noise Policy Statement for England: 2010

#### 4.2.1 Scope of Standard

The Noise Policy Statement for England published in 2010 defines three aims:

*“Avoid significant adverse impact on health and the quality of life.*

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

*Contribute to the improvement of health and the quality of life.”*

#### 4.2.2 Criterion

The NPSE defines significant adverse and adverse impact in terms of noise:

*“LOAEL – Lowest Observed Adverse Effect Level*

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

*SOAEL – Significant Observed Adverse Effect Level*

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

#### 4.3. Night Noise Guidelines (“NNG”)

The European Union and the World Health Organisation published the document “Night Noise Guidelines for Europe” in 2009.

##### 4.3.1 Recommendation for Health Protection

*“Below the level of 30 dB  $L_{night, outside}$  no effects on sleep are observed except for a slight increase in the frequency of body movements during sleep due to night noise.*

*.... 40 dB  $L_{night, outside}$  is equivalent to the lowest observed adverse effect level (LOAEL) for night noise.*

*Above 55 dB the cardiovascular effects become the major public health concern.”*

For reference the  $L_{night, outside}$  is the average outside noise level calculated over an 8-hour period (EU: 2002/49/EC).

##### 4.3.2 Description of Effect of Change in Noise Level

Noise Level Change (dB)	Subjective Response	Significance
0.1 – 2.9	Barely perceptible	Minor Impact
3.0 – 5.9	Noticeable	Moderate Impact
6.0 – 9.9	Up to a doubling of loudness	Substantial Impact
10.0 or more	More than a doubling of loudness	Major Impact

## 4.4. British Standard 4142: 2014 + A1: 2019

### 4.4.1 Testing Standard...

British Standard 4142: 2014 + A1: 2019 provides a method for assessing the likely effects of sound from industrial or commercial nature on *“people who might be inside or outside a dwelling used for residential purposes.”*

### 4.4.2 Criterion

The standard provides 3-levels of impact based on the calculated Rating Levels:

*“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 +5dB is likely to be an indication of an adverse impact, depending on the context.*

*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.”*

### 4.4.3 Feature Correction

It is appropriate to add a character correction where there is a new source that cannot be measured in line with British Standard 4142: 2014 + A1: 2019. The 3 methods for approaching this are the subjective, objective, and reference methods. In this report the subjective method is used.

Section 9.2 Subjective Method	Perceptibility to noise sensitive façades	Correction
Tonality Ranging from not tonal to prominently tonal	Not tonal	+0
	Just perceptible	+2
	Clearly perceptible	+4
	Highly perceptible	+6
Impulsivity Considering both the rapidity and any overall change in sound levels	Not impulsive	+0
	Just impulsive	+3
	Clearly impulsive	+6
	Highly impulsive	+9
Readily Distinctive Characteristic is neither tonal nor impulsive	Is not present	+0
	Is present	+3
Intermittency Identifiable “on/off” conditions	Is not present	+0
	Is present	+3

## 4.5. Local Authority Requirements

### 4.5.1 Local Plan

The Welwyn Hatfield Borough Council Local Plan was fully adopted in 2005 including Saved Policy R19 entitled *“Noise and Vibration Pollution.”*

*“Proposals will be refused if the development is likely:*

- (i) To generate unacceptable noise or vibration for other land uses; or*
- (ii) To be affected by unacceptable noise or vibration from other land uses.*

*Planning permission will be granted where appropriate conditions may be imposed to ensure either:*

- (iii) An adequate level of protection against noise or vibration; or*
- (iv) That the level of noise emitted can be controlled.*

*Proposals should be in accordance with the Supplementary Design Guidance.”*

### 4.5.2 Existing Planning Permission

Planning permission was granted by Welwyn Hatfield Borough Council under reference S6/1991/0223/OP for the *“demolition of existing buildings; redevelopment of land and buildings for purposes within Classes B1, B2 and B8; improvements to Manor Road and provision of associated car and lorry parking”* on 25<sup>th</sup> March 1991.

Another planning permission was granted by Welwyn Hatfield Borough Council under reference S6/1996/0800/FP for the *“erection of regional distribution centre (Class B8) with ancillary offices, vehicle parking and vehicle maintenance unit”* on 9<sup>th</sup> October 1996.

A further planning permission was granted by Welwyn Hatfield Borough Council under reference S6/2010/3155/FP For the *“installation of five diesel powered generators (which are housed in insulated container units) with two number fuel storage containers and one switch gear container and 2.5m acoustic barrier”* on 17<sup>th</sup> June 2011.

### 4.5.3 Proposed Criterion

It would be recommended that the proposed plant noise emissions are 10 dB below the underlying background noise level at the nearest noise sensitive property.

## 5. Calculations of Noise Levels...

### 5.1. ISO 9613 – Part 2:1996

The International Standards Organisation (“ISO”) published ISO 9613 – Part 2: 1996 entitled “*Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculations*” which details the corrections that are required to establish the resultant noise levels of the existing and proposed plant at the assessment position.

#### 5.1.1 Source Directivity ( $D_c$ )

A correction is made to account for the location of the source and the effect of additional reflective surfaces excluding the ground and is contained within section 6 of ISO 9613 - Part 2: 1996.

Number of Surfaces	Correction in dB ( $D_c$ )
1 Reflective Surface	+3 dB
2 Reflective Surfaces	+6 dB
3 Reflective Surfaces	+9 dB

#### 5.1.2 Geometric Divergence ( $A_{div}$ )

A correction is made for the distance between the source and assessment position using the following formula defined in section 7.1 of ISO 9613-Part 2: 1996.

Formula	Symbols
$A_{div} = 20 \cdot \text{Log}_{10} ( d/d_0) +11$	$A_{div}$ = Reduction due to Geometric Divergence (dB) $d$ = Distance from source to receiver (m) $d_0$ = reference distance (1m)

#### 5.1.3 Ground Absorption ( $A_{gr}$ )

A correction is made for the effect of the ground between the source and receiver depending on whether it is considered hard or soft ground.

Type of ground	Correction in dB ( $A_{gr}$ )
Hard Ground	+ 3 dB
Soft Ground	+ 0 dB

#### 5.1.4 Atmospheric Absorption ( $A_{atm}$ )

As the source was less than 100m from the receiver position (assessment position) no correction was made for atmospheric absorption.

### 5.1.5 Barrier Effect ( $A_{bar}$ )

A correction is made for any barrier in the direct line of sight between the source and the assessment position and is detailed in section 7.4 of ISO 9613-Part 2: 1996. For clarity, the  $K_{met}$  meteorological correction has been ignored and  $C_2$  equals 40 and  $C_3$  equals 1.

Formula	Symbols
$A_{bar} = 10 \cdot \log_{10} [3 + (40 \cdot \delta / \lambda) - A_g]$ <p>*Note 1</p> <p>where <math>\delta = a + b - r</math> and <math>\lambda = c / f</math></p>	$A_{bar}$ = Effective barrier attenuation (dB) $A_{gr}$ = Total Ground Absorption (dB) *Note 1: Only apply the $A_{gr}$ correction if $A_{gr} > 0$ $\delta$ = Path difference (m) $a$ = Distance from source to barrier head (m) $b$ = Distance from barrier head to assessment position (m) $r$ = Distance from source to assessment position (m) $\lambda$ = Wavelength of sound (m) $c$ = Speed of sound – Assumed to be 342 ms <sup>-1</sup> $f$ = Octave band centre frequency (Hz)

## 5.2. Calculation of Plant Noise Levels (Day Time 07:00 to 23:00)

### 5.2.1 Day Time (07:00 to 19:00)

Day Time (07:00 to 19:00)		Source	ISO 9613 – Part 2: 1996 Corrections					Assessment
Ref	Description	$L_w$	$D_c$	$A_{div}$	$A_{gr}$	$A_{atm}$	$A_{bar}$	$L_p$
1	Criterion - $L_{p(10m)}$ 60 dB(A)	88 dB	+3 dB	-62 dB	+3 dB	-0 dB	-5 dB	27 dB

### 5.2.2 Night Time (23:00 to 07:00)

Night Time (23:00 to 07:00)		Source	ISO 9613 – Part 2: 1996 Corrections					Assessment
Ref	Description	$L_w$	$D_c$	$A_{div}$	$A_{gr}$	$A_{atm}$	$A_{bar}$	$L_p$
1	Criterion - $L_{p(10m)}$ 60 dB(A)	83 dB	+3 dB	-62 dB	+3 dB	-0 dB	-5 dB	22 dB

## 5.3. Assessment of Average Noise Levels (BS 4142: 2014 + A1: 2019)

BS 4142: 2014	Day Time - 07:00 to 19:00	Evening – 19:00 to 23:00	Night Time – 23:00 to 07:00
Specific Noise Levels	$L_{Aeq,1 \text{ hours}}$ 27 dB	$L_{Aeq,1 \text{ hours}}$ 27 dB	$L_{Aeq, 15 \text{ minutes}}$ 22 dB
Impulsivity Feature	+0 dB	+0 dB	+0 dB
Tonality Feature	+0 dB	+0 dB	+0 dB
Rating Noise Levels	$L_{Aeq,1 \text{ hours}}$ 27 dB	$L_{Aeq,1 \text{ hours}}$ 27 dB	$L_{Aeq, 15 \text{ minutes}}$ 22 dB
Background Noise Levels	$L_{A90,1 \text{ hours}}$ 41 dB	$L_{A90,1 \text{ hours}}$ 40 dB	$L_{A90, 15 \text{ minutes}}$ 35 dB
BS 4142 Assessment	-14 dB (Low Impact)	-13 dB (Low Impact)	-13 dB (Low Impact)
Uncertainty (95% Confidence, k=2)	+/- 1.98 dB	+/- 1.86 dB	+/- 1.95 dB

## 6. Conclusions...

### 6.1. Assessment Position

There are two noise sensitive properties both of which are around 350m from the proposed plant area. NSP1 is located at 54 Fillingham Way on the south eastern corner of the site and NSP2 is located at 68 Cornflower Way to the east of the north eastern corner of the site.

### 6.2. Background Noise Measurements

Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
L <sub>Amax,1h</sub>	L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	L <sub>Amax,1h</sub>	L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	L <sub>Amax,15m</sub>	L <sub>Aeq,15m</sub>	L <sub>A90,15m</sub>
56 – 93 dB	52 – 67 dB	41 – 56 dB	56 – 93 dB	52 – 67 dB	41 – 56 dB	55 – 89 dB	51 – 63 dB	39 – 51 dB
Minimum Background		41 dB	Minimum Background		41 dB	Minimum Background		39 dB

### 6.3. Plant Criterion

The combined sound pressures levels 10m from the edge of the plant area in free field must not exceed the following.

Day Time (07:00 – 19:00)		Evening (19:00 – 23:00)		Night Time (23:00 – 07:00)	
L <sub>Aeq,1h</sub>	60 dB(A)	L <sub>Aeq,1h</sub>	60 dB(A)	L <sub>Aeq,1h</sub>	65 dB(A)

### 6.4. Background Noise Measurements

Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
L <sub>Amax,1h</sub>	L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	L <sub>Amax,1h</sub>	L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	L <sub>Amax,15m</sub>	L <sub>Aeq,15m</sub>	L <sub>A90,15m</sub>
56 – 93 dB	52 – 67 dB	41 – 56 dB	56 – 93 dB	52 – 67 dB	41 – 56 dB	55 – 89 dB	51 – 63 dB	39 – 51 dB
Minimum Background		41 dB	Minimum Background		41 dB	Minimum Background* <sup>1</sup>		35 dB

Note \*1 – It was considered appropriate to use a lower background level.

### 6.5. Conclusions

If the proposed replacement mechanical services plant is selected to comply with the plant criterion, then the resultant noise levels at the two nearest noise sensitive properties will be at least 10 dB below the underlying background noise levels and will be unlikely to disturb the residents.

### 6.6. Uncertainty

Day Time (07:00 – 19:00)	Evening (19:00 – 23:00)	Night Time (23:00 – 07:00)
+/-1.98 dB (k=2, 95% Confidence)	+/-1.86 dB (k=2, 95% Confidence)	+/-1.95 dB (k=2, 95% Confidence)



## 7. Appendix A - BS 4142:2014 + A1: 2019 Information to Be Reported...

### 7.1. a) Competency

	Name	Role	Competency
1)	Mr. R. Scrivener	Director	Master of Science Degree in Acoustics and Noise Control (MSc) Member of the Institute of Acoustics (MIOA)

### 7.2. b) Source Under Investigation

	Source Number	Description		
1)	Source 1	Mechanical Equipment Criterion		
	Description of Source	Source Location	Hours of Operation	Mode of Operation
	Source 1	North east corner of the site	24-hour	Continuously on Demand
	Description of Operation	Period	Conditions	Load
2)	All Sources	Day Time (07:00 to 19:00)	Ambient Temp 32°C	Maximum Load (100%)
3)		Evening (19:00 to 23:00)	Ambient Temp 28°C	Part Load (60%)
4)		Night Time (23:00 to 07:00)	Ambient Temp 24°C	Part Load (40%)
5)	Description of Premises	Booker Distribution Centre		

### 7.3. c) Subjective Impression of Source at Assessment Position

1)	Dominance	Source will not be dominant at residential facade
	Audibility	Source will not be audible at residential facade
2)	Residual Noise Sources	Residual noise due to local road traffic

### 7.4. d) Existing Contexts

	Type of Receptor	Period	Sensitivity	Description
1)	Residential	Day Time (07:00 to 19:00)	Low	Noise can disturb outside amenity space and internal living space
		Evening (19:00 to 23:00)	Moderate	Noise can interrupt people trying to get to sleep
		Night Time (23:00 to 07:00)	High	Noise can disturb sleeping

## 7.5. e) Relative Positions

1)	Assessment Position	NSP1 – 54 Fillingham Way (350m away) NSP2 – 68 Cornflower Way (350m away)		
		BS 4142:2014 Criteria	Details	Compliance with Criteria
		Section 6	1.0m from façade (external)	Position is valid
2)	Source Measurement	The source sound power levels were supplied by the client. It is believed the sound power levels were established in accordance with BS EN 13487:2003.		
	Justification	The client supplied the noise levels for the proposed plant.		
3)	Background Position	On the boundary of the site		
	Justification	BS 4142:2014 Criteria	Details	Compliance with Criteria
		Section 6.2	3.5m to any reflecting surface	Complies
		Section 6.2	Height 1.2m to 1.5m	Complies
		Section 6.2	1 <sup>st</sup> floor 1m to facade	Not applicable
		Section 6.2	Measurement Height	3.5m
			Distance to Reflecting Surface	1.0m
To record remote background levels, the noise meter had to be left in a secure position. The position represented the assessment position within the constraints of the site.				
4)	Topography, surfaces etc.	Hard and Flat		
5)	Relative Distances	The plant is located approximately 350m from both assessment positions		
6)	Dimensioned sketch	See maps and images.		

## 7.6. f) Noise Measurement Equipment Calibration

1)	Type	Sound Level Meter	Microphone	Calibrator
		KRE/07- CEL 633.C1	KRE/07/01 - CEL 251	KRE/07/04 - CEL 120/1
2)	Manufacturer	Casella	Casella	Casella
3)	Serial Number	2206846	00093	5230902
4)	Certificate Number	Certificate: U36899	Certificate: U36899	Certificate: U36897
	Calibration Date=	27th January 2021	27th January 2021	27th January 2022

## 7.7. g) Noise Measurement Equipment Operation Test

1)	Ref. Level of Calibrator	94 dB
2)	Meter Reading Before	94 dB – Meter operation checked. Meter in good working order.
	Meter Reading After	94 dB - Meter operation checked. Meter in good working order.

## 7.8. h) Weather Conditions

1)	Wind Speed	See weather information
	Wind Direction	
2)	Temperature Inversion	Unlikely to have occurred
3)	Precipitation	None – See section 3.1
4)	Fog	None
5)	Wet Ground	Not within the measurement period – See section 3.1
6)	Frozen Ground or Snow	Not within the measurement period – See section 3.1
7)	Temperature	See section 3.1
8)	Cloud Cover	Partly Cloudy

## 7.9. i) Date of Measurements

1)	Source Measurements	Unknown
	Background Measurements	10/05/2022

## 7.10. j) Measurement Time Interval

1)	Source Measurements	T <sub>m</sub> = 15 minutes	
	Background Measurements	Day Time (07:00 to 19:00)	T <sub>m</sub> = 12 hours
		Evening (19:00 to 23:00)	T <sub>m</sub> = 4 hours
		Night Time (23:00 to 07:00)	T <sub>m</sub> = 8 hours

## 7.11. k) Reference Time Interval

1)	Reference Time Interval	Day Time (07:00 to 19:00)	T <sub>r</sub> = 1 hour
		Evening (19:00 to 23:00)	T <sub>r</sub> = 1 hour
		Night Time (23:00 to 07:00)	T <sub>r</sub> = 15 minutes

## 7.12. l) Specific Noise / m) Background Noise / n) Rating / o) Assessment / p) Conclusions

These details are all included within the body of the report and are not replicated within this section.

## END OF REPORT (1<sup>st</sup> and last page not numbered) ##

KR Associates (UK) Ltd  
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