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Acoustic Consultancy Report

Environmental Noise Survey Report and Noise Impact Assessment for Proposed Fixed Plant

Asda Store – Puckeridge

Client: Asda Stores Ltd

Project: Asda Store
Cambridge Road
Puckeridge
Ware
SG11 1SA

Our Ref: 11799

Revision: 0

Report Prepared By N. Fowler M.I.O.A.

Date: 4th July 2023



1.0 Introduction

- 1.1 Acoustic Consultancy Partnership Ltd have been appointed to undertake an environmental noise survey and complete a noise impact assessment for the proposed plant at the new Asda Puckeridge store.
- 1.2 We have undertaken environmental noise monitoring at the nearest available locations to the proposed new plant to establish the existing relevant background noise levels. Weekday evening and night-time measurements have been recorded.
- 1.3 A noise impact assessment has been completed, in accordance with the methodology given in BS4142:2014+A1:2019.

2.0 Environmental Noise Survey Measurement Procedure

- 2.1 The environmental noise survey adopted the procedure and methodology stated within BS4142:2014+A1:2019. This report has been prepared to provide the existing ambient and background noise levels covering the periods of operation of the proposed plant located at two positions at ground level on either side of the new store.

3.0 Site Description and Proposed Noise Sensitive Receptors

- 3.1 The proposed plant will be located at ground level at two locations as follows:

Receptor Position RPA	On the northern side of the development at a distance of 11m from the existing three storey residential and with line of sight.
Receptor Position RPB	On the southern side of the development at a distance of 54m from the existing residential on the opposite side of Cambridge Road and with line of sight.



4.0 Environmental Noise Survey Monitoring Positions

4.1 The selected monitoring positions were as follows:

Monitoring Position MP1 On the northern side of the development adjacent to the boundary with Cambridge Court.

Monitoring Position MP2 On the southern side of the development adjacent to the existing Antiques Centre.

5.0 Plant Information

5.1 We are in receipt of the proposed refrigeration plant layout drawing no 23/4211/M50-00001. We can confirm the location of all the proposed plant is at ground floor level.

5.2 The confirmed manufacturers noise data for the new plant is as follows:

Plant Item	Sound Pressure level, dB	
	Day	Night
1no- Hubbard 4 external pack	52 dBA at 10m	47 dBA at 10m
1no-CU01 Heat Pump	65 dBA at 1m	65 dBA at 1m
3no-SMC15/40 Condensers	34 dBA at 1m	28 dBA at 1m

6.0 Plant Operating Periods

6.1 The proposed plant items would operate on demand, 24hrs a day, 7 days a week.

7.0 Noise Monitoring Period and Survey Weather Conditions

7.1 The noise monitoring periods were as follows.

Late evening 21.45 hrs to midnight on Monday 3rd July 2023

Night-Time 01.45 hrs to 03.00 hrs on Tuesday 4th July 2023



7.2 The weather during the entire survey periods was broken cloud with a light breeze and dry conditions.

8.0 Monitoring Equipment

8.1 The noise monitoring equipment comprised of the following:

Monitoring Position MP1

A Svantek 957 type 1 real time analyser, serial no 20607, with a weatherproof microphone protection system. The meter calibration was verified before and after the measurement period, using a Svantek SV31 acoustic calibrator, serial number 24687. Any deviation was within an acceptable tolerance.

Monitoring Position MP2

A Svantek 957 type 1 real time analyser, serial no 21434, with a weatherproof microphone protection system. The meter calibration was verified before and after the measurement period, using a Svantek SV31 acoustic calibrator, serial number 24687. Any deviation was within an acceptable tolerance.

8.2 The meters and calibrator have current calibration certificates, available upon request.

9.0 Noise Measurement Parameters

9.1 The environmental survey established the prevailing L_{AFmax} , $L_{Aeq,T}$, $L_{A10,T}$ and $L_{A90,T}$ noise levels measured using an "F" time weighting with a 15 minute reference time period.

10.0 Monitoring Results and Observations

10.1 We believe the recorded environmental noise measurements are representative of the existing noise climate levels applicable to the nearest noise sensitive receptors.

10.2 During the evening period the nearby A10 traffic was clearly audible and continuous. There were regular aircraft flyovers and occasional car movements.



- 10.3 At night traffic movements on the A10 were only audible several times during the survey periods. There were no car movements past the site.

11.0 Proposed Plant Noise Criteria

- 11.1 We are in receipt of the following Local Authority noise condition as follows:

“Prior to erection of above ground superstructure of the development, a noise impact assessment shall be submitted, demonstrating that the rating level of the noise emitted from all external fixed plant and equipment at the development hereby approved shall not exceed 10dB below the background noise level when measured or calculated at 1m from the façade of the nearest noise sensitive property. The measurement and assessment shall be made according to BS4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound at the nearest and/or most affected noise sensitive premises, with all plant/equipment operating together at maximum capacity and inclusive of any penalty for tonal, impulsive or other distinctive acoustic characteristics”

Tonality

Based on the manufacturers noise levels and our experience on previous projects, where this type of plant has been installed, there will be no tonality audible at the receptor positions and no acoustic feature correction is applicable.

Intermittency

We understand the proposed plant will operate throughout a 24hour period as site conditions require. It is likely that the plant items will run continuously with no correction applied for “on time”.

Based on the present site layout, it is likely that intermittency will be “readily distinctive against the residual acoustic environment. We have, therefore, applied a +3dB correction to all plant items to cover any potential intermittency that may be audible.

Other sound characteristics

The specific sound from the plant items features no other sound characteristics.



11.2 Based on the results of our environmental noise survey given in Appendix 1, and the Local Authority noise condition, the plant noise criteria to be achieved at the façade of the nearest noise sensitive properties, as detailed in Section 4.0 of this report, would be:

Receptor Position RPA (Day) - All Plant **29 dB** $L_{Aeq,T(15min)}$
Receptor Position RPA (Night) - All Plant **21 dB** $L_{Aeq,T(15min)}$

Receptor Position RPB (Day) - All Plant **30 dB** $L_{Aeq,T(15min)}$
Receptor Position RPB (Night) - All Plant **24 dB** $L_{Aeq,T(15min)}$

11.3 Achievement of the external criteria would ensure the plant noise levels would not exceed the Local Authority requirements at the nearest noise sensitive properties.

12.0 Predicted Plant Noise Levels

12.1 The predicted **un-attenuated** cumulative plant noise levels at the two receptor positions are given below.

Receptor Position	Plant Operating Period	Predicted Total Plant Noise Level $L_{Aeq(15min)}$ dB	Target Plant Noise Level $L_{Aeq(15min)}$ dB
RPA	Continuous Operation - Day	55	29
	Continuous Operation - Night	51	21
RPB	Continuous Operation - Day	42	30
	Continuous Operation - Night	38	24

13.0 Mitigation Measures

13.1 The 3no refrigeration condensers do not require acoustic treatment.

13.2 The primary noise sources are the Hubbard External pack and, to a lesser degree, the Heat Pump.

13.3 We would recommend the following options are considered that will reduce the Pack and Heat Pump noise levels at the nearest residential properties.

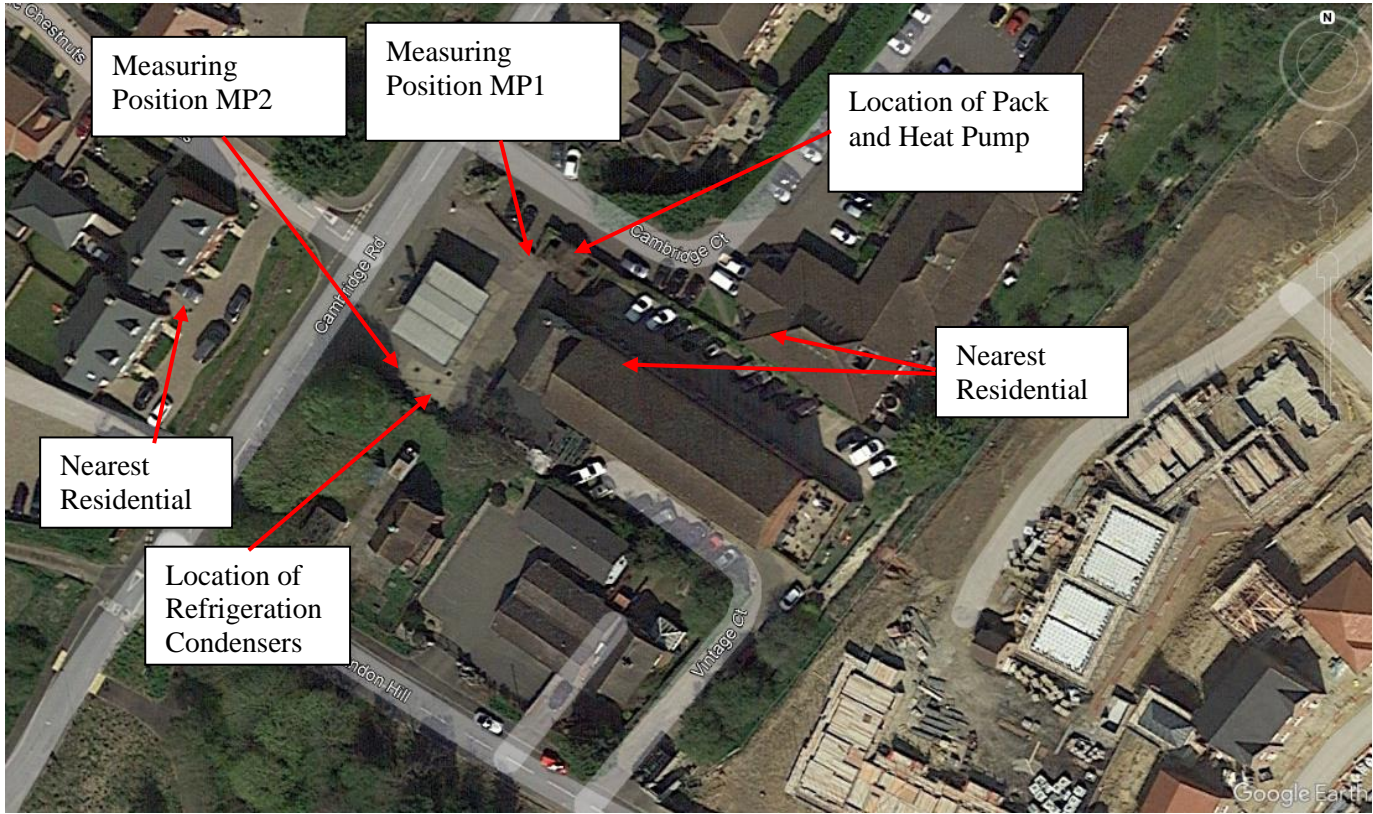
- a) The Heat Pump is relocated adjacent to the refrigeration condensers and within an acoustic screen.

- b) The Pack is located within a full acoustic enclosure with attenuated intake and discharge openings facing away from existing residential.
- c) Alternative plant selections could be investigated for the Heat Pump and the Hubbard Pack.

14.0 Fixed Plant Conclusions

- 14.1 The combined total plant noise level for the proposed plant items does not achieve the required noise criteria specified in the planning condition.
- 14.2 The noise level from the refrigeration condensers is acceptable with no further mitigation required.
- 14.3 The noise level from the Heat Pump and the Refrigeration Pack needs to be reduced to ensure the overall combined noise level achieves the noise criteria specified in the planning condition. Mitigation options have been provided above.

APPENDIX 1





Appendix 2
Survey Results

Monitoring Position MP1

Time			Measured Sound Pressure Level, dB			
			L _{AFmax}	L _{Aeq,T}	L _{A10,T}	L _{A90,T}
22.00	to	22.15	63.9	48.6	50.3	43.1
22.15	to	22.30	66.3	49.0	50.6	42.0
22.30	to	22.45	64.8	48.7	50.4	42.0
22.45	to	23.00	62.5	45.9	48.7	40.8
23.00	to	23.15	62.2	45.9	48.4	40.6
23.15	to	23.30	63.3	47.6	50.2	41.2
23.30	to	23.45	61.1	46.1	49.0	39.7
23.45	to	24.00	63.3	47.0	48.7	38.6
02.00	to	02.15	51.9	40.8	44.5	32.4
02.15	to	02.30	54.3	42.7	46.4	31.0
02.30	to	02.45	61.4	43.8	46.7	35.9
02.45	to	03.00	54.4	43.2	46.2	37.3

Monitoring Position MP2

Time			Measured Sound Pressure Level, dB			
			L _{AFmax}	L _{Aeq,T}	L _{A10,T}	L _{A90,T}
21.45	to	22.00	68.8	53.3	56.2	44.6
22.00	to	22.15	64.5	50.6	52.7	44.6
22.15	to	22.30	66.8	50.8	52.7	43.9
22.30	to	22.45	65.3	50.6	52.8	43.3
22.45	to	23.00	59.4	48.0	51.0	42.0
23.00	to	23.15	64.3	47.9	50.5	42.2
23.15	to	23.30	64.4	49.9	52.7	42.9
23.30	to	23.45	61.6	48.6	51.7	41.8
23.45	to	24.00	65.1	49.3	51.2	40.2
01.45	to	02.00	59.1	45.4	49.0	35.8
02.00	to	02.15	58.3	43.7	47.6	35.0
02.15	to	02.30	58.9	45.1	49.0	33.8
02.30	to	02.45	62.6	46.3	49.5	37.8
02.45		03.00	65.3	46.0	49.2	39.0