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Acoustic Consultancy Report

Environmental Noise Survey Report and Noise Impact Assessment for Fixed Plant

Asda Waterlooville

Client: CBES Ltd

Project: Asda Store
Portland Road
Waterlooville
Portsmouth
PO7 7XR

Our Ref: 10659

Revision: -

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

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EXECUTIVE SUMMARY

Acoustic Consultancy Partnership Ltd have been appointed to undertake an environmental noise survey and complete a noise impact assessment for the proposed additional fixed plant at the Asda Waterlooville store.

Section A - General

The assessment has established the predicted plant noise levels at the nearest and most affected residential properties in Forest End to the south west of the store and on the opposite side of Maurepas Way.

Full details of the noise impact assessment is given in Section C within the report and briefly summarised below.

Section B – Environmental Monitoring

We have undertaken environmental noise monitoring adjacent to the nearest residential properties. Weekday evening and night time measurements were obtained.

Section C – Plant

We are not aware of any planning condition relating to plant noise for this site. We have therefore selected a new plant target noise level that does not exceed the lowest measured background noise level, for the relevant operating period of the plant, at the facade of the nearest dwellings.

The un-attenuated noise level of the proposed plant would comfortably achieve the recommended noise criteria at the receptor position and is 16 dBA below the lowest measured $L_{A90,T}$ background noise levels for the day period and 4 dBA below the lowest measured $L_{A90,T}$ background noise levels at night.

Mitigation measures are not required for the new plant item.



SECTION A - GENERAL

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 additional fixed plant at the Asda Waterlooville store
- 1.2 We have undertaken environmental noise monitoring adjacent to the nearest residential properties. Weekday evening and night time measurements were obtained.
- 1.3 A noise impact assessment has been completed, with the new plant target noise level established based on the existing $L_{A90,T}$ background noise levels. Consideration has been given to British Standards and other government guidance as considered appropriate.
- 1.4 Technical terms or references are occasionally used within this report. To assist the reader, a Glossary of Terminology is included in Appendix 3.

2.0 Site Layout and Nearest Noise Sensitive Receptors

- 2.1 The existing Asda store is located to the south east of the roundabout joining Maurepas Way with Hambledon Road. Adjacent to the southern corner of the store is a large Southern Electric sub-station.
- 2.2 A new condenser is to be located on the loading bay canopy roof at the rear of the store adjacent to the sub-station. The new unit replaces an existing condenser located near to the new condenser position.
- 2.3 The nearest noise sensitive properties would be the two storey dwellings in Forest End, opposite the store and on the southern side of Maurepas Way. The nearest properties are approximately 85m from the plant location and we assess there is line of sight from the plant to the properties.



3.0 Receptor Position

- 3.1 For the plant noise impact assessment, we have selected one receptor position as detailed below.

Receptor Position RPA	The upper windows of the two storey properties in Forest End
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4.0 Project Information

- 4.1 Our noise impact assessment is based on the current plant drawings and plant noise data provided by CBES Ltd.

SECTION B – ENVIRONMENTAL MONITORING

5.0 Environmental Noise Monitoring Location

- 5.1 To determine the existing $L_{A90,T}$ background and $L_{Aeq,T}$ ambient noise levels of the surrounding area, a monitoring location was adopted in Forest End, level with the facade of the nearest properties facing the store.
- 5.2 The results obtained were considered typical of the existing noise climate applicable to the nearest noise sensitive receptors.
- 5.3 The monitoring location is indicated on the site layout given in Appendix 2.

6.0 Noise Monitoring Period and Survey Weather Conditions

- 6.1 The noise monitoring periods were as follows.

Late evening	21.59 and 22.59 hours on Tuesday 4 th March 2014.
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Night Time	02:01 and 03.01 hours on Wednesday 5 th March 2014.
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- 6.2 The weather during the survey periods was dry and still. Conditions were acceptable for environmental monitoring during both periods.

7.0 Monitoring Equipment

- 7.1 The noise monitoring equipment comprised of a Svantek 957 type 1 real time analyser, serial no 21436, with a weatherproof microphone protection system.

7.2 The meter calibration was verified before and after the measurement period, using a Svantek SV31 acoustic calibrator, serial number 22514. Any deviation was within an acceptable tolerance.

7.3 This meter and calibrator have current calibration certificates, available upon request.

8.0 Noise Measurement Parameters

8.1 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 10 minute reference time period.

8.2 A Glossary of Terminology is given in Appendix 3.

9.0 Monitoring Results and Observations

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

9.2 The lowest measured background noise levels applicable to the operating period of the plant are given below. Details of the other measurements obtained are provided in Appendix 1.

Period	Lowest Measured Background Noise Level dB $L_{A90(10min)}$
Late Evening, up to 23.00 hrs	48.1
Night	35.5

Table 1 – Lowest Measured Background Noise Level

9.3 During the evening survey period, the most notable existing noise source was traffic activity from the A3 London Road to the south. During the night time survey period, traffic activity was lighter and noise was clearly audible from the Southern Electric Sub Station.

SECTION C – FIXED PLANT

10.0 Proposed Hours of Operation

- 10.1 We understand the new plant item would operate on demand, 24hrs a day, 7 days a week.

11.0 Plant Noise Criteria

- 11.1 We are not aware of any planning condition relating to plant noise for this site. We have therefore selected a new plant target noise level that does not exceed the lowest measured background noise level, for the relevant operating period of the plant, at the facade of the nearest dwellings. We believe the achievement of this criteria would ensure a less than marginal impact is achieved at the receptor position, which we would consider acceptable
- 11.2 The lowest background noise levels confirmed in section 9.2 will form the target plant noise levels for the operating period of the plant. Our experience gained over many years assessing this type of plant re-affirms that if the combined noise level for all the plant items does not exceed the lowest measured $L_{A90,T}$ background noise level then the individual plant items would not be distinguishable and would not require an acoustic feature correction.
- 11.3 Based on the above, the new plant target noise level at the nearest dwelling would be as follows.

Receptor Position	New Plant Target Noise Level	
	Day / Evening (07.00 to 23.00 hrs)	Night (23.00 to 07.00 hrs)
Forest End	48 dB $L_{Aeq(1hour)}$	36 dB $L_{Aeq(5min)}$

Table 2 – New Plant Target Noise Level

12.0 Calculation Procedure

- 12.1 Calculations are based on our Excel programmes which provide the individual plant item noise levels at the receptor position enabling an overall combined plant noise level to be determined. The calculations are based on standard methodology and take into account the distance correction and the barrier effects, where appropriate, of screens and the building.

13.0 Plant Noise Data

- 13.1 The manufacturers noise data used within this assessment is given below.

Plant Item	Sound Pressure level, dB
Searle RF-PC202L3H condenser	48 dBA at 10m day and night

Table 3 – Plant Sound Pressure Level

14.0 Un-attenuated Plant Noise Level

- 14.1 We have completed a calculation of the proposed **un-attenuated** new plant noise level at the facades of nearest residential properties, based on the plant noise level detailed above. The new plant noise level at the selected receptor position is given below, together with the target noise level.

Receptor Position	Time Period	New Plant Noise Level, dBA	Target Noise Level, dBA
Forest End	Day/evening (07.00-23.00)	32	48
	Night (23.00 to 07.00)	32	36

Table 4 – Un-attenuated Combined Plant Noise Levels and Target Noise Levels

- 14.2 As detailed above, the un-attenuated new plant noise level achieves the plant target noise levels at Forest End.

15.0 Plant Attenuation

- 15.1 Due to acceptable un-attenuated plant noise levels, we do not recommend any mitigation measures.

16.0 Conclusions

- 16.1 As indicated above, the un-attenuated noise level of the proposed plant would comfortably achieve the recommended noise criteria at the receptor position and is 16 dBA below the lowest measured $L_{A90,T}$ background noise levels for the day period and 4 dBA below the lowest measured $L_{A90,T}$ background noise levels at night.
- 16.2 Mitigation measures are not required for the new plant item.

Appendix 1

Environmental Monitoring Results

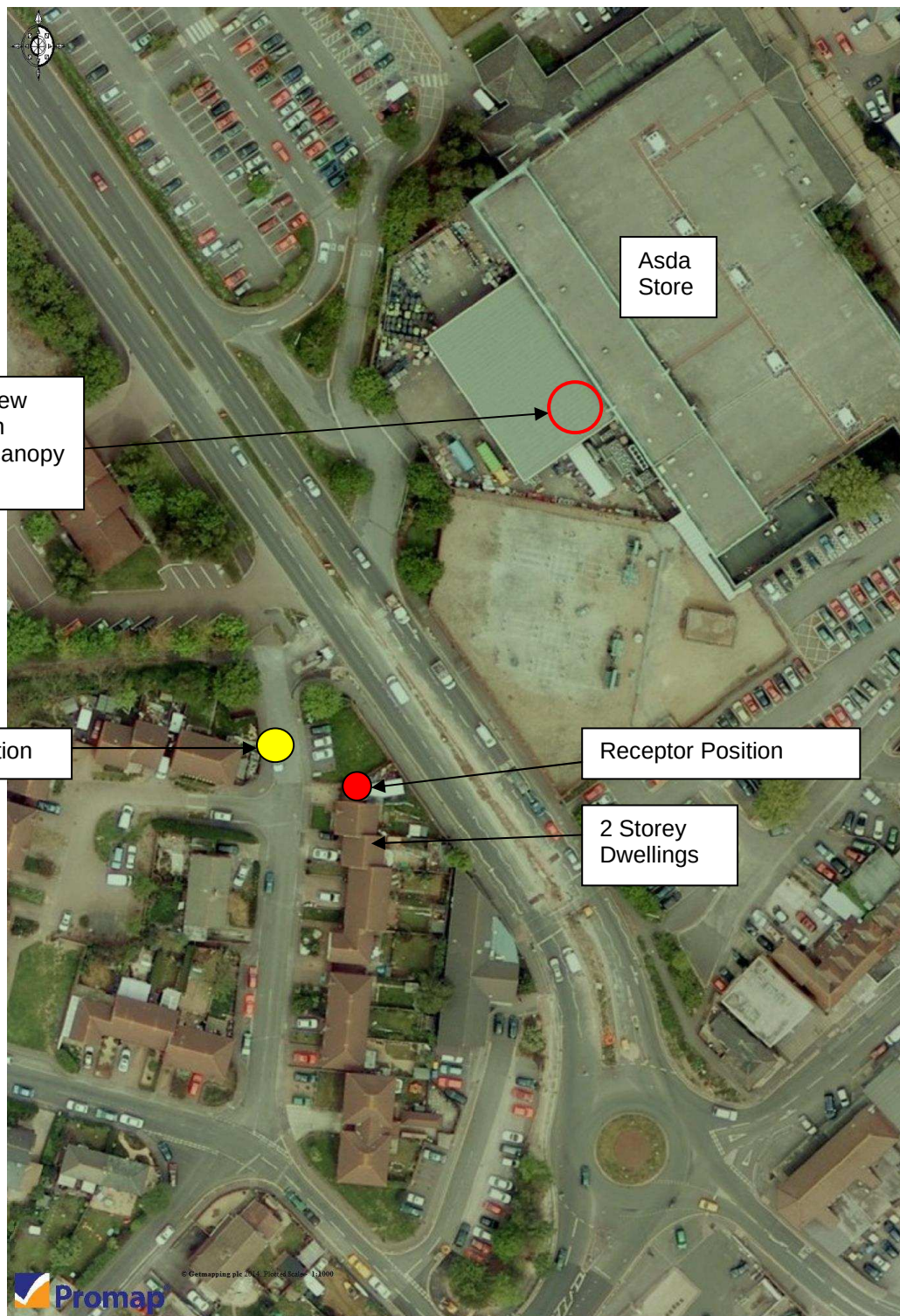
Evening

Time			Measured Sound Pressure Level, dB			
			L _{AFmax}	L _{Aeq,T}	L _{A10,T}	L _{A90,T}
21.59	to	22.09	73.4	60.4	64.5	49.9
22.09	to	22.19	68.4	59.1	63.7	48.7
22.19	to	22.29	69.0	58.3	62.8	48.1
22.29	to	22.39	71.6	58.1	62.3	48.6
22.39	to	22.49	71.6	58.1	62.3	48.6
22.49	to	22.59	69.6	57.6	62.4	48.9

Night

Time			Measured Sound Pressure Level, dB			
			L _{AFmax}	L _{Aeq,T}	L _{A10,T}	L _{A90,T}
02.01	to	02.11	65.3	48.4	48.9	36.6
02.11	to	02.21	65.3	47.9	49.0	36.4
02.21	to	02.31	66.4	48.4	49.9	37.2
02.31	to	02.41	59.7	41.4	40.6	35.5
02.41	to	02.51	66.4	49.0	47.8	35.9
02.51	to	03.01	68.4	49.9	49.2	36.0

Appendix 2 Site Plan





Appendix 3

Glossary of Terminology

$L_{Aeq,T}$

The $L_{Aeq,T}$ is defined as the equivalent continuous sound pressure level, over the reference time period “T”. It can be considered as an average of the total sound energy, or the steady continuous level that has the same total energy as a fluctuating sound source.

$L_{A90,T}$

The $L_{A90,T}$ is a statistical parameter, defined as the sound pressure level exceeded for 90% of the measurement time period “T”. It is used by BS4142:1997 to characterise the “background noise Level” and can be considered in simple terms as the noise level in the quieter spells eg between passing traffic.

$L_{A10,T}$

The $L_{A10,T}$ is a statistical parameter, defined as the sound pressure level exceeded for 10% of the measurement time period “T”. It is commonly used to measure road traffic noise. In simple terms, it is a measurement of the noisier spells eg when traffic is passing.

L_{AFmax}

The L_{AFmax} is the maximum measured sound pressure level in a given measurement period.



Appendix 4

Noise Impact Assessment Methodology

We give below a summary of the various British Standards and other published documents that provide guidance on noise impact assessment methodology and noise criteria that can be considered relevant to store plant noise.

BS 4142:1997 Method for Rating Industrial Noise Affecting Mixed Residential and Industrial Areas

This British Standard describes a method of determining the level of a noise of an industrial nature, together with procedures for assessing whether the noise in question is likely to give rise to complaints from persons living in the vicinity.

The external $L_{Aeq,T}$ noise level from “factories, or industrial premises, or fixed installations, or sources of an industrial nature in commercial premises” is measured or calculated. The $L_{A90,T}$ background noise level is also measured, without the specific noise source operating. The “rating level” of the noise source is established, including a +5dB correction if the noise source contains any “acoustic features” (distinguishable note, impulsive characteristic or irregular enough to attract attention). The rating level is then compared to the background noise level, and the likelihood of complaints is predicted as follows.

- A rating level of around +10 dB above the measured background level indicates that complaints are likely
- A rating level of around +5 dB above the measured background level is of marginal significance
- A rating level of 10 dB or more below the measured background noise level is a positive indication that complaints are unlikely.

BS4142:1997 is the accepted assessment methodology for fixed plant installations. The use of the $L_{A90,T}$ parameter to characterise the underlying noise climate excludes the noisiest 90% of environmental noise. This ensures noise from fixed installations is assessed against the quietest spells within any given period.

National Planning Policy Framework (NPPF)

The NPPF was published on 27th March 2012 and replaces the existing planning framework – which consisted of Planning Policy Guidance and Statements (PPGs and PPS).

The NPPF reflects previous planning guidance, and promotes sustainable economic development. As such the NPPF states that “*planning should operate to encourage and not act as an impediment to*



sustainable growth. Therefore significant weight should be placed on the need to support economic growth through the planning system”.

Whilst not providing any specific guidance on assessment methodology, this document confirms in section 123 that planning policies and decisions should aim to *“avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development.”* Furthermore they should aim to *“mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions”.*

The aims of section 123 are to be read in conjunction with the Explanatory Note to the Noise Policy Statement for England (Department for the Environment, Food and Rural Affairs). Again, this document does not provide any specific guidance on assessment methodology.