



Assessment of External Amenity Areas Sound Levels 24 New Build Apartments

37 Broadwater Road
Welwyn Garden City
AL7 3AX

Client:

Solai Holdings Limited
Portland House
1st Floor
69-71 Wembley Hill Road
Wembley
Middx
HA9 8BU

Prepared by
Peter Ashford
Acoustic Associates South West Ltd
Exeter
UK

Date
26th October 2018

Project Reference	6889/pja
Issue No.	1
Author	Peter Ashford
signature	
Reviewed	John Hammond
signature	
Date	31 st January 2018
Revision date	25 th October
Revision	Former office building to be taken down and full new build construction new planning reference 6/2018/2387/MAJ

This report has been prepared by Acoustic Associates South West Ltd with all reasonable skill, care and diligence, and taking account of the Services and the Terms agreed between Acoustic Associates South West Ltd and the Client. This report is confidential to the client, and Acoustic Associates South West Ltd accepts no responsibility whatsoever to third parties to whom this report, or any part thereof, is made known, unless formally agreed by Acoustic Associates South West Ltd beforehand. Any such party relies upon the report at their own risk. Acoustic Associates South West Ltd disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the Services.

Contents

1	Executive Summary.....	3
2	Introduction	4
3	Environmental Sound Levels.....	5
4	Assessment of external sound levels	7
	Drawings	11

1 Executive Summary

Planning permission had been granted by Welwyn Hatfield Borough Council for the redevelopment of the form office building at 37 Broadwater Road into a building consisting of 24 two-bedroom apartment (planning reference 6/2016/297/MAJ) subject to Conditions. No. 8 referred to noise and stated;

No development shall take place until the glazed balustrade/screen details have been submitted. The details should demonstrate that the necessary noise levels for the external amenity areas are in compliance with the noise requirements under BS8233:2014 and the resultant noise levels within the external amenity areas (balconies and roof top communal area) would not exceed the $L_{Aeq,T} 55\text{dB}$. Once these details have been agreed they shall be implemented in accordance with these details and shall be in place before the first occupation of the flats and shall be retained in that form thereafter.

It has now been proposed that the existing office building which was to be converted should be knocked down and an entirely new building constructed, with a fresh planning application being made to by Welwyn Hatfield Borough Council for “Construction of new build of 22 x 2 Bedroom and 2 x 3 Bedroom residential apartments with balconies and a roof garden. Layout of 26 car parking spaces, cycle parking, refuse store, internal access routes, landscaping and supporting infrastructure” under application reference 6/2018/2387/MAJ.

The new proposed building will be the exact same in terms of location, appearance, size, number of apartments etc as the permitted conversion of the existing building.

This report has been commission by Solai Holdings Limited and sets out measured sound levels at the front and rear of the existing office building, on the site, over a 24-hour period. Levels were highest at the front of the site, overlooking Broadwater Road, but at a level of only 63 dB $L_{Aeq,day}$ free due to the low (30 mph speed limit) traffic speeds . Levels at the rear were 5 dB quieter.

The proposed development has two 3rd floor external “relax areas” and three private balconies, these will be protected by solid, continuous glass screens to a height of 1600mm, which will provide a substantial level of attenuation of the occupants sat in these areas. Day time external levels of no more than 47 dB $L_{Aeq,day}$ have been predicted here.

There is one plot on the first and second floor that will have external balconies on the front façade of the building and these will maintain a balcony screen height of 1600mm, all other balconies will be the standard 100mm height.

The highest sound level for these will be 51 dB $L_{Aeq,day}$ (plot 16), exposure levels on the other balconies down the northern facade of the building and at the rear will be less than this.

It has therefore been demonstrated that the design of the balconies has been sufficient to ensure external amenity day time sound levels will be limited to no more than 55 dB $L_{Aeq,day}$ as required by Condition No. 8 of the previous planning approval for the conversion.

2 Introduction

Planning permission has been granted by Welwyn Hatfield Borough Council for the construction of “Change of use of an office building to form 24 x 2 bedroom residential apartments with balconies, the construction of an additional two storeys and a four storey side and rear extension with roof garden, layout of 26 car parking spaces and cycle parking, internal access routes, landscaping and supporting infrastructure” at 37 Broadwater Road, Welwyn AL7 3AX (planning reference 6/2016/297/MAJ), the building to consist of 24 apartments on two floors with roof garden and external balconies.

The Condition No. 8 of the planning consent states;

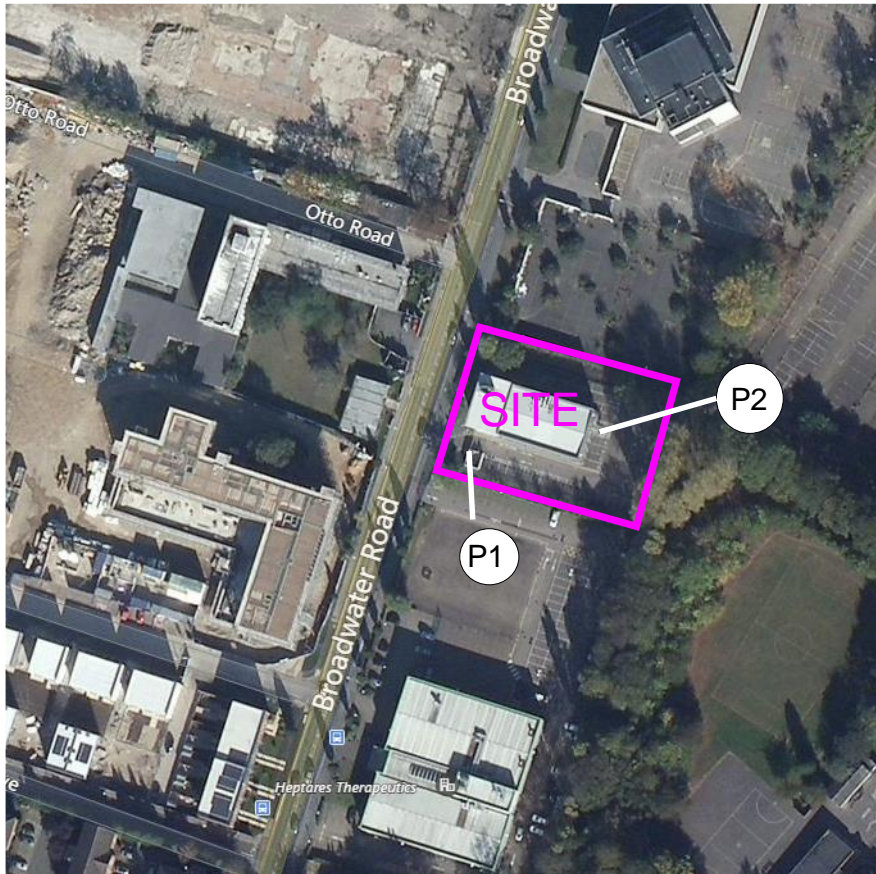
No development shall take place until the glazed balustrade/screen details have been submitted. The details should demonstrate that the necessary noise levels for the external amenity areas are in compliance with the noise requirements under BS8233:2014 and the resultant noise levels within the external amenity areas (balconies and roof top communal area) would not exceed the LAeq,T 55dB. Once these details have been agreed they shall be implemented in accordance with these details and shall be in place before the first occupation of the flats and shall be retained in that form thereafter.

The proposal is now to replace the existing office building with a new building, exactly same in terms of location, appearance, size, number of apartments etc as the permitted conversion of the existing building, however this requires a fresh planning application for the “Construction of new build of 22 x 2 Bedroom and 2 x 3 Bedroom residential apartments with balconies and a roof garden. Layout of 26 car parking spaces, cycle parking, refuse store, internal access routes, landscaping and supporting infrastructure” under a new application reference 6/2018/2387/MAJ.

Solai Holdings Limited has appointed Acoustic Associates SW Ltd to carry out a site sound survey and prepare a mitigation scheme sufficient to control external amenity sound levels to those set out in BS8233, as required by the previous Condition No. 8.

3 Environmental Sound Levels

The aerial view below shows the site and its proximity to Broadway Road to the front which has a 30 mph speed limit;



A site sound survey was carried out from Monday 29th to Tuesday 30th January 2018. The site was vacant and had a solid 2.4m high fence running along the pavement. At the time of setting up and collecting the two sound level meters (location shown as P1 and P2 above) the soundscape was made up of the sound of traffic moving on Broadwater Road and some demolition activity sound from the large former Weetabix factory to the north.

The photograph below shows the microphone at the front of the site (P1) at a height of approximately 3.5m from where there was a direct line of sight over the solid site hoarding on top the road;



A second meter was located at the rear of the former office building on the first floor fire exit, at a height of approximately 5m, as shown in the photograph below;



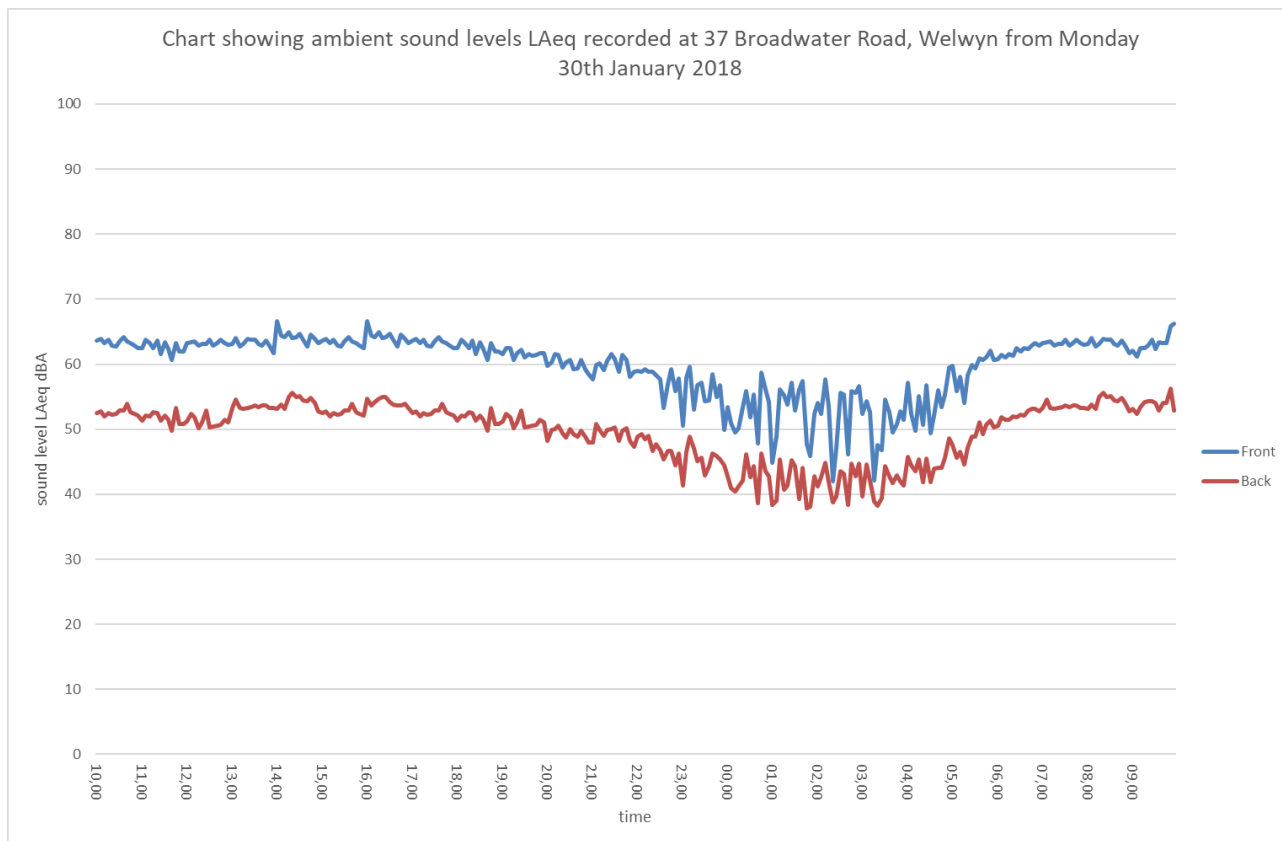
Each meter was calibrated before and after the survey without any adverse variants being observed. Details of the equipment used are given in the table below;

Make	Model	Serial No.	Calibration No.	Cert	Re-calibration due
Rion	NL31	00583286	1603119		2-3-18
Rion	NL31	012730381	1603115		15-2-18
Rion	NC74	34794316	TRAC17/04089		5-5-18

Both meters were set to record noise parameters over repetitive 5 minute periods.

The weather during the survey was clear and fine with little wind and suitable for repeatable environmental sound measurement¹.

The chart over page shows the L_{Aeq} levels recorded;



This chart makes it clear that sound levels were higher on the western boundary overlooking Broadwater Road than the rear. The sound levels are summarised in the table below;

Period	Front	Back
	$L_{Aeq,T}$	$L_{Aeq,T}$
day 7am to 11pm	63	52
night 11pm to 7am	57	47

4 Assessment of external sound levels

The level of sound incident on the facades of the new dwellings can be estimated using Wolfe IMMI 3-D computer noise modelling software, which implements the calculation procedures set out in ISO

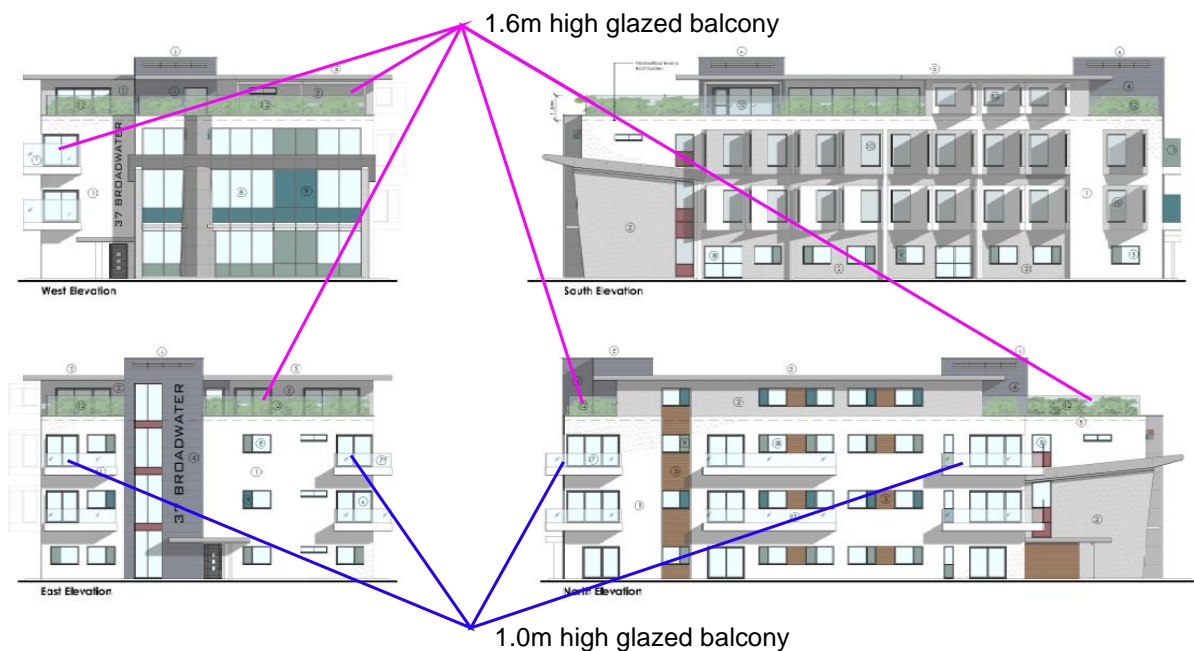
¹https://www.wunderground.com/history/airport/EGGW/2018/1/29/DailyHistory.html?req_city=EGGW&req_state=CBF&req_statename=United+Kingdom&reqdb.zip=00000&reqdb.magic=115&reqdb.wmo=03673

9613-2:1996 (Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation). As well as the amendment contained within ISO/TR 17534-3:2015 (Acoustics - Software for the calculation of sound outdoors - Part 3: Recommendations for quality assured implementation of ISO 9613-2 in software according to ISO 17534-1).

The following modelling assumptions have been relied upon;

- $G = 0.0$ (hard ground outside the site)
- Air temperature 10°C ,
- Humidity 70%,
- Downwind propagation,
- Receiver height on external amenity/balcony areas 1.2m (seated),
- traffic on Broadwater Road modelled as a line source 0.5m high and on centre line of carriageway,
- The general arrangement is shown on Stdio11 Architecture 's drawing No. 1583-200C, 201C, 202B (copies at the rear of this report),

An extract of the elevation drawing is shown below along with the glazed balcony heights;



The image below shows the view of apartments looking from the south west;

View NorthEast



The image below shows the view of the apartments from the north west;

View SouthEast



The table shows the predicted day time sound level on the Relax areas on the roof and higher level balconies where sound levels from the road will be at their greatest.

Location	Day time L _{Aeq,T} dB
Relax Area Front (3rd flr)	47
Plot 22 Balcony (2nd flr)	47
Relax Area Middle (3rd flr)	45
Plot 23 Balcony	42
Plot 24 Balcony	42
Plot 16 Balcony	51
Plot 17 Balcony	47
Plot 18 Balcony	46

The IMMI 3D acoustic model can full acoustic calculation can be shared on request.

This table shows that sound levels will be at their highest on the 2nd floor balcony of Plot 24 overlooking Broadwater Road, where the glass balcony will be 1.6m high, facing the road and 1m high on its other sides.

The predicted external amenity/balcony sound levels can therefore be seen to be better than the 55 dB L_{Aeq,T} required by Condition No. 8 of the previous planning consent.

Drawings

