



**Former Link's Children's Centre
Wecock Farm
Waterlooville**

Noise Assessment Report

2 July 2024

For
Nightingale Apartments

Contents

SUMMARY.....	3
1.0 INTRODUCTION	4
2.0 DESCRIPTION OF SITE AND PROPOSALS	4
3.0 ACOUSTIC CRITERIA.....	5
3.1 General Permitted Development Order	5
3.2 Planning Practice Guidance	5
3.3 Noise Policy Statement for England	5
3.4 Commercial Noise.....	7
3.5 Internal Noise Levels.....	7
3.6 Overheating and Open Windows	8
4.0 NOISE SURVEY	11
4.1 Methodology	11
4.2 Results and Observations	12
4.3 External Noise Levels	12
4.4 Internal Noise Levels.....	13
4.5 Overheating and Open Windows	13
5.0 CONCLUSION	14
APPENDIX A – ACOUSTIC TERMINOLOGY.....	15
APPENDIX B – TIME HISTORY GRAPH	16

Project Number	14688	Issue Date	2 July 2024
Document Reference	R/NA/1/240702	Version	01
Report Produced by	Nicholas Jones BEng(Hons) CEng MIOA	T: 07739 715411 E: njones@auricl.com	
auricl Limited www.auricl.com hello@auricl.com	107 Cheapside London EC2V 6DN	9 Greyfriars Road Reading RG1 1NU	

Registered Company 09824075

Copyright © auricl Limited 2024. All rights reserved. This report is confidential to the party to whom it is addressed and their professional advisers for the specific purpose to which it refers. No responsibility is accepted to third parties, and neither the whole nor any part of this report nor reference thereto may be published or disclosed without the written consent of auricl Limited.

SUMMARY

It is proposed to change the use of the Former Link's Children's Centre in Waterloooville to create residential dwellings.

For a change of use to residential, the Town and Country Planning (General Permitted Development) (England) Order 2015 (as amended) (GPDO) requires an assessment of noise from commercial premises on the intended occupiers of the development.

The site is located in a predominantly residential area, with no commercial sources nearby.

auricl has been appointed to assess the impact of the surroundings on the proposed development site.

A noise survey has been undertaken at a worst-case external position, as well as simultaneous manned measurements were undertaken on Monday 24 June 2024 to assess corresponding internal noise levels, so that the sound reduction performance of the existing glazing could be assessed.

Based on the measurements, it was predicted that the internal noise level are less than the 'desirable' internal noise level limit for dwellings specified in BS 8233: 2014.

The existing external façade is therefore considered to provide sufficient attenuation of commercial and environmental noise levels.

In addition, noise levels are predicted to be within the negligible noise risk category during daytime and night-time periods and do not exceed the Approved Document O limits. Therefore, according to the guidance, *"use of opening windows as a primary means of mitigating overheating is not likely to result in adverse effect"*.

1.0 Introduction

It is proposed to change the use of the Former Link's Children's Centre in Waterloooville to create residential dwellings.

For a change of use to residential, the Town and Country Planning (General Permitted Development) (England) Order 2015 (as amended) (GPDO) requires an assessment of noise from commercial premises on the intended occupiers of the development.

auricl has been appointed to assess the impact of the surroundings on the proposed development site.

This report presents the methodology and results of a noise survey to determine the existing noise levels at the site, as well as an assessment of noise levels within the proposed residential development.

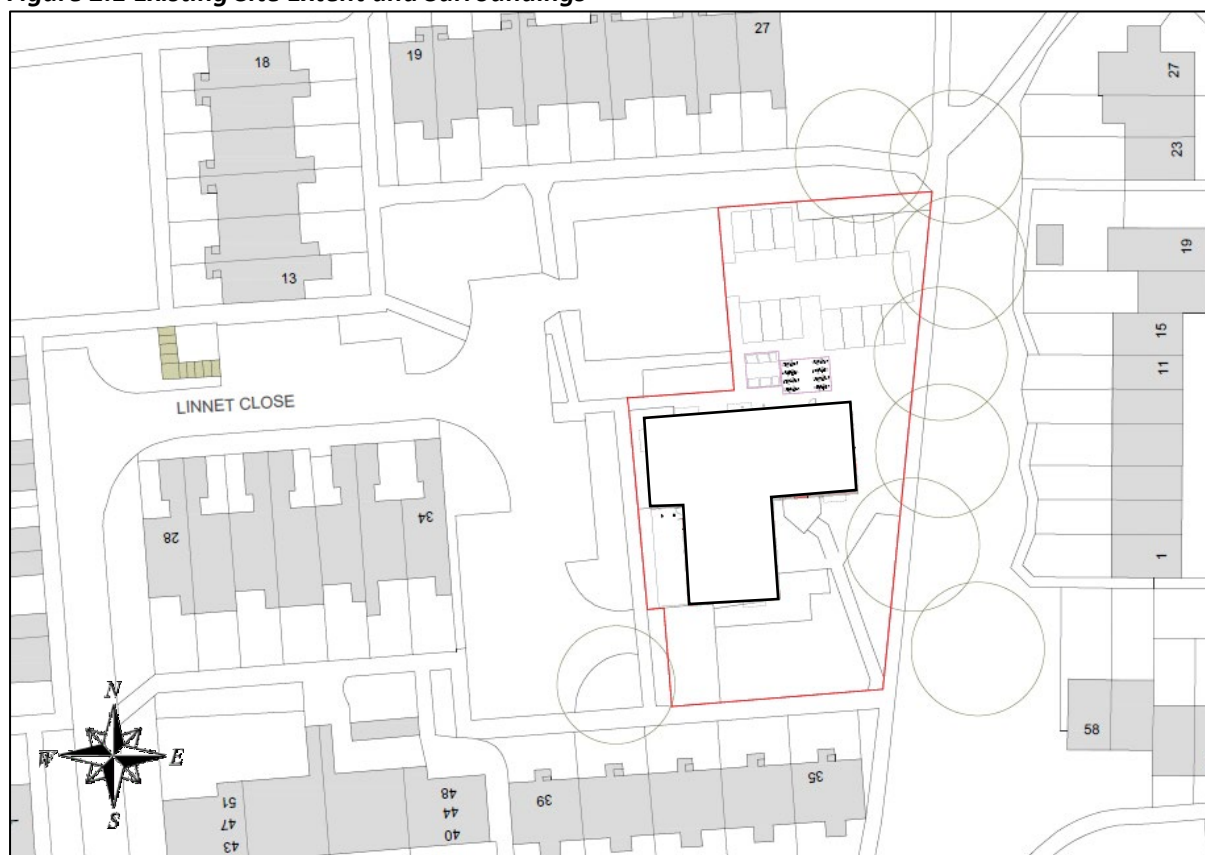
2.0 Description of Site and Proposals

The site is occupied by the former Link's Children's centre approximately 50m to the north of Eagle Avenue and is surrounded by residential properties.

Commercial properties are located approximately 125m to the south east on Eagle Avenue.

Figure 2.1 shows the location of the site outlined in **red** in relation to the surrounding area.

Figure 2.1 Existing Site Extent and Surroundings



3.0 Acoustic Criteria

We have based our assessment on the guidance and standards presented in the following sections.

3.1 General Permitted Development Order

Schedule 2, Part 3, Class MA, paragraph MA(1) of the GPDO (as amended) states the following:

“(1) Development under Class MA is permitted subject to the following conditions:

(2) Before beginning development under Class MA, the developer must apply to the local planning authority for a determination as to whether the prior approval of the authority will be required as to... impacts of noise from commercial premises on the intended occupiers of the development”

The National Planning Policy Framework (NPPF) sets out the Government's core policies and principles with respect to land use planning in England. In respect to noise, the Framework states at paragraph 180 that planning policies and decisions should aim to:

- Mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development - and avoid noise giving rise to significant adverse impacts on health and quality of life; and
- Identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

The Noise Policy Vision is to ‘promote good health and a good quality of life through the effective management of noise within the context of government policy on sustainable development’.

Through effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development, there are the following aims:

- Avoid significant adverse impacts on health and quality of life;
- Mitigate and minimise adverse impacts on health and quality of life; and
- Where possible, contribute to the improvement of health and quality of life.

3.2 Planning Practice Guidance

The Planning Practice Guidance on Noise (PPG) ensures noise be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustics environment. When preparing local or neighbourhood plans, or taking decisions about new development, there may also be opportunities to consider improvements to the acoustic environment.

Local planning authorities' plan-making and decision taking should take account of the acoustic environment and in doing so consider:

- Whether or not a significant adverse effect is occurring or likely to occur;
- Whether or not an adverse effect is occurring or likely to occur; and
- Whether or not a good standard or amenity can be achieved.

3.3 Noise Policy Statement for England

In line with the Explanatory Note of the Noise Policy Statement for England, this would include identifying whether the overall effect of the noise exposure (including the impact during the construction phase wherever applicable) is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation.

The Observed Effect Levels are as follows:

- Significant Observed Adverse Effect Level (SOAEL): This is the level of noise exposure above which adverse effects on health and quality of life occur;
- Lowest Observed Adverse Effect Level (LOAEL): This is the level of noise exposure above which adverse effects on health and quality of life can be detected; and
- No Observed Effect Level (NOEL): This is the level of noise exposure below which no effect at all on health or quality of life can be detected.

Table 3.1 summarises the noise exposure hierarchy, based on the likely average response.

Table 3.1 Noise Exposure Hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No effect	No observed effect	No specific measures required
Noticeable and not intrusive	Noise can be heard but does not cause any changes in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No observed adverse effect	No specific measures required
Lowest observed adverse effect level			
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed adverse effect	Mitigate and reduce to a minimum
Significant observed adverse effect level			
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant observed effect	

Perception	Examples of Outcomes	Increasing Effect Level	Action
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable adverse effect	Prevent

3.4 Commercial Noise

British Standard (BS) 4142: 2014+A1: 2019 provides a procedure for the measurement and rating of noise levels from industrial and commercial noise sources. A methodology for predicting the likelihood of adverse impact is provided in the document.

The rating level ($L_{Ar,Tr}$) is defined in BS 4142 and is used to rate the industrial source (known as the specific noise source) at the assessment location. This level is obtained by adding a correction of between 0 and 6 dB, for tonal noise sources, and a correction of between 0 and 9 dB for impulsive sources. Additionally, corrections of 3 dB can be made for other sound characteristics and intermittency of the noise source.

The method for predicting the likelihood of complaints is based on differences between the rating level and the background $L_{A90,T}$ noise level. The standard states that:

- “Typically, the greater this difference, the greater the magnitude of the impact.*
- A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.*
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending on context.*

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 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 the context.”

3.5 Internal Noise Levels

British Standard 8233: 2014 “Guidance on sound insulation and noise reduction for buildings”, which is the current industry standard document for assessing external noise levels affecting residential dwellings, presents ‘desirable’ internal noise levels as shown in Table 3.2.

Table 3.2 BS 8233 Recommended Internal Noise Levels

Activity	Location	07:00 to 23:00 hours	23:00 to 07:00 hours
Resting	Living room	35 dB $L_{Aeq,16hour}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16hour}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$

In addition, the World Health Organisation (WHO) document “*Guidelines for Community Noise*” (1999) advises the following:

“For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45dB L_{Amax} more than 10-15 times per night (Vallet & Vernet 1991).”

3.6 Overheating and Open Windows

Where windows may be opened to control overheating, it is prudent to consider the impact on internal noise levels and residential amenity.

Approved Document O (ADO) 2021 of the Building Regulations states the following:

“In locations where external noise may be an issue (for example, where the local planning authority considered external noise to be an issue at the planning stage), the overheating mitigation strategy should take account of the likelihood that windows will be closed during sleeping hours (11pm to 7am).

Windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits.

a. 40dB $L_{Aeq,T}$, averaged over 8 hours (between 11pm and 7am).

b. 55dB L_{AFmax} , more than 10 times a night (between 11pm and 7am).

NOTE: *Guidance on reducing the passage of external noise into buildings can be found in the National Model Design Code: Part 2 – Guidance Notes (MHCLG, 2021) and the Association of Noise Consultants’ Acoustics, Ventilation and Overheating: Residential Design Guide (2020).”*

The Association of Noise Consultants (ANC) has produced a guidance document entitled “*Acoustics, Ventilation and Overheating Residential Design Guide*”, published in January 2020, which states that “*it is considered reasonable to allow higher levels of internal ambient noise for transport sources when higher rates of ventilation are required in relation to the overheating condition*”.

A two-stage noise risk assessment is then proposed, based upon the levels of external noise affecting the site as shown in Figure 3.1 and the subsequent effect on internal noise levels shown Figure 3.2.

Figure 3.1 Level 1 Noise Risk Assessment – External Noise Levels

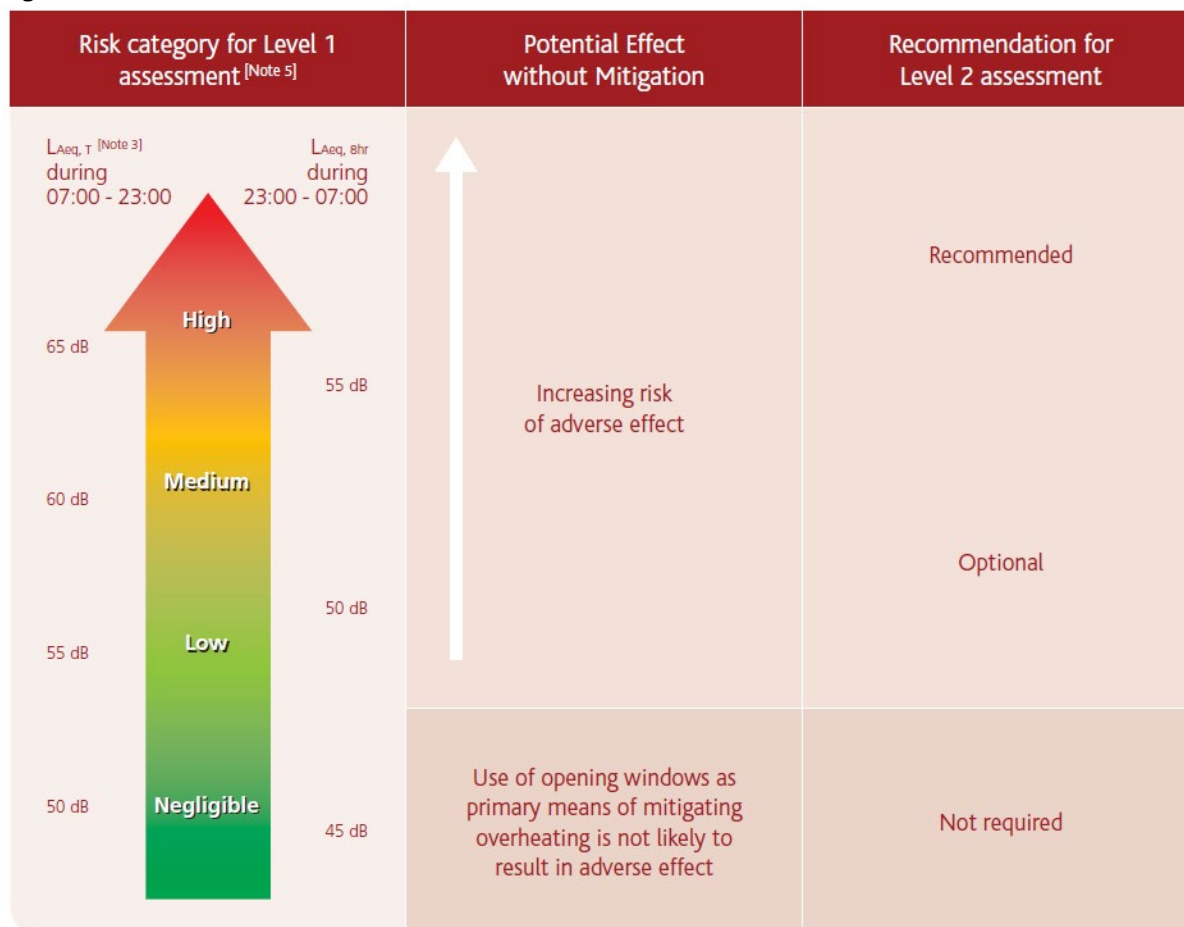


Figure 3.2 Level 2 Noise Risk Assessment – Internal Noise Levels

Internal ambient noise level [Note 2]			Examples of Outcomes [Note 5]	
$L_{Aeq,T}$ [Note 3] during 07:00 – 23:00 [Note 6]	$L_{Aeq,8h}$ during 23:00 – 07:00	Individual noise events during 23:00 – 07:00 [Note 4]		
> 50 dB	> 42 dB	Normally exceeds 65 dB $L_{AF,max}$	Noise causes a material change in behaviour e.g. having to keep windows closed most of the time	Avoiding certain activities during periods of intrusion. Having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.
			Increasing likelihood of impact on reliable speech communication during the day or sleep disturbance at night	At higher noise levels, more significant behavioural change is expected and may only be considered suitable if occurring for limited periods. As noise levels increase, small behaviour changes are expected e.g. turning up the volume on the television; speaking a little more loudly; having to close windows for certain activities, for example ones which require a high level of concentration. Potential for some reported sleep disturbance. Affects the acoustic environment inside the dwelling such that there is a perceived change in quality of life.
			Noise can be heard, but does not cause any change in behaviour	At lower noise levels, limited behavioural change is expected unless conditions are prevalent for most of the time. [Note 8]
≤ 35 dB	≤ 30 dB	Do not normally exceed $L_{AF,max}$ 45 dB more than 10 times a night	Noise can be heard, but does not cause any change in behaviour	Noise can be heard, but does not cause any change in behaviour, attitude, or other physiological response [Note 9]. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.

Figures 3.1 and 3.2 are related by the 13 dB attenuation typically provided by an open window.

For noisier sites, the risk of an adverse effect increases with increasing noise levels and further consideration may be required.

4.0 Noise Survey

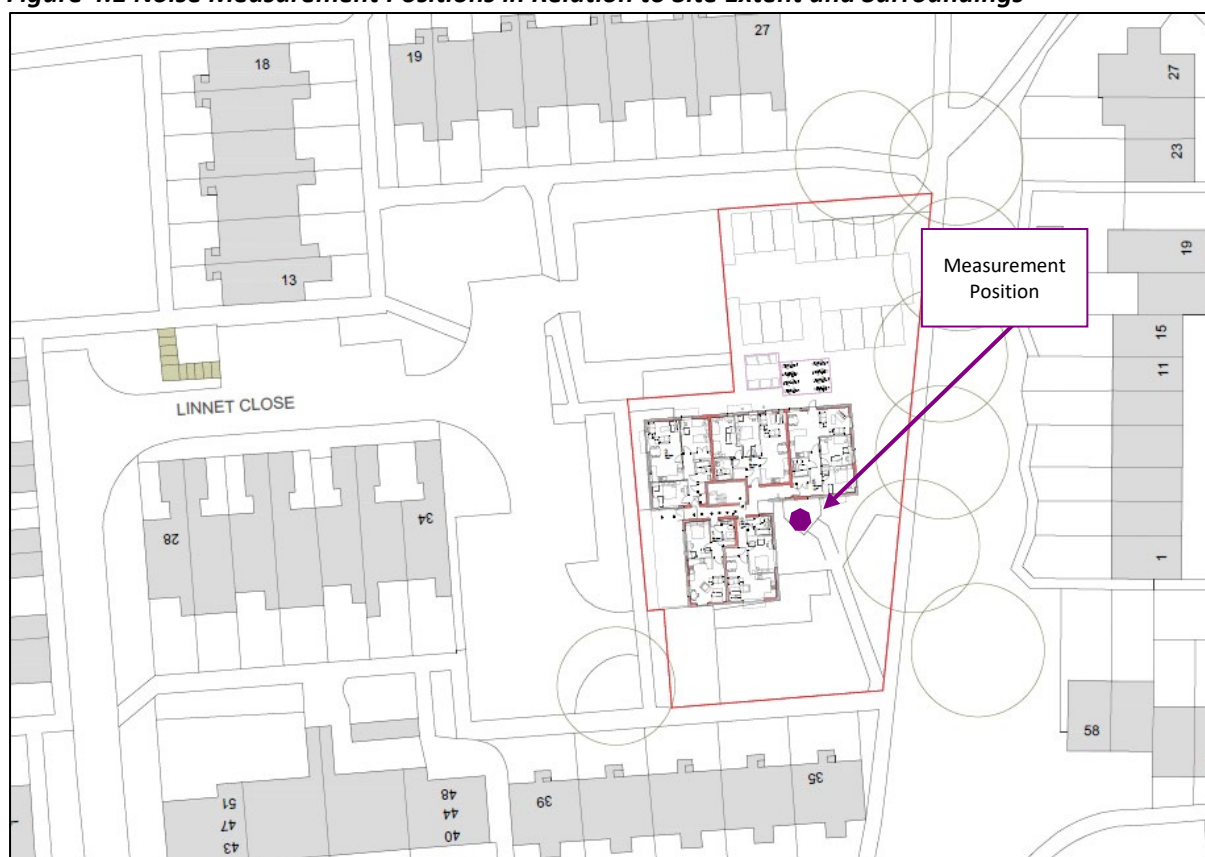
4.1 Methodology

An unmanned environmental noise survey was undertaken between Thursday 20 June 2024 and Monday 24 June 2024 in one external location. In addition, simultaneous manned measurements were undertaken on Monday 24 June 2024 to assess corresponding internal noise levels, so that the sound reduction performance of the existing glazing could be assessed.

The noise survey period was selected to determine typical external noise levels affecting the site due to commercial noise sources.

The measurement position was located with the measurement microphone mounted on a first-floor flat roof on the south-eastern side of the building, as shown in **purple** on Figure 4.1.

Figure 4.1 Noise Measurement Positions in Relation to Site Extent and Surroundings



The measurement position was selected as being representative of external environmental noise levels (road traffic and commercial noise) at the closest point on the site to any commercial noise sources.

The equipment used for the noise survey is summarised in Table 4.1.

Table 4.1 Description of Equipment used for Noise Survey

Item	Make & Model	Serial Number
Type 1 automated logging sound level meter	01dB Fusion	14154
Type 1 ½" microphone	GRAS 40CD	466804
Calibrator	01dB CAL21	34375252

L_{Aeq} and L_{Amax} sound pressure levels were measured throughout the noise survey at each measurement position.

The external noise monitoring equipment was set to take audio recordings for 1 minute, every 10 minutes, to gain a more detailed understanding of the relevant noise events and sources.

Due to the nature of the noise survey, i.e. unmanned, we are unable to comment on the weather conditions throughout the entire noise survey period. However, at the beginning and end of the survey period, there was a clear sky, low wind speeds and generally sunny conditions. Weather conditions are not expected to have had any effect on measured noise levels and are considered appropriate for undertaking environmental noise measurements.

The noise monitoring equipment was calibrated before and after the noise survey period. No significant change was found. Laboratory equipment calibration certificates can be provided upon request.

4.2 Results and Observations

Appendix B presents a time history graph showing the measured external L_{Aeq} , and L_{Amax} sound pressure levels measured throughout the noise survey (shown as 15-minute periods).

At the external measurement position, the daytime noise climate was noted to be dominated by distant road traffic using surrounding roads, predominantly Eagle Avenue to the south of the site. Commercial noise was not noted from the audio recordings.

It is understood that some maintenance works were taking place on the site during the daytime on Saturday 21 June 2024. These periods are apparent from the measurement results and have been excluded from further analysis as they are not typical of the noise environment.

4.3 External Noise Levels

The daytime L_{Aeq} (16 hour), night-time L_{Aeq} (8 hour) and night-time L_{Amax} (10th highest) measured at the external position are summarised in Table 4.2.

Table 4.2 Summary of Measured External Noise Levels

Measured Noise Level (dB)		
Daytime L_{Aeq} (16 hour)	Night-time L_{Aeq} (8 hour)	Night-time L_{Amax} (10th highest)
46	42	54-60

4.4 Internal Noise Levels

Simultaneous manned measurements were undertaken on Monday 24 June 2024 to assess corresponding internal noise levels, so that the sound reduction performance of the existing glazing could be assessed. Based on these measurements, it was concluded that the existing glazing provides a sound reduction performance of 15 dB.

We have subsequently predicted the internal noise levels during daytime and night-time periods, which are compared with the BS 8233: 2014 'desirable' limits in Table 4.3.

Table 4.3 Predicted Internal Noise Levels

Scenario	Noise Level (dB)		
	Daytime L_{Aeq} (16 hour)	Night-time L_{Aeq} (8 hour)	Night-time L_{Amax} (10th highest)
Predicted	31	27	39-45
BS 8233: 2014 Limits	35	30	45

It can therefore be seen that the predicted internal noise levels do not exceed the BS 8233: 2014 guidelines for desirable internal noise levels in dwellings, therefore the existing external façade is considered to provide sufficient attenuation of commercial and environmental noise levels.

4.5 Overheating and Open Windows

Comparing the measured external noise levels at the proposed development site (Figures 3.1 and 3.2) with the ADO and ANC criteria presented in Section 3.3 gives the daytime and night-time noise risk categories shown in Table 4.4.

Table 4.4 Noise Risk Categories

Measured External Noise Level	Predicted Internal Noise Level with Windows Open	Noise Risk Category ADO Noise Limits
Daytime 46 dB L _{Aeq} (16 hour)	Daytime 33 dB L _{Aeq} (16 hour)	Negligible
Night-time 42 dB L _{Aeq} (8 hour)	Night-time 29 dB L _{Aeq} (8 hour)	Negligible Less than ADO Limit
Night-time 54-60 dB L _{Amax} (10th highest)	Night-time 41-47 dB L _{Amax} (10th highest)	Less than ADO Limit

It can be seen that, for the proposed dwellings, noise levels are predicted to be within the negligible noise risk category during daytime and night-time periods and do not exceed the Approved Document O limits.

Therefore, according to the guidance, *"use of opening windows as a primary means of mitigating overheating is not likely to result in adverse effect"*.

5.0 Conclusion

It is proposed to change the use of the Former Link's Children's Centre in Waterloooville to create residential dwellings.

For a change of use to residential, the Town and Country Planning (General Permitted Development) (England) Order 2015 (as amended) (GPDO) requires an assessment of noise from commercial premises on the intended occupiers of the development.

The site is located in a predominantly residential area, with no commercial sources nearby.

auricl has been appointed to assess the impact of the surroundings on the proposed development site.

A noise survey has been undertaken at a worst-case external position, as well as simultaneous manned measurements were undertaken on Monday 24 June 2024 to assess corresponding internal noise levels, so that the sound reduction performance of the existing glazing could be assessed.

Based on the measurements, it was predicted that the internal noise level are less than the 'desirable' internal noise level limit for dwellings specified in BS 8233: 2014.

The existing external façade is therefore considered to provide sufficient attenuation of commercial and environmental noise levels.

In addition, noise levels are predicted to be within the negligible noise risk category during daytime and night-time periods and do not exceed the Approved Document O limits. Therefore, according to the guidance, *"use of opening windows as a primary means of mitigating overheating is not likely to result in adverse effect"*.

Appendix A – Acoustic Terminology

Parameter	Description
Decibel (dB)	A logarithmic scale representing the sound pressure or power level relative to the threshold of hearing (20×10^{-6} Pascals).
Sound Pressure Level (L_p)	The sound pressure level is the sound pressure fluctuation caused by vibrating objects relative to the threshold of hearing.
A-weighting (L_A or dBA)	The sound level in dB with a filter applied to increase certain frequencies and decrease others to correspond with the average human response to sound.
L_{Amax}	The A-weighted maximum noise level measured during the measurement period.
$L_{Aeq,T}$	The A-weighted equivalent continuous noise level over the time period T (typically T= 16 hours for daytime periods, T = 8 hours for night-time periods). This is the sound level that is equivalent to the average energy of noise recorded over a given period.

Appendix B – Time History Graph

