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Acoustic Consultancy Report

Environmental Noise Survey and Proposed Fixed Plant External Criteria

Dukesbridge Chambers, Duke Street, Reading

Client:	c/o Planning Consent
Project:	Dukesbridge Chambers Duke Street Reading Berkshire RG1 4SA
Our Ref:	11337
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Report Prepared By	N. Fowler M.I.O.A.
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EXECUTIVE SUMMARY

Acoustic Consultancy Partnership Ltd (ACP) have been appointed by Planning Consent to undertake an environmental noise survey and confirm the proposed fixed plant external criteria for future plant to serve the proposed A5/A3 Takeaway and Restaurant at Dukesbridge Chambers, Duke Street, Reading.

Section A - General

We are in receipt of the Planning Officer comments relating to the recent planning application. It is confirmed that the application should be accompanied by an acoustic assessment carried out in accordance with BS4142:2014 methodology.

Furthermore, the noise assessment needs to establish the predicted noise rating level taking account of any characteristic factors like tonality or impulsiveness of the noise. The rating level should be compared with the background noise level. The predicted specific sound level ($L_{Aeq,TR}$) as measured at a point 1 metre external to sensitive facades shall be at least 10dB below the existing background sound level, $L_{A90,T}$ when all plant/equipment (or any part of it) is in operation.

At this stage of the design process, no detailed plant data or locations are available for assessment although we expect plant will be located at the rear of the premises. In accordance with the Planning Officer comments relating to the recent planning application, we suggest the following condition wording would be considered appropriate.

“The specific rating sound level of the cumulative plant operation should be controlled to not be less than 10dB below the existing background sound level as measured at a point 1 metre external to sensitive facades. A noise impact assessment, based on final plant selections, is to be submitted to and approved in writing by the Local Authority prior to the development coming into use”.

From our experience, the plant installed on this type of development, will not be tonal. Also by designing to 10dB below background, impulsive noise from plant will not be audible.



Section B – Environmental Noise Survey

We do not know the finalised opening times of the Takeaway or the Restaurant and, therefore, have carried out environmental surveys between the hours of 22.00-23.00 hours on Monday 8th July 2019 and 02.00-03.00 hours on Tuesday 9th July 2019. The monitoring was undertaken in the courtyard area at the rear of the premises, representative of the residential rear facades adjacent to the rear of the proposed premises.

Section C – Fixed Plant

At this stage of the design process, no detailed plant data is available for assessment. We have suggested a condition wording which would be considered appropriate.

A noise impact assessment report will be provided in due course when all plant selections and locations are finalised.



1.0 Introduction

- 1.1 Acoustic Consultancy Partnership Ltd (ACP) have been appointed by Planning Consent to undertake an environmental noise survey and noise impact assessment report for proposed plant to be installed to serve the proposed A5/A3 premises at Dukesbridge Chambers, Duke Street, Reading.
- 1.2 The survey monitoring has established the underlying background and ambient noise levels applicable to the rear façade of the premises where any plant is likely to be installed.
- 1.3 Once plant selections and locations have been established, a fixed plant noise impact assessment will be undertaken in accordance with the methodology stated in BS4142:2014 to determine any mitigation measures that will be required to ensure compliance with Reading Borough Council noise requirements.
- 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.



SECTION A - GENERAL

2.0 Site Layout and Nearest Noise Sensitive Buildings

- 2.1 The premises will occupy an existing shop unit in Dukesbridge Chambers, Duke Street, that will be converted into two units providing a Takeaway and a Restaurant. The premises will occupy the ground floor only. Above the premises are three floors of offices. The rear of the premises, are located in the north west corner of a courtyard accessed from Highbridge Wharf. Within the courtyard area are the rear facades of residential apartments and offices.
- 2.2 It is expected that any plant associated with the proposed A5/A3 use will be located in the rear courtyard or will be internal to the premises with intake/discharge openings in the rear walls. The nearest noise sensitive residential properties are two/three storey apartments above the ground floor retail units. The proposed Receptor Position would be as follows:

Receptor Position RPA Rear façade of the apartments facing into the courtyard area.

3.0 Project Information

- 3.1 We have based this report on general floor plan drawings and our site survey.

4.0 Proposed Plant Operating Hours

- 4.1 The operating hours of the TakeAway and Restaurant are not yet finalised

5.0 Noise Assessment Methodology

- 5.1 We will undertake a noise impact assessment for plant, when the selections and locations are known, based on the methodology contained in BS4142:2014 and the response by Reading Borough Council to the planning application.



SECTION B – ENVIRONMENTAL NOISE SURVEY

6.0 Measuring Position

6.1 The monitoring position for the environmental noise surveys is given below and shown on the site plan in Appendix 1.

MP1 Towards the north west corner of the courtyard adjacent to the bottom of the sloping path that leads to the rear doors of the premises. The microphone was positioned at 1.5m above ground level and more than 1.5m from any vertical reflecting surface.

7.0 Noise Measuring Equipment

7.1 Noise readings were obtained using a Svantek 957 type 1 real time analyser, serial number 20607.

7.2 The meter was calibrated before and after the measurement periods, with a level of 114dB at 1000Hz, using a Svantek SV31 acoustic calibrator, serial number 24688. No adverse deviation was detected.

7.3 The meter and calibrator have current calibration certificates that are available upon request.

8.0 Noise Measurement Periods

8.1 The measurement period for the environmental readings was as follows

22.00 to 23.00 hours on Monday 8th July and 02.00 to 03.00 hours on Tuesday 8th July 2019.

8.2 The weather during the survey periods was dry with clear skies. No wind speed was measured on the Meteos Skywatch during either survey period. The temperature was 21°C during the evening survey and 18°C during the night.

8.3 Conditions were suitable for environmental monitoring.

9.0 Noise Level Measurements

9.1 We have recorded broadband noise levels and also centre frequency octave band levels for additional information purposes, if required.

10.0 Results

10.1 We consider the measurements obtained at the monitoring position to be typical of the underlying noise climate within the courtyard area. The rear of Panino(No 11) had three outlets in the rear wall with one operating during both monitoring periods. Road noise from Duke Street was clearly audible during the evening period but not during the night time period.

10.2 During the evening survey period there were six aircraft flyovers. There were none at night. There were no car movements along Highbridge Wharf during either survey period.

10.3 The results of the underlying environmental noise survey are given below in Table1.

Monitoring Position	Time			Measured Sound Pressure Level, dB			
				L _A F _{max}	L _A eq,T	L _A 10,T	L _A 90,T
MP1	22.00	to	22.15	67.8	49.6	50.7	48.0
	22.15	to	22.30	59.1	50.1	51.5	48.5
	22.30	to	22.45	56.6	49.0	50.2	47.6
	22.45	to	23.00	57.9	49.2	50.6	47.3
	02.00	to	02.15	56.4	47.1	47.9	46.1
	02.15	to	02.30	49.2	47.0	47.8	46.1
	02.30	to	02.45	51.5	47.8	48.8	46.6
	02.45	to	03.00	55.8	48.3	48.9	47.2

Table 1 – Existing Noise Climate Measured Noise Levels



SECTION C – FIXED PLANT

11.0 Design Assessment Details

- 11.1 We will undertake a noise impact assessment for plant, when the selections and locations are known, based on the methodology contained in BS4142:2014 and the response by Reading Borough Council to the planning application.

12.0 External Noise Criteria

- 12.1 We are in receipt of the Planning Officer comments relating to the recent planning application. It is confirmed that the application should be accompanied by an acoustic assessment carried out in accordance with BS4142:2014 methodology.
- 12.2 Furthermore, the noise assessment needs to establish the predicted noise rating level taking account of any characteristic factors like tonality or impulsiveness of the noise. The rating level should be compared with the background noise level. The predicted specific sound level ($L_{Aeq,TR}$) as measured at a point 1 metre external to sensitive facades shall be at least 10dB below the existing background sound level, $L_{A90,T}$ when all plant/equipment (or any part of it) is in operation.
- 12.3 At this stage of the design process, no detailed plant data or locations are available for assessment although we expect plant will be located at the rear of the premises. In accordance with the Planning Officer comments relating to the recent planning application, we suggest the following condition wording would be considered appropriate.

“The specific rating sound level of the cumulative plant operation should be controlled to not be less than 10dB below the existing background sound level as measured at a point 1 metre external to sensitive facades. A noise impact assessment, based on final plant selections, is to be submitted to and approved in writing by the Local Authority prior to the development coming into use”.



- 12.4 During the day (07.00-23.00), the British Standard requires the rating sound level to be established over a 1 hour reference time period and to be compared to the typical existing background sound level. During the night (23.00-07.00), the British Standard requires the rating sound level to be established over a 15 minutes time period and compared to the typical existing background sound level.
- 12.5 Based on the results of our environmental noise survey, the new plant cumulative target noise levels at the nearest residential would be as follows.

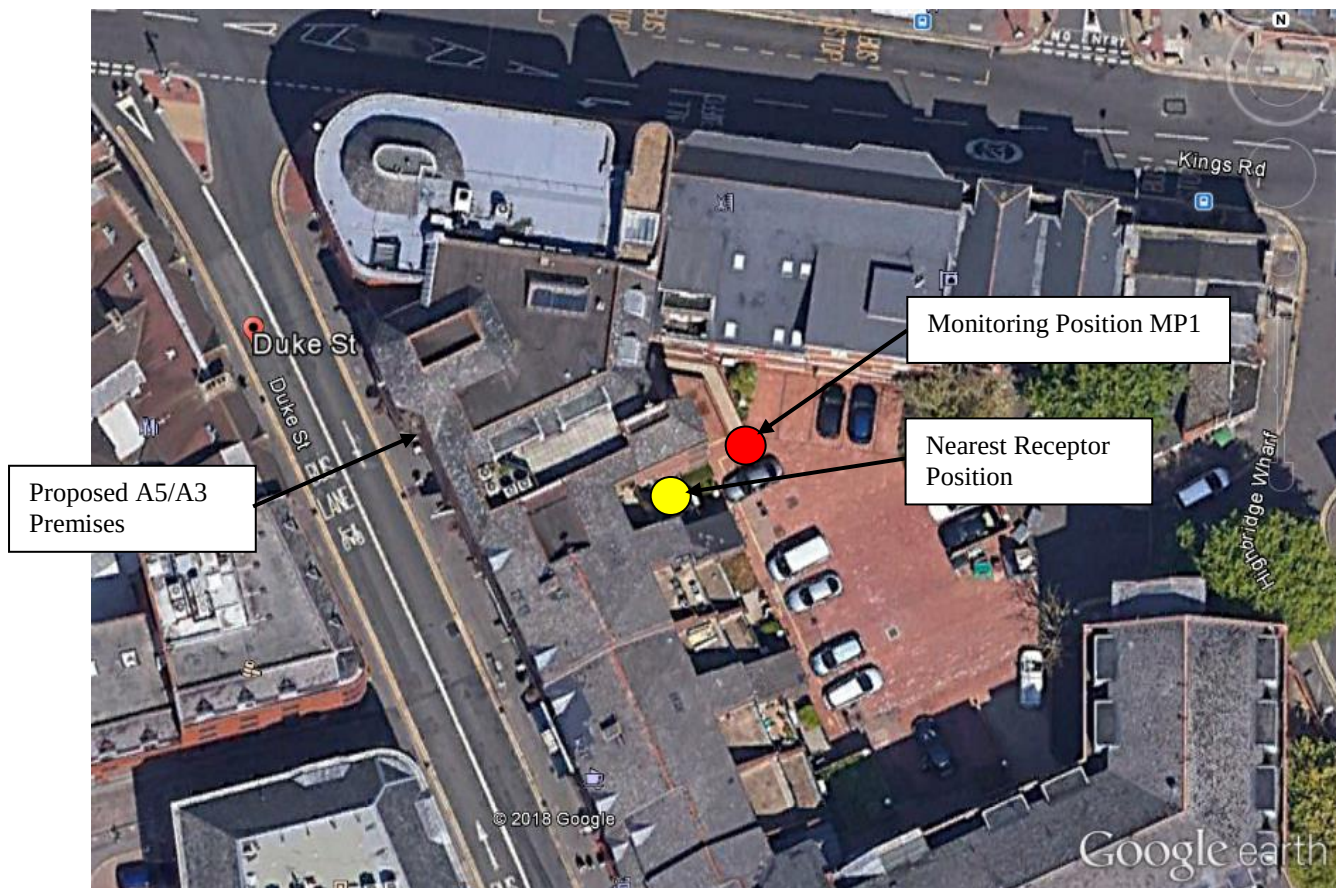
Time Period	Cumulative Plant Target Noise Levels
07.00-23.00	37 dB LAeq(1hour)
23.00-07.00	36 dB LAeq(15mins)

Table 2 – New Plant Cumulative Target Noise Levels

- 12.6 From our experience, the plant installed on this type of development, will not be tonal. Also, by designing to 10dB below background, impulsive noise from plant will not be audible.
- 13.0 Plant Noise Impact Assessment**
- 13.1 A noise impact assessment report will be provided in due course when all plant selections and locations are finalised.

Appendix 1

Site Plan





Appendix 2

Glossary of Terminology

$L_{Aeq,T}$

The “A” weighted parameter defined as the equivalent continuous sound pressure level over a defined time period “T”. It is the sound pressure level equivalent to the acoustic energy of the fluctuating sound signal. The $L_{eq,T}$ is therefore the average sound pressure level over a given time period. It is commonly used to describe ambient noise.

$L_{A90,T}$

The “A” weighted parameter defined as the sound pressure level exceeded for 90% of the measurement period “T”. It is generally used to describe the prevailing background noise level or the underlying noise level.

$L_{A10,T}$

The “A” weighted parameter defined as the sound pressure level exceeded for 10% of the measurement period “T”. It is generally used to describe traffic noise.

$L_{Amax,T}$

The “A” weighted maximum measured level during a given time period “T”.

Ambient Noise

Total encompassing sound in a given situation at a given time usually being composed of sound from many sources near and far.

Background Noise Level

The A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90% of a given time interval.



Appendix 3

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 plant noise.

BS 4142:2014 Methods for Rating and Assessing Industrial and Commercial Sound

This British Standard describes methods for rating and assessing sound of an industrial and/or commercial nature, which includes

- a) Sound from industrial and manufacturing processes
- b) Sound from fixed installations which comprise mechanical and electrical plant and equipment
- c) Sound from the loading and unloading of goods and materials at industrial and/or commercial premises
- d) Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes

The methods described in the British Standard use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.

The Standard confirms that certain acoustic features can increase the significance of impact over that expected from a basic comparison between the specific sound level and the background sound level. Where appropriate, a rating penalty should be established based on a subjective assessment of its characteristics at the receptor position. This method is appropriate where a new source cannot be measured because it is only proposed at that time, but the characteristics of similar sources can subjectively be assessed.

The Standard also confirms “The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a 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 impact, depending on context.