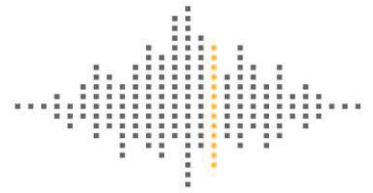


SHARPS REDMORE

ACOUSTIC CONSULTANTS ▪ Established 1990



Report

The Crystal Palace, Berkhamsted
Outdoor space/ Acoustic barrier

Noise Assessment

Prepared by Martin Court MIOA
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This report has been prepared with all reasonable skill, care and diligence commensurate with an acoustic consultancy practice under the terms and brief agreed with our client at that time. Sharps Redmore provides no duty or responsibility whatsoever to any third party who relies upon its content, recommendations or conclusions.

1.0 Introduction

1.1 Sharps Redmore have been instructed to undertake an assessment of an acoustic barrier in the rear garden and outdoor space at The Crystal Palace, Berkhamsted. ("the Premises"). A site location plan is shown in Appendix A.

1.2 The assessment is to consider the existing planning condition approved by Dacorum Borough Council (Ref 21/01460). Condition 5 relates to the barrier and is shown below in italics:

Notwithstanding the details shown on the approved floor plans and materials schedule prior to use of the outdoor seating area, full details of an acoustic fence/green barrier showing the structure to cover the brick wall and ground floor trellis to the rear of "Ashleigh", Station Road shall be submitted to and agreed in writing by the LPA. The approved details must be installed prior to use of the outdoor seating area and maintained in perpetuity.

Reason: To protect the ground floor amenity space of this dwelling and to comply with Core Strategy Policy 12 and 32.

1.3 The nearest residential property is to the rear of the public house known as Ashleigh. The acoustic barrier is shown at Appendix C together with photographs of the installation.

1.4 A barrier calculation has been undertaken to show the sound reduction provided by the barrier and a graphic of this is shown within the report. The barrier construction and data is shown at Appendix D.

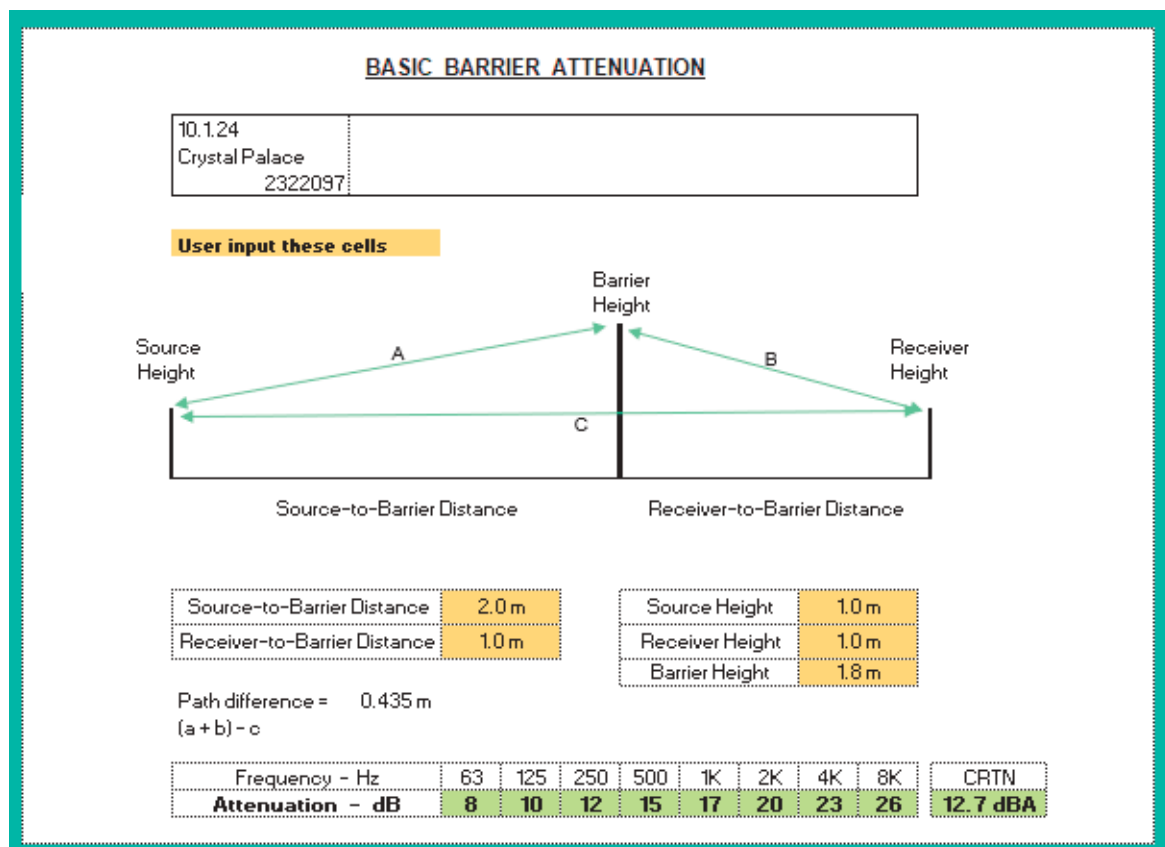
1.5 The assessment conclusions are contained in section 3.0 of this report. A site plan is shown at Appendix A and a guide to the acoustic terminology used in this report is shown in Appendix B.

2.0 Barrier Assessment

- 2.1 A 1.8m high acoustic barrier has been installed in accordance with Condition 5. A Jakoustic® reflective barrier has been used which reflects the noise away using heavy section planed timber boards with a special profile that has been carefully developed. Boards are constructed in such a way that eliminates gaps that sound can easily travel through. Up to 28 dB in noise reduction in laboratory conditions. Details are shown at Appendix D
- 2.2 Typical beer garden levels are provided below for representative use of a busy beer garden in the summer months from Sharps Redmore library data and represent a worst case use of the beer garden area.

Monitoring Point	Time	L _{Aeq} dB	L _{Aeq} *dB	L _{Amax} dB	L _{Amax} dB	L _{A90} dB	L _{A90} dB
Boundary		Range		Range	Typical	Range	Average
Saturday Eve	1800-2200	50-61	58	64-85	69	47-60	52

- 2.3 A barrier calculation has been undertaken to show the performance of the installed 1.8m barrier at the external space to the rear of Ashleigh given the relative distances of people seated both in the beer garden and in the external space to the rear of Ashleigh.



- 2.4 As can be seen, there is a reduction of in the region of 13 dB provided by the barrier enabling evening use of the beer garden area. This would bring L_{Aeq} levels in the external space at the rear of Ashleigh to be in the region of between 37 and 49 dB. No night time use of the beer garden is proposed. The predicted levels are within the lower WHO Guidelines for desirable levels within external amenity space.
- 2.5 The barrier extends along the ground floor brick wall of Ashleigh as required by the condition.

3.0 Assessment Conclusions

- 3.1 An acoustic barrier has been installed further to Condition 5 of the planning consent. A calculation has been provided showing the performance of the barrier.
- 3.2 It is concluded that the barrier provides sufficient attenuation to enable the use of the beer garden without significant adverse impact within the external amenity space of the nearest dwelling.
- 3.3 The structure and performance of the acoustic barrier enables Condition 5 to be discharged.

APPENDIX A

SITE PLAN Showing Extent of barrier



APPENDIX B

ACOUSTIC TERMINOLOGY

Appendix B: Guide to Acoustic Terminology

Ambient noise:

The totally encompassing sound in a given situation at a given time. Most often described in terms of the index L_{AeqT} .

Atmospheric absorption:

The excess acoustic attenuation, over and above that caused by distance attenuation, due to the interaction of an acoustic wave with air molecules.

A-weighting:

A frequency weighting which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Units may be denoted as dB(A) or as sound pressure levels L_{pA} in dB. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds roughly to halving or doubling the loudness of a sound.

Background noise:

See L_{A90} .

Decibel (dB):

A unit of level derived from the logarithm of the ratio between the value of a quantity and a reference value. It is used to describe the level of many different quantities. For sound pressure level the reference quantity is 20 μ Pa, the threshold of normal hearing is in the region of 0 dB, and 140 dB is the threshold of pain. A change of 1 dB is only perceptible under controlled conditions.

Façade noise level:

The noise level adjacent to the façade of a building, usually at a distance of 1 metre.

Free-field noise level:

The noise level away from the façade of a building or other structure.

Hertz (Hz):

Unit of frequency, equal to one cycle per second. Frequency is related to the pitch of a sound.

L_{A10T} : The A weighted level of noise exceeded for 10% of the specified measurement period, T. It gives an indication of the upper limit of fluctuating noise such as that from road traffic. $L_{A10,18hr}$ is the arithmetic average of the 18 hourly $L_{A10,1hr}$ values from 0600 hrs to 2400 hrs.

L_{A90T} : The A weighted noise level exceeded for 90% of the specified time period, T. In BS 4142: 2014 it is used to define background noise level.

L_{AeqT} : The equivalent continuous sound level - the sound level of a notionally steady sound having the same energy as a fluctuating sound over a specified measurement period, T. This period is taken to be 16 hours (0700 hrs to 2300 hrs) and 8 hours (2300 to 0700 hrs) to describe day and night, L_{Aeqt} is used to describe many types of noise and can be measured directly with an integrating sound level meter.

SEL or L_{AE} : The sound exposure level is the A-weighted sound energy produced by a discrete noise event averaged over one second, no matter how long the event actually took. This allows for comparisons to be made between different noise events which occur for different lengths of time.

APPENDIX C

PHOTOGRAPHS





APPENDIX D

BARRIER DETAILS

JAKOUSTIC® REFLECTIVE



The Jakoustic® reflective barrier reflects the noise away using heavy section planed timber boards with a special profile that has been carefully developed. Boards are constructed in such a way that eliminates gaps that sound can easily travel through. Up to 28 dB* in noise reduction.

- Unique tuning fork design posts
- Attractive timber structure with a planed finish throughout
- Anti climb design and scale design
- High privacy barrier
- Special fixings clamp the acoustic boards between posts
- Can accommodate changes in level or profile
- Complete with capping and counter rail
- Up to 28 dB reduction in noise*
- Category B3 rating
- 34mm thick "V" boards
- Matching pedestrian, swing and tracked sliding gates
- **25-year Jakcure® guarantee**

*Jakoustic® barrier certified laboratory results:

Rating according to BS EN 1793-2:1998

Category = B3

Laboratory sound reduction 28 dB

Superficial mass 25kg/m²



- ▶ Heights available with timber tuning fork posts, for general applications away from hills and coasts.
- ▶ For barrier heights 2.1m - 3.0m the timber posts are reinforced with a steel spur post, coated black.

HEIGHT (MM)	POST CENTRES (MM)	SPUR POST (MM)	POST LENGTH (MM)
2000	2410	N/A	2900
2500	2410	2000	3400
3000	2410	2500	3900

*For taller heights, see Jakoustic® Commercial and Highway, which is constructed on galvanised steel I beam posts.

APPLICATIONS

- ✓ Commercial properties
- ✓ Construction sites
- ✓ Sports venues
- ✓ Residential properties

POST OPTIONS

- Timber tuning fork posts overlength set in concrete as standard

GATES

Matching gates available

FINISHES

- Jakcure® treated timber as standard