

KR07818

Tesco Superstore Holbeach

Noise Impact Assessment...

Standard: British Standard 4142: 2014

Site: Tesco Superstore Holbeach

Address: Boston Road South

Holbeach

Spalding

Lincolnshire

Postcode: PE12 7LR

Customer: Tesco Stores Ltd

Address: Shire Park

Kestrel Way

Welwyn Garden City

Hertfordshire

Postcode: AL7 1GA

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KR Associates (UK) Ltd

Quietly confident...

Revisions...

KR07818		Project	Tesco Superstore Holbeach		
		Title	Noise Impact Assessment - Proposed Replacement Plant		
		Standard	British Standard 4142: 2014 + A1: 2019		
Issue	Date	Details of Revision			
v1_3	26/06/2025	Description	Report issue for submission to Local Authority		
		Signature			
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KR Associates...

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1. Executive Summary....

1.1. Instruction

KR Associates (UK) Ltd have been instructed by Tesco Stores Ltd to undertake an environmental noise survey at the Tesco Superstore located at Boston Road South in Holbeach. The Tesco Planning Application Team have submitted a planning application to South Holland District Council with the following development description.

"Plant unit replacement for decarbonisation at Tesco Store, Boston Road South, Holbeach."

To validate the application South Holland District Council have requested a noise impact assessment to demonstrate that the noise emissions comply with the local development plan and all other material considerations.

1.2. Outline of Proposal

As part of the commitment by Tesco to achieving net zero emissions in all group operations by 2035 and across the full value chain by 2050, significant upgrades are being implemented across their estate. This includes the removal of fossil fuel-based systems and a transition to renewable and low carbon energy technologies.

The proposal at the Tesco Superstore at Holbeach is to decommission the existing gas-fired systems currently providing heating and hot water and replace them with air source heat pumps (ASHP) and direct electric systems. The electricity for both systems will be sourced from 100% renewable energy, in line with Tesco's group-wide procurement strategy. A heat recovery system for the ancillary areas will be installed to further reduce energy consumption and associated carbon emissions. The system will include the following noise generating components located on the northern boundary of the site adjacent to the existing three refrigeration packs and condensers.

- Single EcoAir EAB 8000 LPHW 180 kW air handling unit.
- Single Topex SR50 heat recovery unit for the toilets and offices.
- Three Eco Airbox EHP R290 1500 G2 100 kW air source heat pumps.
- Three existing refrigeration packs and condensers providing cooling to cabinets, colds rooms and freezers.

1.3. Scope of the Report

The South Holland District Council adopted the South East Lincolnshire Local Plan in March 2019 including Policy 30 entitled *"Pollution."* which requires that noise and vibration from proposed developments do not have an adverse impact on existing residential dwellings.

The report will use the methodology detailed within British Standard 4142:L 2014 + A1: 2019 entitled *"Method for rating and assessing industrial and commercial sound"* to determine the initial impact of the proposal on the existing residential dwellings.

Additional information is provided within Appendix B about the nearest residential dwelling.

1.4. Executive Summary (Repeated at Section 6)

1.4.1 Assessment Position

The rear of the nearest residential dwelling at 36 Boston Road South is located between 25 m and 30 m from the dedicated plant area at the rear of the store where the replacement heating and hot water system will be installed.

1.4.2 Background Noise Measurements

Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
L _{Amax,1h}	L _{Aeq,1h}	L _{A90,1h}	L _{Amax,1h}	L _{Aeq,1h}	L _{A90,1h}	L _{Amax,15m}	L _{Aeq,15m}	L _{A90,15m}
62 - 81 dB	53 - 64 dB	47 - 52 dB	59 - 76 dB	49 - 60 dB	44 - 51 dB	42 - 81 dB	32 - 63 dB	29 - 49 dB
Modal Background		47 dB	Modal Background		44 dB	Modal Background		33 dB

1.4.3 Criterion at Assessment Position

To comply with policy 30 entitled “Pollution” within the South Holland District Council Local Plan, the resultant noise levels at the nearest residential dwellings should not exceed the underlying background noise levels when assessed in accordance with British Standard 4142: 2014 + A1: 2019.

1.4.4 Mitigation Measures

The calculations have assumed the existing 3.5m high acoustic screen running along the northern boundary of the plant area will be retained in its current location.

1.4.5 Assessment of Noise Levels

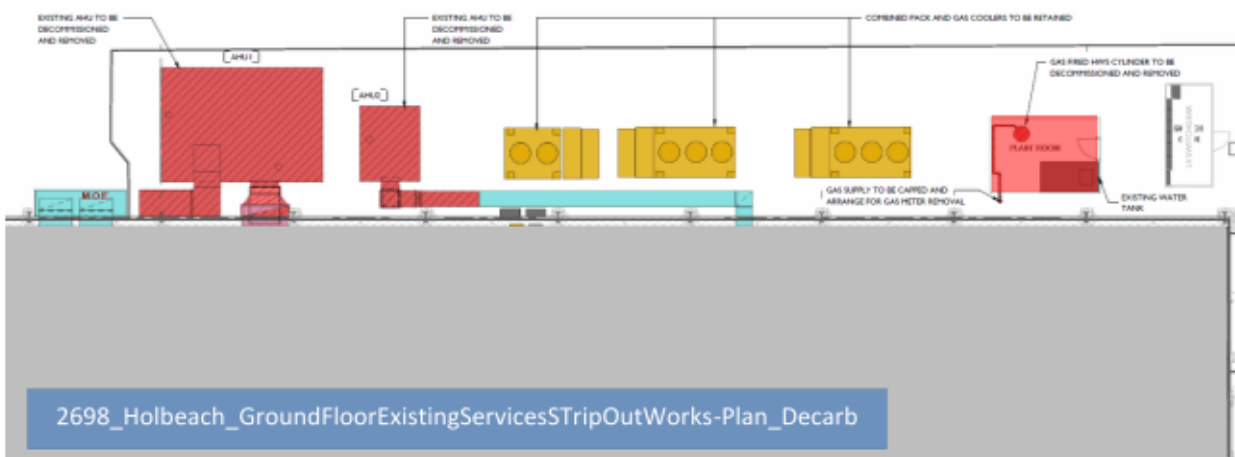
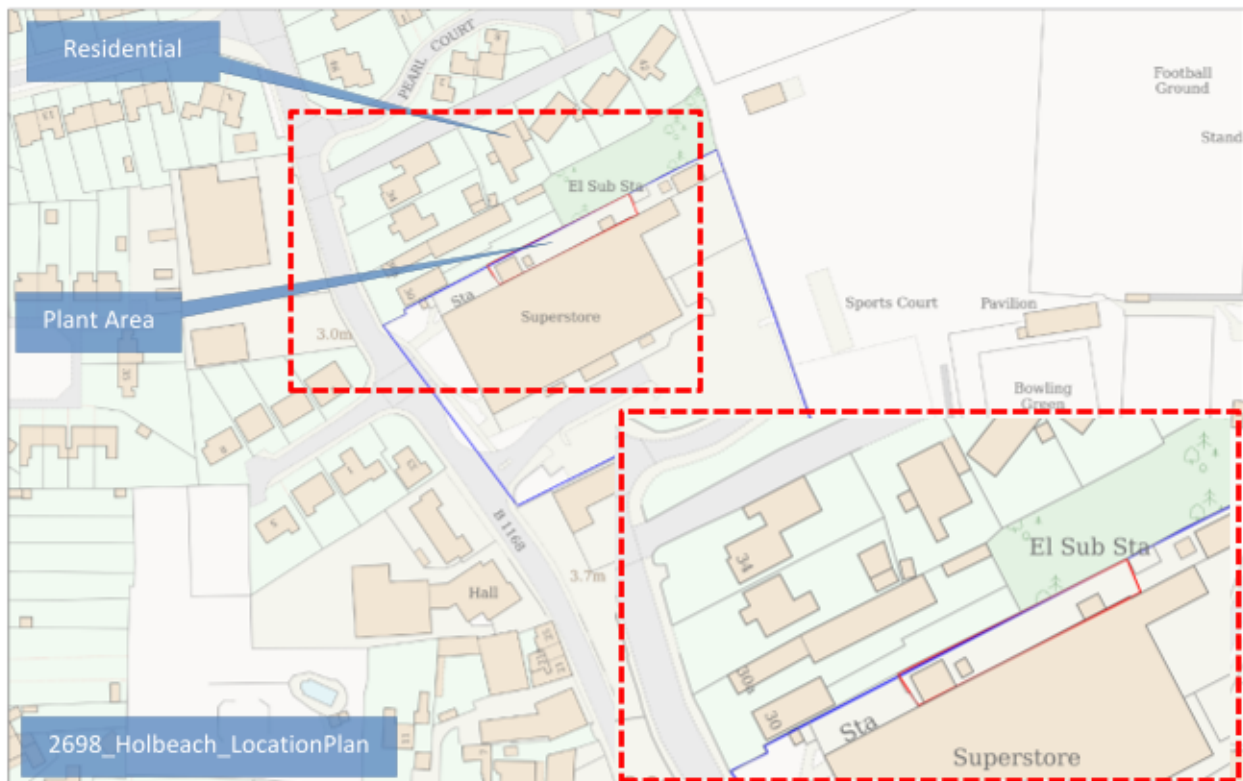
Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
L _{Aeq,1h}	L _{A90,1h}	BS4142	L _{Aeq,1h}	L _{A90,1h}	BS4142	L _{Aeq,1h}	L _{A90,1h}	BS4142
28 dB	47 dB	-19 dB	28 dB	44 dB	-16 dB	28 dB	33 dB	-5 dB

1.4.6 Conclusions

The resultant noise levels from the replacement plant providing heating and hot water to the store will result in noise levels that comply in full with policy 30 to the South Holland District Council Local Plan and are at levels that are very unlikely to give rise to complaints from residents.

2. Site Location...

2.1. General Location of Site



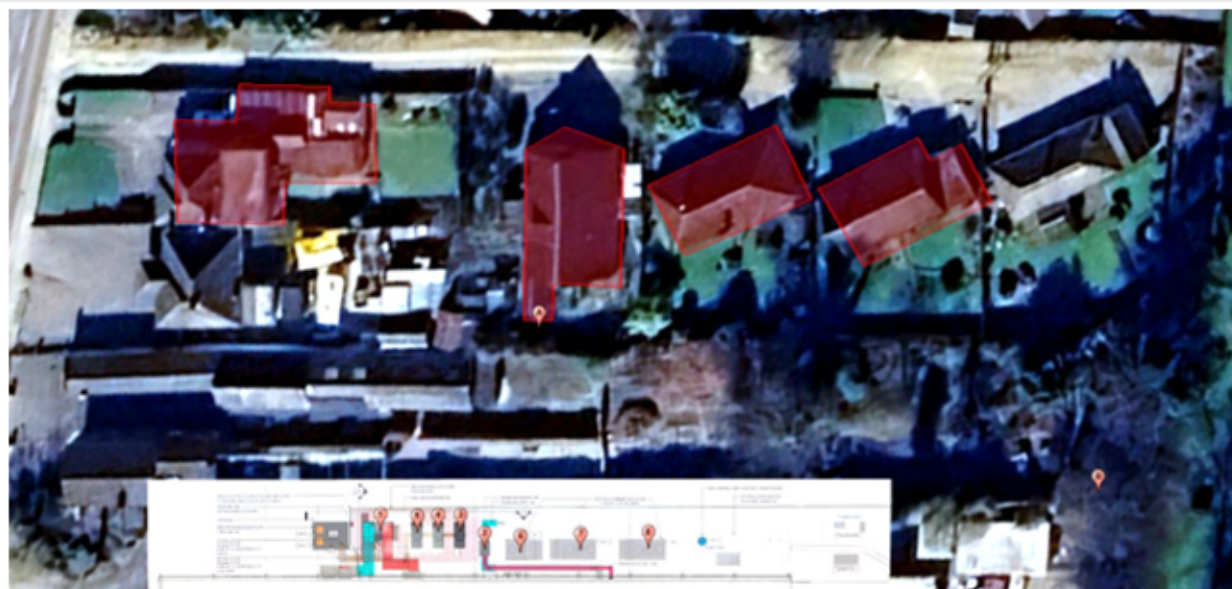
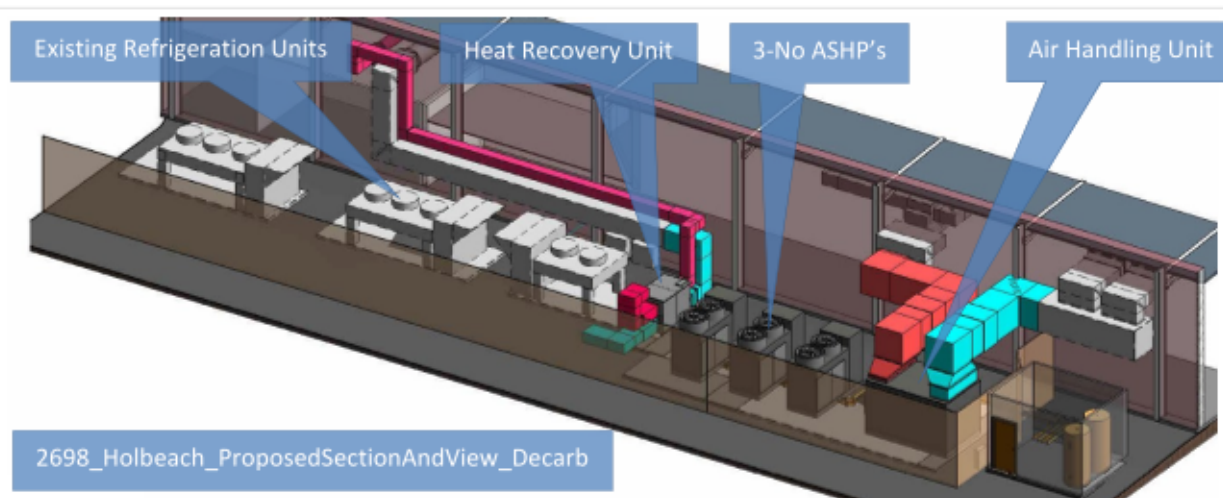
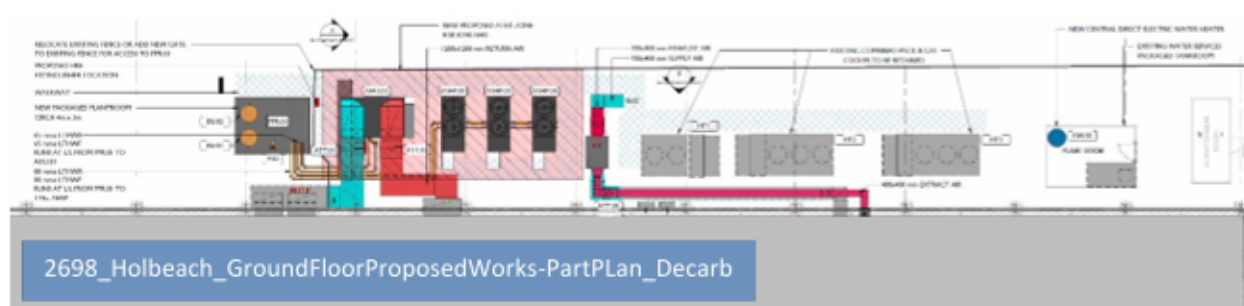
Site Plan (Imagery © Google 2025)

The Tesco Superstore is located to the east of Boston Road (B1168) to the north of Holbeach. There are residential dwellings generally to the west and north of the store. The dedicated plant area is located at the rear of the store on the northern boundary of the site.

The existing three combined refrigeration packs and gas coolers will remain in place. The existing air handling units and the gas fired hot water cylinder (shaded red above) will be removed.

2.2. Key Positions (Source, Assessment & Background)

The air handling units, heat recovery unit and three air source heat pumps will be installed to the left of the existing three refrigeration units. There is a plant room at each end, but these are fully enclosed and only house ancillary equipment that is unlikely to generate any noise.



Position	Description	Latitude	Longitude	Elevation
Assessment	Rear of 36 Boston Road South	52.806783 ⁰	0.013112 ⁰	4 m
Background	within the corner of the service yard away from the existing mechanical equipment	52.806880 ⁰	0.014084 ⁰	4 m

2.3. Location, Distance to Residential and Sound Pressure Level at 10m

Position	Details	Distance	Latitude	Longitude	Elevation	L _p (10m)
Source 1	Sales floor Air Handling Unit	30m	52.806526°	0.013019°	2.0 m	42 dB(A)
Source 2	Toilets and Offices Heat Recovery Unit	26m	52.806555°	0.013191°	1.5 m	40 dB(A)
Source 3	Air Source Heat Pump 1	25m	52.806561°	0.013141°	2.6 m	42 dB(A)
Source 4	Air Source Heat Pump 2	26m	52.806551°	0.013107°	2.6 m	42 dB(A)
Source 5	Air Source Heat Pump 3	27m	52.806541°	0.013076°	2.6 m	42 dB(A)
Source 6	2 Fan Refrigeration Pack & Condenser	26m	52.806568°	0.013248°	2.2 m	40 dB(A)
Source 7	3 Fan Refrigeration Pack & Condenser	27m	52.806597°	0.013338°	2.2 m	40 dB(A)
Source 8	3 Fan Refrigeration Pack & Condenser	28m	52.806629°	0.013440°	2.2 m	40 dB(A)

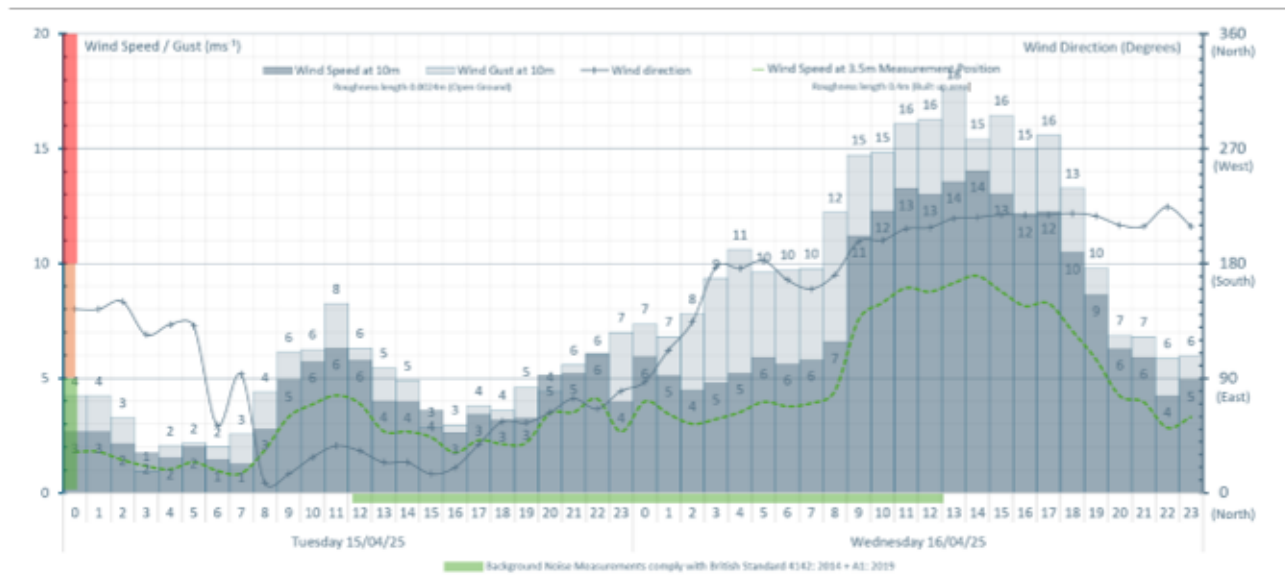
2.4. General Details of Unit

Source	Description of Source				Dimension of Unit		
					Width	Depth	Height
Source 1	AHU.01	Sales floor	Eco Airbox	EAB 8000 LPHW SO (180 kW)	2800	2400	1990
Source 2	HRU.01	Toilets and Offices	Systemair	Topvex SR50 EL10.5-ODK	1796	1128	1473
Source 3	ASHP.01	ASHP - Store Heating	Eco Airbox	EHP R290 1500 G2 ASHP (100 kW)	3000	1250	2642
Source 4	ASHP.02	ASHP - Store Heating	Eco Airbox	EHP R290 1500 G2 ASHP (100 kW)	3000	1250	2642
Source 5	ASHP.03	ASHP - Store Heating	Eco Airbox	EHP R290 1500 G2 ASHP (100 kW)	3000	1250	2642
Source 6	HT01	2 Fan Pack & Condenser	Space	RPX124 09 EC (R488a)	4300	2400	2200
Source 7	HT02	3 Fan Pack & Condenser	Space	RPX134 09 EC (R488a)	5300	2400	2200
Source 8	HT03	3 Fan Pack & Condenser	Space	RPX134 09 EC (R488a)	5300	2400	2200

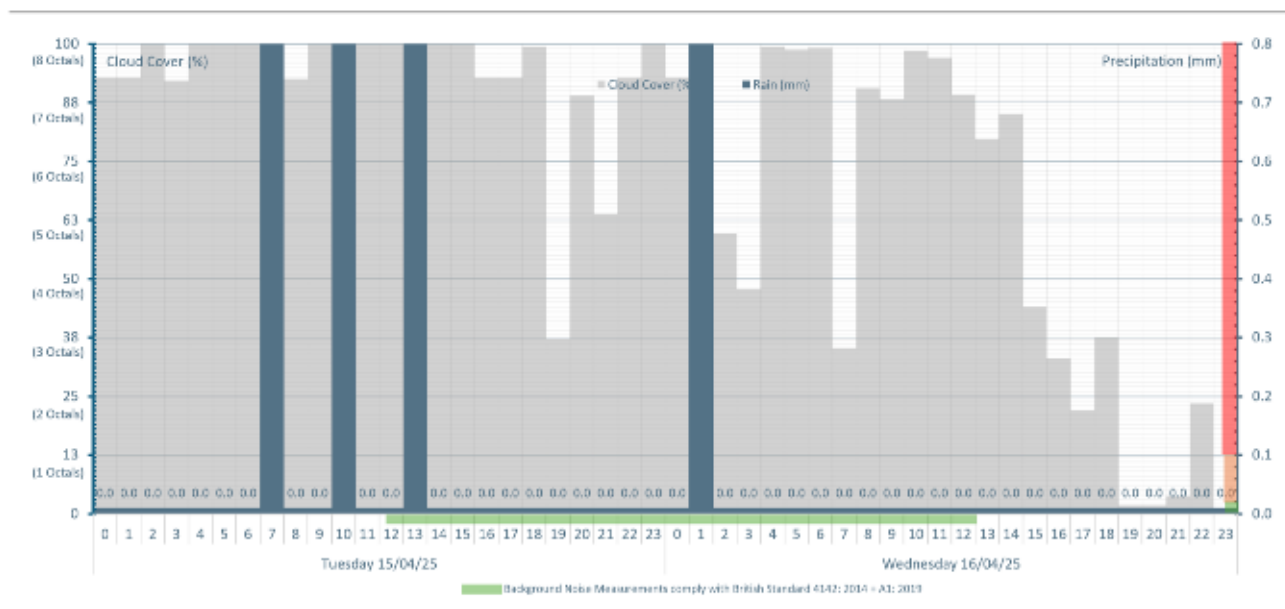
3. Background Noise Levels...

3.1. Weather During Survey

3.1.1 Wind Speed, Gust and Direction



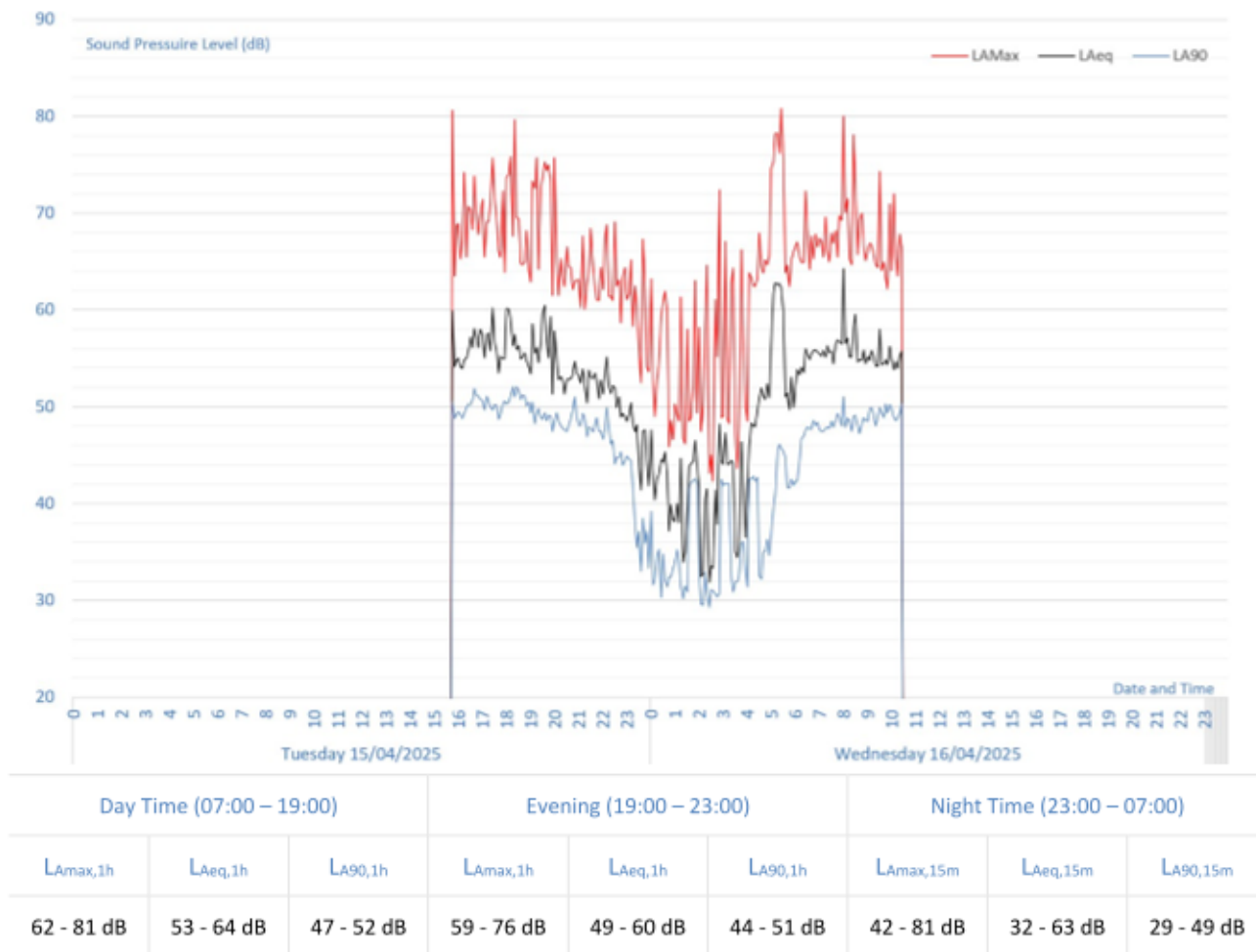
3.1.2 Cloud Cover and Rainfall



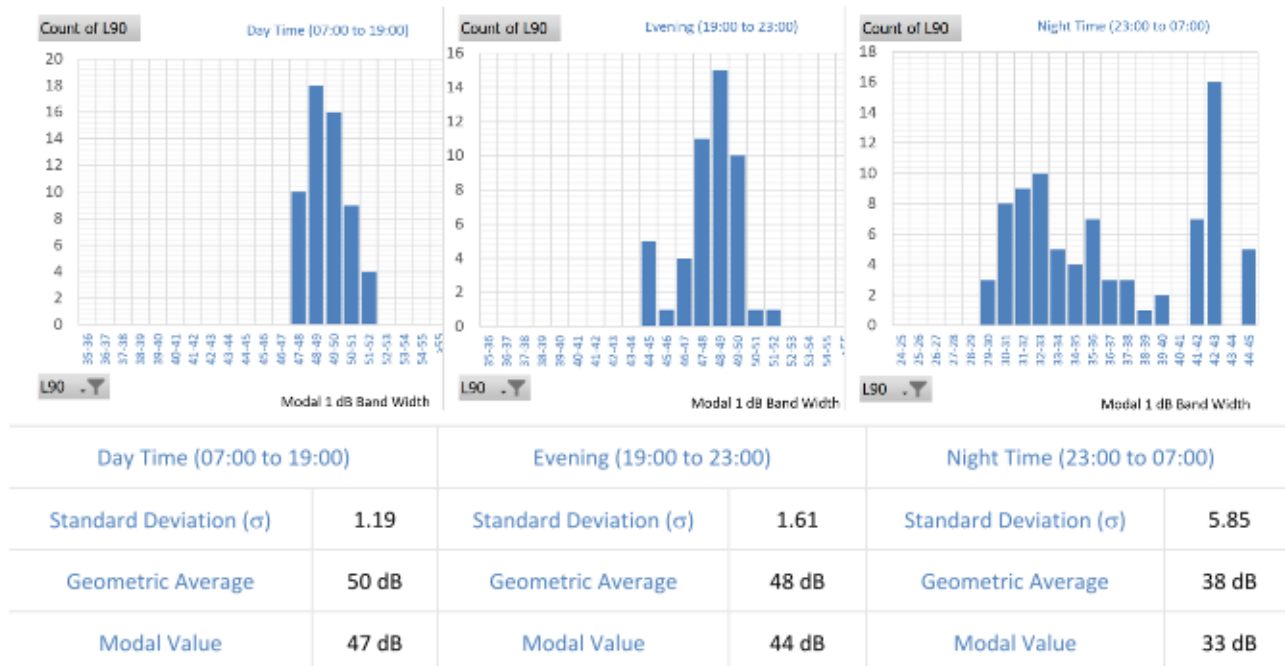
3.1.3 Impact of Weather

An analysis of the background data recorded on site indicates that the prevailing weather did not adversely impact the results.

3.2. 24-hour Background Measurements



3.3. Modal Analysis of Background Data



4. Criterion...

4.1. National Planning Policy Framework 2024

4.1.1 Scope of Standard

The revised National Planning Policy Framework published in December 2024 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 strong reason for refusing the 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 187 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 198 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 life⁷².

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

⁷²*See Explanatory Note to the Noise Policy Statement for England (Department for Environment, Food & Rural Affairs, 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 South Holland District Council adopted the South East Lincolnshire Local Plan in March 2019 including Policy 30 entitled *"Pollution."*

"Development proposals will not be permitted where, taking account of any proposed mitigation measures, they would lead to unacceptable adverse impacts upon:

- 1. health and safety of the public;*
- 2. the amenities of the area; or*
- 3. the natural, historic and built environment;*

by way of:

- 5. noise including vibration;*

Planning applications..... must include an assessment of:

- 11. impact on amenity from existing uses.*

Suitable mitigation measures will be provided, if required. Proposals will be refused if impacts cannot be suitably mitigated or avoided."

Reference should be made to Policy 2 entitled *"Development Management."*

"Proposals requiring planning permission for development will be permitted provided that sustainable development considerations are met, specifically in relation to:

- 1. size, scale, layout, density and impact on the amenity, trees, character and appearance of the area and the relationship to existing development and land uses;*
- 2. quality of design and orientation;*
- 3. maximising the use of sustainable materials and resources;*
- 6. impact upon neighbouring land uses by reason of noise, odour, disturbance or visual intrusion;"*

4.5.2 Proposed Criterion

It would be recommended that the proposed noise emissions are below the minimum 15-minute background noise level at the nearest noise sensitive property.

5. Calculations of Noise Levels...

5.1. ISO 9613 – Part 2:2024

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*" 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
$A_{div} = 20 \cdot \log_{10} (d/d_0) + 11$	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
$A_{bar} = 10 \cdot \log_{10} [3 + (40 \cdot \delta / \lambda) - A_g]$ *Note 1 where $\delta = a + b - r$ and $\lambda = c / f$	A_{bar} = Effective barrier attenuation (dB) A_g = Total Ground Absorption (dB) *Note 1: Only apply the A_g correction if $A_g > 0$ δ = 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) λ = Wavelength of sound (m) c = Speed of sound – Assumed to be 342 ms ⁻¹ f = Octave band centre frequency (Hz)

5.2. Calculation of Plant Noise Levels

The following are the worst-case noise emissions from the proposed air source heat pump system providing heating to the store, heat recovery from the toilet and staff areas and electric hot water. The units will only operate at these noise levels when the ambient temperature is -5°C. The noise levels from items 1 to 5 will reduce as the ambient temperature rises. However, the existing refrigeration systems will become noisier as the ambient temperature rises and will only run under full load when the ambient temperature exceeds 30°C.

Day Time (07:00 to 19:00)		Source	ISO 9613 – Part 2: 1996 Corrections					Assessment
Ref	Description	L_w	D_c	A_{div}	A_g	A_{atm}	A_{bar}	L_p
1	Sales floor Air Handling Unit	74 dB	0 dB	-41 dB	3 dB	0 dB	-12 dB	24 dB
2	Toilets and Offices Heat Recovery Unit	72 dB	0 dB	-39 dB	3 dB	0 dB	-15 dB	20 dB
3	Air Source Heat Pump 1	74 dB	0 dB	-39 dB	3 dB	0 dB	-15 dB	23 dB
4	Air Source Heat Pump 2	74 dB	0 dB	-39 dB	3 dB	0 dB	-15 dB	23 dB
5	Air Source Heat Pump 3	74 dB	0 dB	-40 dB	3 dB	0 dB	-15 dB	22 dB
6	2 Fan Refrigeration Pack & Condenser	72 dB	0 dB	-39 dB	3 dB	0 dB	-15 dB	21 dB
7	3 Fan Refrigeration Pack & Condenser	72 dB	0 dB	-40 dB	3 dB	0 dB	-15 dB	21 dB
8	3 Fan Refrigeration Pack & Condenser	72 dB	0 dB	-40 dB	3 dB	0 dB	-15 dB	20 dB
Combined Noise Levels at Residential Façade:								31 dB(A)

6. Assessment of Noise Levels...

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

The following provides an initial assessment of the likely impacts on the existing residential occupiers of the nearest residential dwellings based on the noise that is incident on the façade of the building.

BS 4142: 2014	Day Time - 07:00 to 19:00	Evening – 19:00 to 23:00	Night Time – 23:00 to 07:00
Residual Noise Levels	L _{Aeq,1 hours} 56 dB	L _{Aeq,1 hours} 53 dB	L _{Aeq,15 minutes} 46 dB
Specific Noise Levels	L _{Aeq,1 hours} 31 dB	L _{Aeq,1 hours} 31 dB	L _{Aeq, 15 minutes} 31 dB
Impulsivity Feature	+0 dB	+0 dB	+0 dB
Tonality Feature	+0 dB	+0 dB	+0 dB
Rating Noise Levels	L _{Aeq,1 hours} 31 dB	L _{Aeq,1 hours} 31 dB	L _{Aeq, 15 minutes} 31 dB
Background Noise Levels	L _{A90,1 hours} 47 dB	L _{A90,1 hours} 44 dB	L _{A90, 15 minutes} 33 dB
BS 4142 Assessment	-16 dB (Low Impact)	-13 dB (Low Impact)	-2 dB (Low Impact)
Uncertainty (95% Confidence, k=2)	+/- 1.72 dB	+/- 1.76 dB	+/- 2.19 dB

The assessment indicates that when the background noise levels drop during the night time periods the assessment will still indicate a low impact on the residential occupiers based on the sound that is incident on the façade of the residential building.

It should be noted that the above noise levels will only occur when the ambient temperature is below -5°C which only occurs on several days of the year. When the temperature is at this low level it is very unlikely that residents will open their windows to control over-heating. However, if we assume a worst-case scenario of a resident opening their windows when the temperature is below freezing it is general accepted that a fully opened window will provide a loss of around 10 to 15 dB(A). This will result in the internal levels within the residential bedrooms with the windows open in the region of 16 to 21 dB(A).

British Standard 8233: 2014 provides a criterion of 30 dB(A) for bedrooms for sources that are devoid of any character (formally referred to as anonymous). The standards do suggest that a lower criterion could be acceptable for noise that is characterful.

In rough terms the internal noise levels as a result of the combined operation of the proposed new heating and hot water system would be around 20 dB(A) and with the windows closed would be around 5 dB(A). This level will not have an adverse effect on the existing residents and will be inaudible at all times.

7. Conclusions...

7.1. Assessment Position

The rear of the nearest residential dwelling at 36 Boston Road South is located between 25 m and 30 m from the dedicated plant area at the rear of the store where the replacement heating and hot water system will be installed.

7.2. Background Noise Measurements

Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
L _{Amax,1h}	L _{Aeq,1h}	L _{A90,1h}	L _{Amax,1h}	L _{Aeq,1h}	L _{A90,1h}	L _{Amax,15m}	L _{Aeq,15m}	L _{A90,15m}
62 - 81 dB	53 - 64 dB	47 - 52 dB	59 - 76 dB	49 - 60 dB	44 - 51 dB	42 - 81 dB	32 - 63 dB	29 - 49 dB
Modal Background		47 dB	Modal Background		44 dB	Modal Background		33 dB

7.3. Criterion at Assessment Position

To comply with policy 30 entitled “Pollution” within the South Holland District Council Local Plan, the resultant noise levels at the nearest residential dwellings should not exceed the underlying background noise levels when assessed in accordance with British Standard 4142: 2014 + A1: 2019.

7.4. Mitigation Measures

The calculations have assumed the existing 3.5m high acoustic screen running along the northern boundary of the plant area will be retained in its current location.

7.5. Assessment of Noise Levels

Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
L _{Aeq,1h}	L _{A90,1h}	BS4142	L _{Aeq,1h}	L _{A90,1h}	BS4142	L _{Aeq,1h}	L _{A90,1h}	BS4142
28 dB	47 dB	-19 dB	28 dB	44 dB	-16 dB	28 dB	33 dB	-5 dB

7.6. Conclusions

The resultant noise levels from the replacement plant providing heating and hot water to the store will result in noise levels that comply in full with policy 30 to the South Holland District Council Local Plan and are at levels that are very unlikely to give rise to complaints from residents.

7.7. Uncertainty

Day Time (07:00 – 19:00)	Evening (19:00 – 23:00)	Night Time (23:00 – 07:00)
+1.72 dB (k=2, 95% Confidence)	+1.76 dB (k=2, 95% Confidence)	+2.19 dB (k=2, 95% Confidence)

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

8.1. 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)

8.2. b) Source Under Investigation

	Source Number	Description			
1)	Source 1	AHU.01	Sales floor	Eco Airbox	EAB 8000 LPHW SO (180 kW)
	Source 2	HRU.01	Toilets and Offices	Systemair	Topvex SR50 EL10.5-ODK
	Source 3	ASHP.01	ASHP - Store Heating	Eco Airbox	EHP R290 1500 G2 ASHP (100 kW)
	Source 4	ASHP.02	ASHP - Store Heating	Eco Airbox	EHP R290 1500 G2 ASHP (100 kW)
	Source 5	ASHP.03	ASHP - Store Heating	Eco Airbox	EHP R290 1500 G2 ASHP (100 kW)
	Source 6	HT01	2 Fan Pack & Condenser	Space	RPX124 09 EC (R488a)
	Source 7	HT02	3 Fan Pack & Condenser	Space	RPX134 09 EC (R488a)
	Source 8	HT03	3 Fan Pack & Condenser	Space	RPX134 09 EC (R488a)
2) 3) 4) 5)	Description of Source	Source Location		Hours of Operation	Mode of Operation
	Source 1 - 8	Dedicated plant area at the rear of the store		24-hour	Continuously on Demand
	Description of Operation	Period		Conditions	Load
	All Sources	Day Time (07:00 to 19:00)		Ambient Temp 32°C	Maximum Load (100%)
		Evening (19:00 to 23:00)		Ambient Temp 28°C	Part Load (60%)
		Night Time (23:00 to 07:00)		Ambient Temp 24°C	Part Load (40%)
	Description of Premises	The Tesco Superstore is located to the east of Boston Road (B1168) to the north of Holbeach.			

8.3. 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

8.4. 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

8.5. e) Relative Positions

1)	Assessment Position	Rear of 36 Boston Road South		
		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	Within the corner of the service yard away from the existing mechanical equipment		
	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 st 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 25 m to 30 m from the assessment position.		
6)	Dimensioned sketch	See maps and images.		

8.6. f) Noise Measurement Equipment Calibration

1)	Type	Sound Level Meter	Microphone	Calibrator
		KRE/06/01	KRE/06/02	KRE/06/04
2)	Manufacturer	Casella CEL 63X	Casella CEL 251	Casella CEL 120/1
3)	Serial Number	2425448	00709	5230902
4)	Certificate Number	Certificate: C00540	Certificate: C00540	Certificate: C00542
	Calibration Due Date	02/01/2027	02/01/2027	05/01/2026

8.7. 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.

8.8. 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

8.9. i) Date of Measurements

1)	Source Measurements	Unknown
	Background Measurements	15/04/2025

8.10. j) Measurement Time Interval

1)	Source Measurements	$T_m = 15 \text{ minutes}$	
	Background Measurements	Day Time (07:00 to 19:00)	$T_m = 12 \text{ hours}$
		Evening (19:00 to 23:00)	$T_m = 4 \text{ hours}$
		Night Time (23:00 to 07:00)	$T_m = 8 \text{ hours}$

8.11. k) Reference Time Interval

1)	Reference Time Interval	Day Time (07:00 to 19:00)	$T_r = 1 \text{ hour}$
		Evening (19:00 to 23:00)	$T_r = 1 \text{ hour}$
		Night Time (23:00 to 07:00)	$T_r = 15 \text{ minutes}$

8.12. 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.

9. Appendix B – Nearest Noise Sensitive Property

9.1. Comments from Local Authority

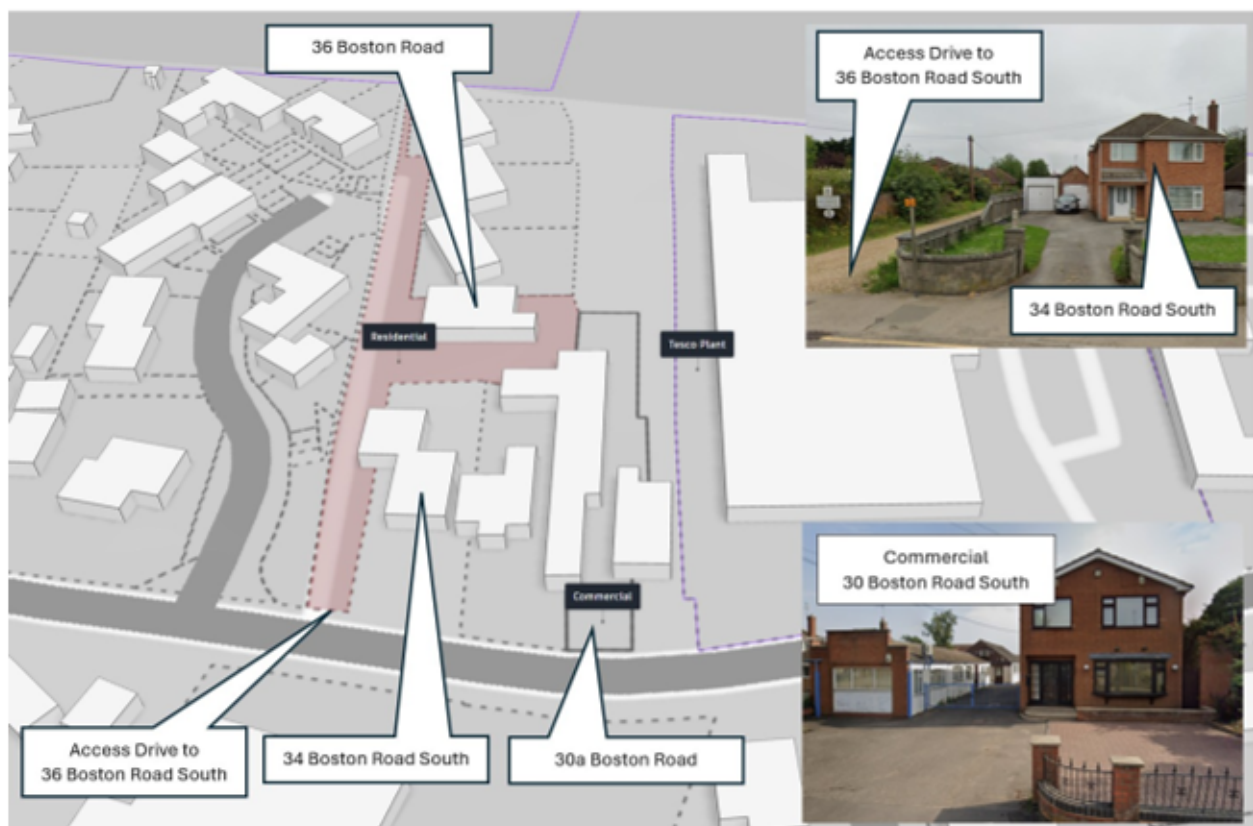
Following the submission of version 1.2 of this report to the Local Authority, the following comments have been received.

- The Environmental Health Officer has approved the report.
- The Planning Officers has queried the location of the nearest residential dwelling.

This Appendix will detail the nearest noise sensitive property to answer these concerns.

9.2. Residential Dwelling

The following shows the assumptions made when assessing the where the nearest residential dwelling was located.

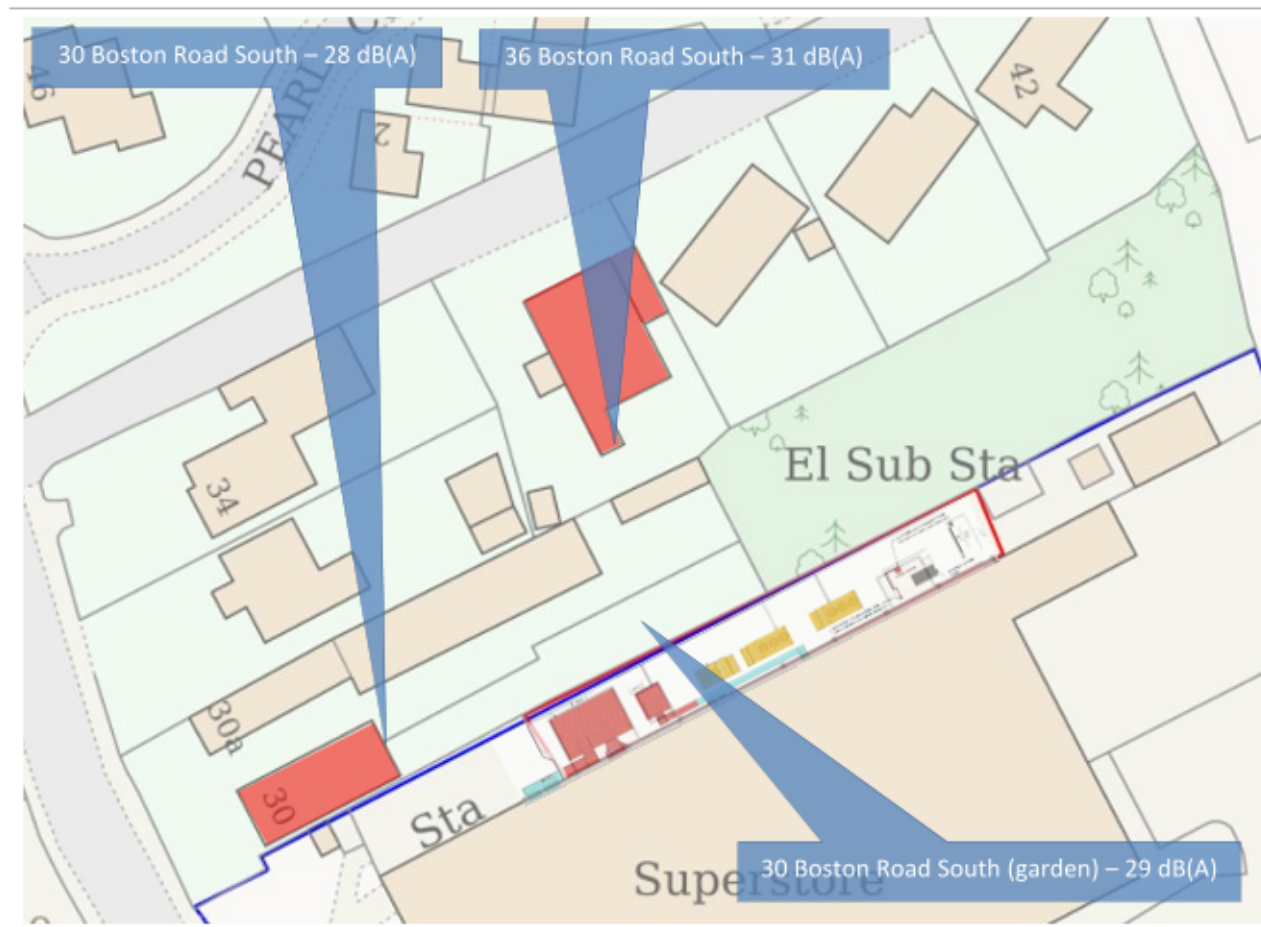


9.3. Refused Planning Permission at 30 Boston Road South (Residential)

The original investigation including a site visit indicated that 30 Boston Road South was used as a commercial property and didn't show any signs of being used as a residential dwelling. However, the land registry outlines indicates that plot 30 is split into two properties: plot 30 and plot 30a. An investigation has found that planning application H09-1001-19 for the development of 30 and 30a Boston Road South. It is probably that 30 Boston Road South is actually still a residential dwelling but is being used as a commercial property.

9.4. Resultant Noise Levels at 30 Boston Road South (Façade and Garden)

The following is the current OS plan for the rear of the Tesco Superstore and the properties 30 to 42 Boston Road South.



The highest noise levels are likely to exist at the rear façade of 36 Boston Road South. The level at the rear façade of 30 Boston Road South Ltd will be around 3 dB(A) quieter due to the increased distance to the three ASHP (Shown on plan as yellow with 3-fans) and the increased effect of the barrier. The level in the garden is likely to be around 2 dB(A) quieter as the increased effective height of the barrier cancels the decrease in distance.

9.5. Scale of Plan

The indicative plan was included at section 2.2 of the report. However, the calculations rely on the actual 6-digit longitude and latitude to calculate the relative distances. These should be accurate to around 0.2 to 0.5m so shouldn't impact the overall calculation of the distances involved.

END OF REPORT (1st and last page not numbered)



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