



AIRTIGHT & NOISECHECK LIMITED

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ASSOCIATED DOCUMENT FOR CONDITION RELEASE DUE TO
ALTERNATIVE ACCESS ROAD LOCATION AND DWELLING (PLOT 1)

LANDWISE LTD
13 KINGDON BUSINESS PARK
SEGENSWORTH EAST
FAREHAM
HAMPSHIRE
PO15 5TJ

SITE ADDRESS

OAK LODGE
BRIDGE ROIAD
BURSLEDON
SOUTHAMPTON
HAMPSHIRE
SO31 8AL

ASSESSMENT DATE: 29TH MAY 2020 – UNDERTAKEN BY OTHERS

CONDITION DISCHARGE REPORT DATE: 13th APRIL 2023



Acoustic Engineer:

Document Date: 19th September 2023



Michael Vine
AIRTIGHT & NOISECHECK BUILDING ACOUSTIC TESTING

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Customer Name:

Document Date: 19th September 2023

Landwise Ltd
13 Kingdon Business Park
Segensworth East
Fareham
Hampshire
PO15 5TJ

Site Address:

Oak Lodge
Bridge Road
Bursledon
Southampton
Hampshire
SO31 8AL

Acoustic Engineer:

Mr. Michael Vine

Condition Release:

The following condition was part of the successful planning application No: F/20/87926. The proposal was:

Construction of 6no. five bed dwellings, conversion of existing outbuilding to 1no. 3 bed dwelling and the refurbishment of existing dwelling at Oak Lodge with associated garages / car parking, new access from Bridge Road, landscaping and associated works.

The condition required for discharge is:

Notwithstanding the approved document 'Noise Impact Assessment and Glazing Specification (SCL7014.200529.R1), no development shall take place until details are submitted and approved by the LPA for mechanical ventilation and heat recovery systems across all plots. Further details for Plot 1 are to be submitted and approved including glazing performance details. Acoustic barrier design details should be referred to as part of this work and are also required for submission under separate condition (detailed design). Details will also be prepared and summarised in an accompanying supporting noise report. The development shall proceed in accordance with the approved details.

Reason: In the interests of occupier amenity

This further document is to assist with the alternative location of the access road to the site and the relocation of Plot 1, which is moving very slightly to the East.



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Executive Summary:

Airtight & Noisecheck Ltd have been asked to assist with a minor change to the proposed site. This does not include any additional dwellings being included as part of the proposed site, nor does it include relocating any dwellings closer to any existing or proposed noise sources.

The purpose of this document is to state that the access road for the site is now being relocated to the existing position, the road was proposed to be to the East of Plot 1, this has now been amended to keep the access road in the same location as it currently is and move Plot 1 to the West of the site and by virtue the access road.

Plot 1 will not be relocated any closer to the existing or proposed noise sources and all of the proposed mitigation measures will remain as they are.

All of the proposed mitigation measures were determined by the original Noise Impact Assessment undertaken by others in May 2020. An additional document (1378) was prepared by Airtight & Noisecheck Ltd in April 2023 to determine the proposed boundary treatment for Plot 1.

All of this information is shown below. The conclusion of these minor changes to the access road and to Plot 1 will have no adverse impact on the residential amenity for the future occupiers of Plot or any other Plots as part of the proposals.

Airtight & Noisecheck Ltd were instructed by Landwise Ltd to help discharge a planning conditions relating to providing a scheme for the ventilation and glazing elements of the 7 x dwellings at the proposed site. A Noise Impact Assessment (NIA) was undertaken by Sound Consulting Ltd on 29th May 2020. This report offers suitable mitigation for the proposed dwellings, and that is the data used within this condition discharge document.

The initial NIA stated that the previous developer was going to install MVHR units to all dwellings, however the current site owner does not intend to undertake the same measures but rather offer alternative ventilation via open windows and acoustic trickle vents.

All mitigation measures will be listed within this report, using data and written evidence from the original NIA undertaken by Sound Consulting Ltd.

The initial report was undertaken on 29th May 2020 and offers suitable mitigation for the proposed dwellings.

The proposed site plan is shown below:

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Site Layout:

The proposed site is located adjacent to Bridge Road (A27) in Bursledon, Hampshire. The dominant noise source would have been road traffic using the local road network, and primarily the A27 which is a busy road network.

The majority of dwellings will be located towards the rear of the site and thus screened from the road traffic. Plot 1 will be located at the front of the site and thus exposed to higher levels of noise, so the proposed mitigation measures will vary throughout the site.

Measurement Duration:

Fully automated measurements of ambient environmental noise levels were undertaken at monitoring positions A and B as shown in Figure 1. The microphone at position A was 19m from the centre of the A27 road and approximately 1.5m above the ground level of a small bund (just inside the site boundary) which is approximately 1.1m above the local ground and road level. The microphone at position B was approximately 1.5m above the local ground level at the rear boundary. The locations of spot measurements undertaken at 1.5m above local ground level are also shown, referenced positions 1-6.

Consecutive 5-minute measurements of L_{Aeq} , L_{Amax} , L_{A10} and L_{A90} sound pressure levels were taken between 18:15 hours on Monday 15th July and 14:15 hours on Saturday 20th July 2019 at monitoring position 1, and between 17:30 hours on Monday 15th July and 18:45 hours on Thursday 18th July 2019 at monitoring position 2. Additional synchronised spot measurements were undertaken at positions across the site on Monday 15th July 2019 and the data cross-referenced to that collected at automated monitoring position A to assess the propagation of road traffic noise across the site.

The instrumentation used during the survey is detailed in Figures 2-4. The calibrations of the sound level meters (including extension cables and weather housing) were verified before and after use. No significant calibration drift was found to have occurred (i.e. no more than ± 0.5 dB). Calibration certificates are available on request.

Due to the nature of the survey being unmanned, a detailed log of the weather conditions at the site is not available. From observations at the start and the end of the survey, along with the summary for the nearest online weather station shown in Figure 5, the conditions were deemed appropriate and suitable for the measurement of environmental noise overall. N.B. Any periods where results are clearly affected by rainfall, or by wind speeds above 5m/s, will be clearly detailed in the results section, and the corresponding data excluded from the assessment (if deemed necessary depending on the type of assessment).

Measurements were made generally in accordance with ISO 1996-2:2007 Acoustics - Description, measurement and assessment of environmental noise – Part 2: Determination of environmental noise levels.

The above was taken from the NIA to establish the measurement duration and criteria used.

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Results:

The results shown below have also been taken from the original NIA undertaken for the site.

Table 4.1 summarises the results of the automated monitoring.

Location	L _{Aeq, T}		Typical L _{AFmax}
	0700 - 2300	2300 - 0700	0700 - 2300
Monitoring Position A	68 dB	62 dB	77 dB
Monitoring Position B	49 dB	45 dB	59 dB

Table 4.1 – Summary of automated noise survey measurements [dB ref. 20µPa]

Table 4.2 summarises these results of the spot measurements which have been compared with the synchronised automated measurements to assess the propagation of noise across the site. The average noise levels measured at monitoring position A and monitoring position B between 18:15 and 18:50 were 67dB (in the range 66.6dB – 67.7dB) and 47dB (in the range 45.5dB – 47.8dB), respectively.

Location	Time	L _{Aeq, T}
Monitoring Position 1	18:20– 18:25	65 dB
Monitoring Position 2	18:15 – 18:20	60 dB
Monitoring Position 3	18:30 – 18:35	51 dB
Monitoring Position 4	18:35 – 18:40	50 dB
Monitoring Position 5	18:40 – 18:45	48 dB
Monitoring Position 6	18:45 – 18:50	47 dB

Table 4.2 – Summary of spot measurements on 15th July 2019 [dB ref. 20µPa]

Location	Time	L _{Aeq, T}	Typical L _{AFmax}
Plot 1	0700 - 2300	66 dB	-
	2300 - 0700	60 dB	75 dB
Plot 2	0700 - 2300	52 dB	-
	2300 - 0700	47 dB	62 dB
Plot 3	0700 - 2300	51 dB	-
	2300 - 0700	45 dB	60 dB
Plot 4	0700 - 2300	50 dB	-
	2300 - 0700	44 dB	60 dB
Plot 5	0700 - 2300	50 dB	-
	2300 - 0700	44 dB	59 dB
Plots 6, 7 and 8	0700 - 2300	49 dB	-
	2300 - 0700	44 dB	59 dB

Table 4.3 – Summary of façade incident sound levels on open site [dB ref. 20µPa]

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The above tables clearly illustrate the associated noise levels for each of the plots at the scheme.

The proposed glazing specification for the site is shown below.

Building Specifications:

REQUIRED GLAZING PERFORMANCE

Standard thermal double glazing (e.g. of the order of 4-16-4) will be suitable for Plots 2-8. Acoustically specified double-glazing (achieving R_w 34dB) has been recommended for Plot 1, a full spectral sound reduction performance for which is provided in the Table 5.2 which will ensure that a good internal acoustic is achieved (i.e. no traffic 'rumble'). Calculations are included in Appendix D.

Frequency (Hz)	63	125	250	500	1000	2000	4000	R_w
Type A (Plot 1)	13	16	24	30	38	37	33	34

Table 5.2 – Minimum sound reduction indices of glazed elements of Plot 1 (spectral)

[dB ref. 20μPa]

The above table shows the glazing proposed for each of the plots. For clarification these are shown below:

Plots	63Hz	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	Overall reduction - R_w
Plot 1	13	16	24	30	38	37	33	34dB
Plots 2-8	0	3	11	16	23	22	17	20dB

The above glazing spectrums have been taken from the NIA and based on the measured values should offer suitable levels of mitigation for each plot. A system for plot 1 is shown below, which achieves an overall sound reduction of 34dB.

Plots	Glazing depth	63Hz	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	Overall reduction - R_w
Plot 1 – SG Solaglass 8-12-10	30mm	27	28	27	35	37	36	45	37-3 = 34dB

Ventilation:

The below content was again taken from the NIA undertaken at the site. However, the new site owner no longer wishes to install MVHR systems to the dwellings so alternative ventilation is now required. This should be possible via acoustic trickle ventilation to all windows. A possible system is shown on the following page.

Please also note the comments relating to all dwellings having the options of naturally ventilating their dwellings via open windows. It is essential that a relationship is achieved between noise, overheating and ventilation is achieved and this can be done so in this case via open windows at the residents discretion and for all other times when the windows are closed, the dwellings can be ventilated via their alternative ventilation systems.

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VENTILATION

For Plots 4-8, windows can be opened and desirable internal noise levels maintained (assuming a sound reduction of 10-15dB is provided by a partially open window – Source: BS8233). In order that windows may remain closed to maintain the internal noise levels in Plots 1-3, an alternative means of background ventilation would be required and trickle vents would be considered suitable. It is understood, however, that the Client proposes MVHR mechanical supply and extract ventilation to all plots. The proposed system is the Titon HRV1.25 Q Plus with Trimbox NO2 Filter® and details of these units can be found at the following URLs:

https://www.titon.com/uk/products/ventilation-systems/heat_recovery_mvhr/hrv-1-25-q-plus/

<https://www.titon.com/uk/products/ventilation-systems/accessories/trimbox-no2-filter/>

It should be noted that there is no reason why windows cannot be opened in all plots as a matter of personal preference or for purge ventilation since no internal noise criteria are specified for this scenario.

The following guidance should be adhered to in order to control self-generated noise from the mechanical ventilation supply and extract systems:

- Continuous noise from the mechanical ventilation system, inclusive of fan case breakout and internal grilles should not exceed 30 dB L_{Aeq} in living rooms and bedrooms;
- Where required, silencers should be installed at the fan inlet and / or outlet;
- Rooms which share supply and / or extract terminations from the same main duct should have cross talk attenuators implemented within at least one of the corresponding branch ducts to minimise cross talk between the rooms;
- Ventilation fans should be located within non-habitable rooms or within built-in cupboards. If located in a built-in cupboard, ensure that the access door provides a tight seal to prevent flanking transmission to habitable rooms;
- Fans and ductwork should be fitted using resilient mountings to mitigate vibration and re-radiated structural noise.

Paragraph one above clearly indicates that trickle ventilation would be satisfactory for all plots. The client will take steps to install acoustic trickle vents to all windows for the plots. The below offers suitable sound reduction:

Product	Sound Reduction - Open	Sound Reduction - Closed
Acoustic EHA	36dB	38dB

The above product is manufactured by R W Simon and will offer the necessary levels of sound attenuation listed within the NIA.

Boundary Treatment:

It is understood that the client has agreed a suitable boundary treatment for plot 1 to ensure suitable levels within the amenity space. Such treatment needs to be 2.3m high, so a 1.8m high close boarded continuous fence atop a 0.5m high earth bund or masonry wall will ensure such treatments are installed and effective.

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Conclusion:

The relocation of Plot 1, slightly to the West and the alternative location of the access road (remaining in its original location) will not have an adverse impact on the future residents of the scheme. All dwellings will remain at the same distance to proposed or existing noise sources and thus the impacts of such will be negligible at all residential facades.

Based on the data and noise levels taken from the initial NIA, the proposed mitigation measures listed within this document should ensure the residents will not be adversely affected by the noise sources in operation at the site location.

The proposed glazing and ventilation systems listed, combined with the façade specifications should ensure a reasonable standard of living for the future residents of the scheme.

Noise Data Graphs:

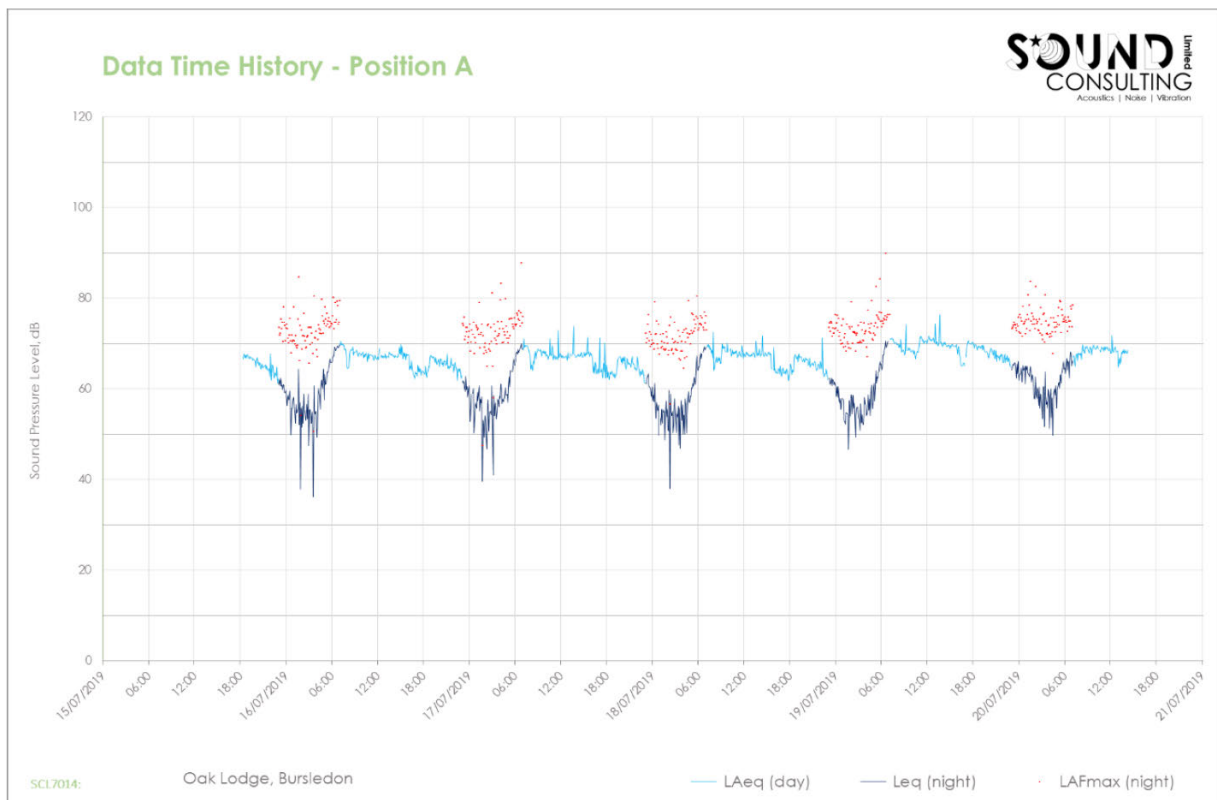


Figure 6 – Noise Survey Results: Monitoring Position A

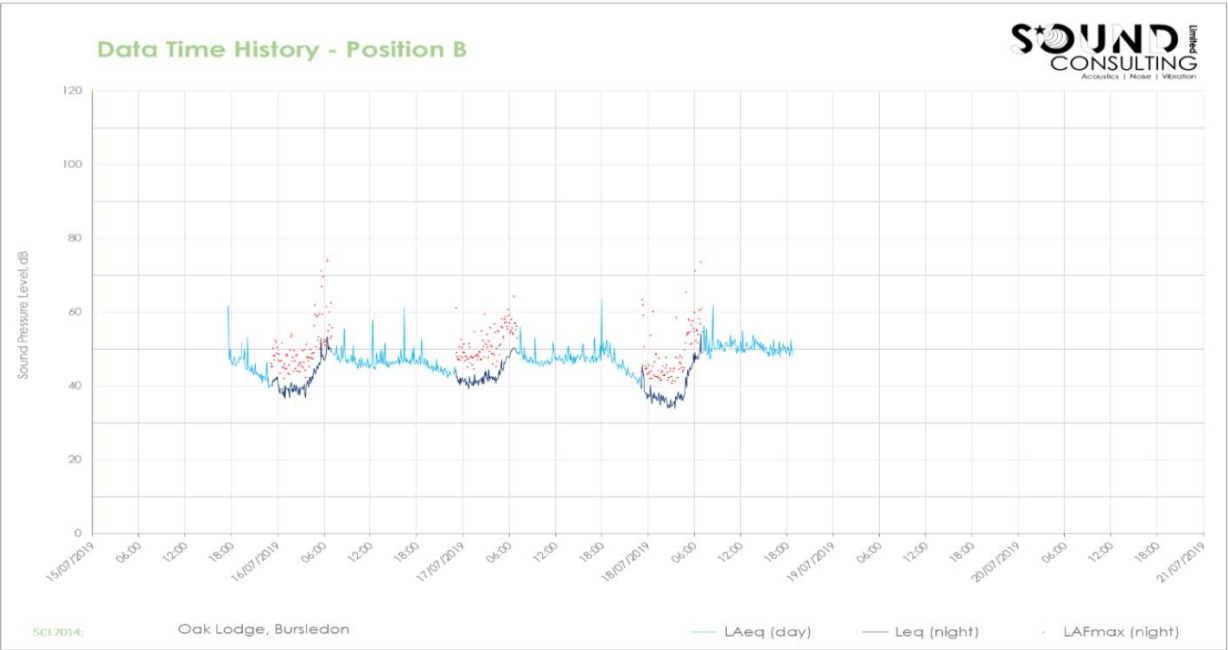


Figure 7 – Noise Survey Results: Monitoring Position B

Proposed site Plan:

