

Acoustic Consultancy Report

Ref: 12161

Noise Impact Assessment

Acoustic assessment concerning plant noise levels for the proposed Happy Days Nursery, Boorley Green, SO32 2SH.

Report Prepared For

NH Developments
185a Tuckton Road
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9th December 2025

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SECTION 1: INTRODUCTION

Energy Acoustics Ltd have been appointed to carry out an acoustic assessment regarding the noise impact on nearby residential properties following the installation of 6 No. Air Conditioning Units at Happy Days Nursery, Nairn Road, Boorley Green, SO32 2SH.

Based on the above calculations and on-site measurements, as there are no distinctive noise characteristics the combined Rating Noise Level provided by the installed ACU's of 55 dB will result in a noise level of 33 dB at the nearest NSP. This will be sufficiently below the existing daytime background noise level of 43 dB, ensuring that nearby noise sensitive properties are not disturbed during daytime operational hours.

A list of acoustic terminology used in this report is presented in the Appendix.

SECTION 2: SITE DETAILS

2.1 Site Description

The site comprises of a single-storey children's nursery. The new build construction includes the installation of 6 No. Fujitsu Air Stage Air Conditioning Units (ACU's) located at the south-west corner of the building, on the west-facing elevation. The plant location is located 12 metres from the north-facing elevation of the nearest Noise Sensitive Property (NSP) located at Turnberry Close. See Appendix.

2.2 Area Description

The surrounding area comprises of Boorley Park Primary School & playing fields with residential dwellings to the South & East.

SECTION 3: NOISE GUIDANCE

3.1 Noise Policy Statement for England

The overarching framework for national noise policy is the Noise Policy Statement for England (NPSE). The long-term vision identified in the policy 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.'

The aims of the policy are:

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

- *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 National Planning Policy Framework

The concepts outlined in the NPSE are incorporated into the National Planning Policy Framework (NPPF). Paragraph 123 relates to noise:

Planning policies and decisions should aim to:

- *avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;*
- *mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;*
- *recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established; 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.*

3.3 National Planning Practice Guidance

Practical guidance on how the NPPF should be applied is contained within the National Planning Practice Guidance (NPPG).

The NPPG guidance on design states:

‘Good quality design is an integral part of sustainable development. The National Planning Policy Framework recognises that design quality matters and that planning should drive up standards across all forms of development. As a core planning principle, plan-makers and decision takers should always seek to secure high quality design.’

‘Local planning authorities are required to take design into consideration and should refuse permission for development of poor design.’

It is therefore essential that developments use good acoustic design to achieve internal sound standards as far as is reasonably practicable. In order to do this successfully noise and vibration must always be considered at the initial design stage. If noise and vibration are only considered after site and building plans have been finalised (for example when specifying performance requirements of the building envelope), then the development is very unlikely to comply with the requirements of planning policy.

Good acoustic design will include:

- Location of buildings on the site to minimise noise exposure (this will include maximising separation of noise sources and sensitive receptors and use of buildings or topography to screen noise)
- Layout of habitable rooms within buildings to reduce noise exposure to more noise-sensitive rooms
- Ensuring dwellings exposed to high noise levels are dual aspect to provide each unit with access to a relatively quiet façade when possible
- Access to relatively quiet external amenity space
- Measures to reduce noise at source and/or on the transmission path where possible
- Design and insulation of the building envelope

3.4 BS 4142: 2019

'BS 4142 (2019) Methods for rating and assessing industrial and commercial sound' compares the proposed source levels against the underlying background noise levels and gives an indication on the likelihood of complaints. Background Noise Levels are established as the underlying noise levels against which the assessment of the specific source can be made. The background noise levels are measured at the assessment position which is located externally at the nearest noise sensitive façades (See Appendix).

The rating noise level is calculated at the assessment position using the source sound pressure levels and includes where necessary a character correction of up to 18 dB comprising:

Tonality: 0 - 6 dB

For sound ranging from not tonal to prominently tonal the Joint Nordic Method gives a correction of between 0 dB and + 6 dB for tonality. Subjectively, this can be converted to a penalty of 2 dB for a tone which is just perceptible at the noise receptor, 4 dB where it is clearly perceptible, and 6 dB where it is highly perceptible.

Impulsivity: 0 – 9 dB

A correction of up to + 9 dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be converted to a penalty of 3 dB for impulsivity which is just perceptible at the noise receptor, 6 dB where it is clearly perceptible, and 9 dB where it is highly perceptible.

Other Sound Characteristics 0 – 3 dB

Where the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied.

Intermittency: 0 – 3 dB

If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied.

This rating level of the noise source is compared to the existing background noise level at the property. Typically, the greater the difference, the greater the magnitude of the impact:

A difference of around +10 dB 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 the 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 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 the context.

SECTION 4: SURVEY DETAILS

An un-attended noise survey was carried out over a 24-hour period between 13:06 hrs Wednesday 26th to 13:01 hrs Thursday 27th November 2025. Measurements were carried out within the rear boundary of the nursery, adjacent to the nearest north-facing façade of the closest NSP at Turnberry Close.

NTi Audio: XL2 Audio & Acoustic Sound Level Meter (Serial Number: A2A-12469-E0)

Calibration Due: 08/04/2027

NTi CAL 200 Class 1 Acoustic Calibrator (Serial Number: 13394)

Calibration Due: 08/04/2026

Noise levels were measured by a competent person for environmental noise monitoring, in accordance with BS 7445: 1991 (Description & Measurement of Environmental Noise).

Survey carried out by Andy Keane BSc (Hons) AMIOA.

The sound level meter was programmed to record the A-weighted L_{eq} , L_{90} , L_{10} , and L_{max} for the duration of the survey with appropriate reference time intervals of 15 mins.

The sound level meter was calibrated to 94 dB before and after the survey. No significant change (± 0.1 dB) in the calibration was noted.

Weather Conditions

No significant cloud cover; temperature variable 13 - 17 °C.

Wind: Slight breeze, northerly direction.

No precipitation.

4.1 Measured Noise Levels

	Time	Duration	L _{Aeq} (dB)	L _{AFmax} (dB)	L _{A90} (dB)
Wednesday - Day	13:49 – 18:00	04:10:25	47.2	75.6	42.7
Wednesday - Night	18:00 – 07:00	13:00:00	41.4	72.1	28.9
Thursday - Day	07:00 – 13:01	06:01:06	62.4	88.9	43.8

The results of the continuous noise survey show that free-field daytime assessment levels were 60.2 dB L_{Aeq} (10 hour) with an evening & night-time level of 41.4 dB L_{Aeq} (13 hour).

L_{A90} background Noise Levels were measured as daytime 43.3 dB.

The nursery will only be operational from 8am until 6pm, Monday to Friday.

Plant Noise levels were measured with all ACU's operational comprising;

4 No. Fujitsu AOEG24KBTB & 2 No. AOEG18KBTB

	Time	Duration	L _{Aeq} (dB)	L _{AFmax} (dB)
Plant On	13:29 – 13:47	00:18:30	54.9	59.3

4.2 Conclusion

The scheme has installed 6 No. ACU's located externally at the south-west corner of the development. This location for the ACU's is approx. 12 metres from the nearest Noise Sensitive Property (NSP) located at Turnberry Close. The attenuation provided by this 12-metre distance will be approximately 22 dB, not taking into account any additional barrier attenuation provided by the boundary fence & separating wall.

Based on the above calculations and on-site measurements, as there are no distinctive noise characteristics the combined Rating Noise Level provided by the installed ACU's of 55 dB will result in a noise level of 33 dB at the nearest NSP. This will be sufficiently below the existing daytime background noise level of 43 dB, ensuring that nearby noise sensitive properties are not disturbed during daytime operational hours.

SECTION 5: ACOUSTIC TERMINOLOGY

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 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.

dB(A): decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with people's assessment of loudness. 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. The background noise level in a living room may be about 30 dB(A); normal conversation about 60 dB(A) at 1 metre; heavy road traffic about 80 dB(A) at 10 metres; the level near a pneumatic drill about 100 dB(A).

$L_{Aeq,T}$: 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). $L_{Aeq,T}$ is used to describe many types of noise and can be measured directly with an integrating sound level meter.

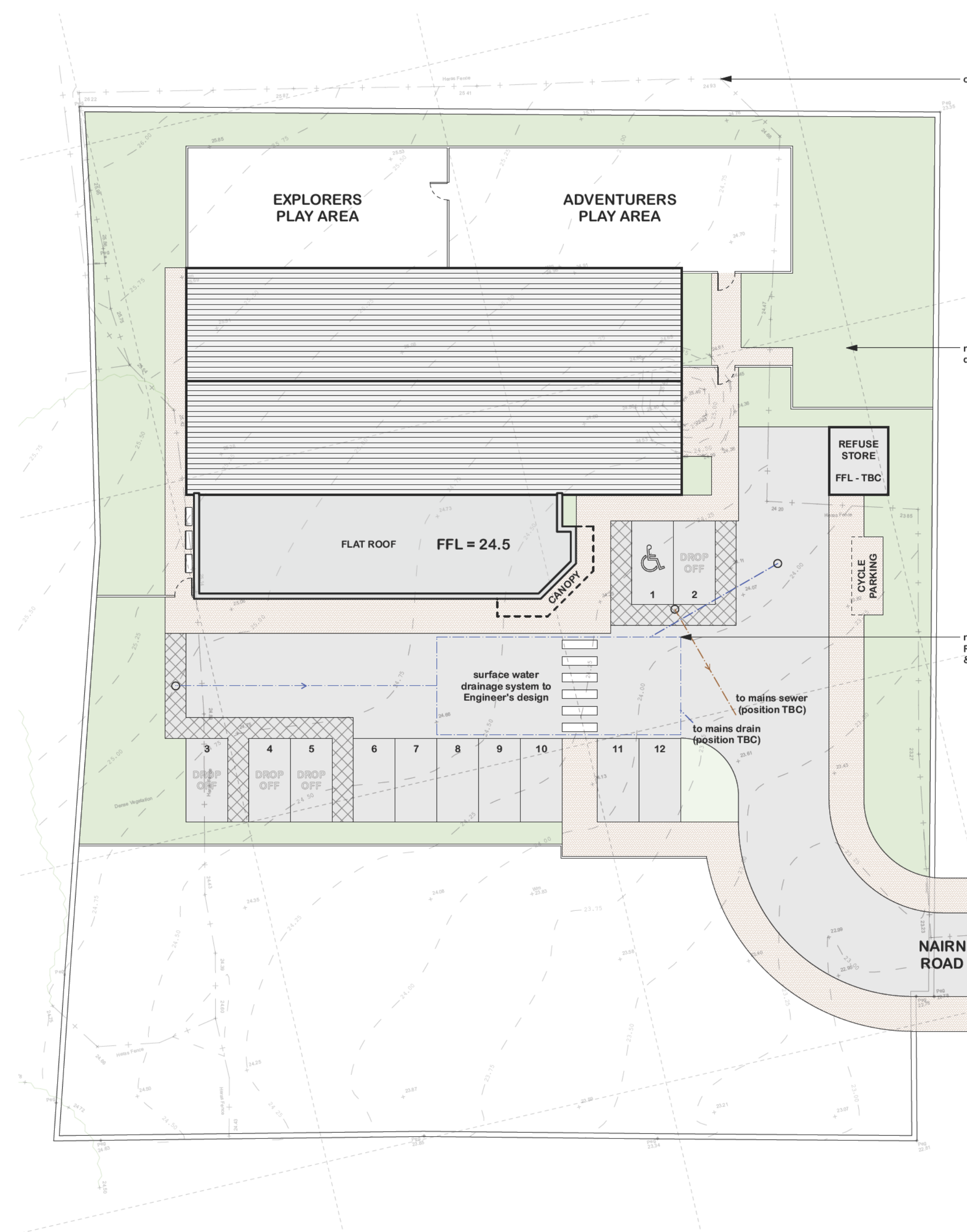
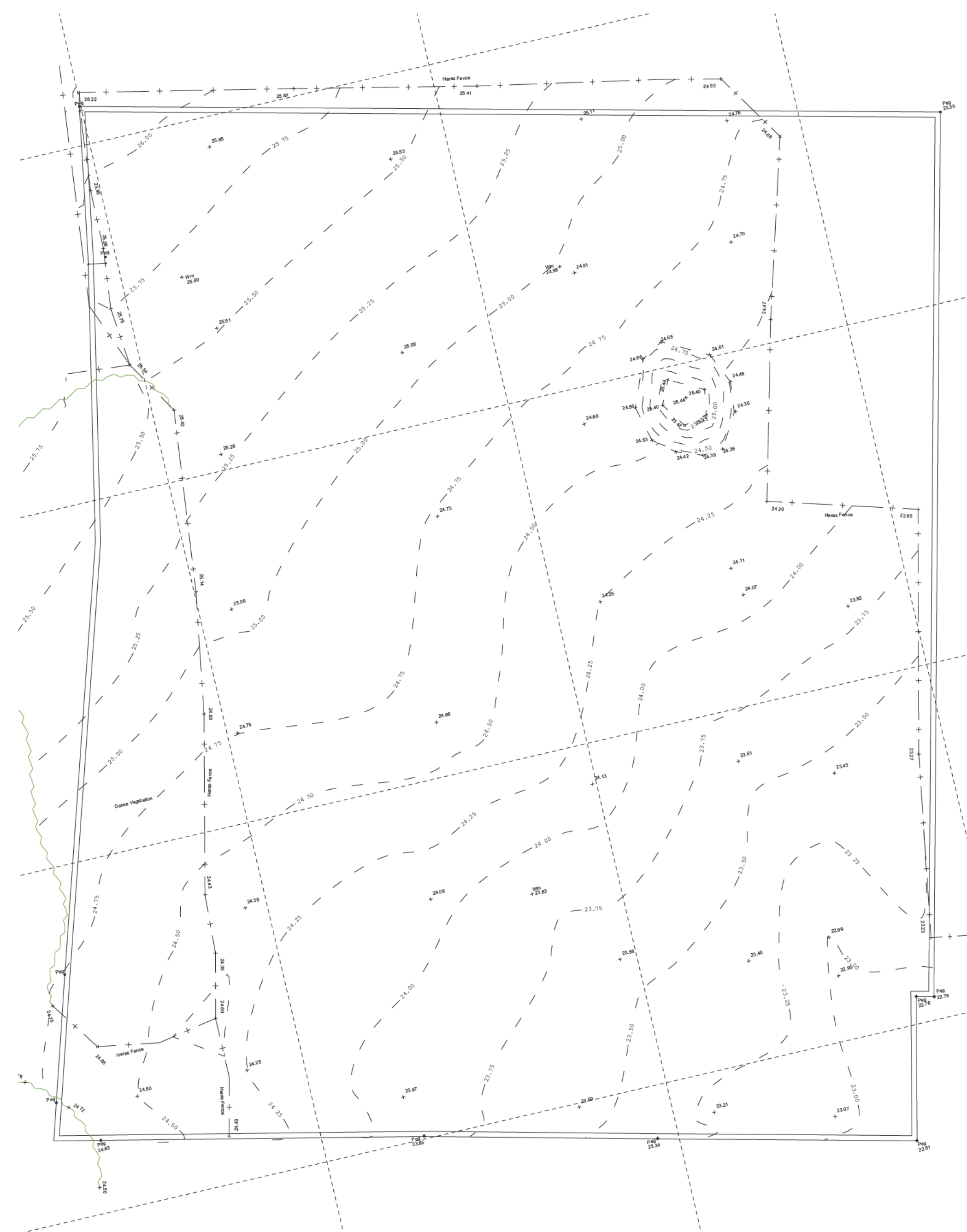
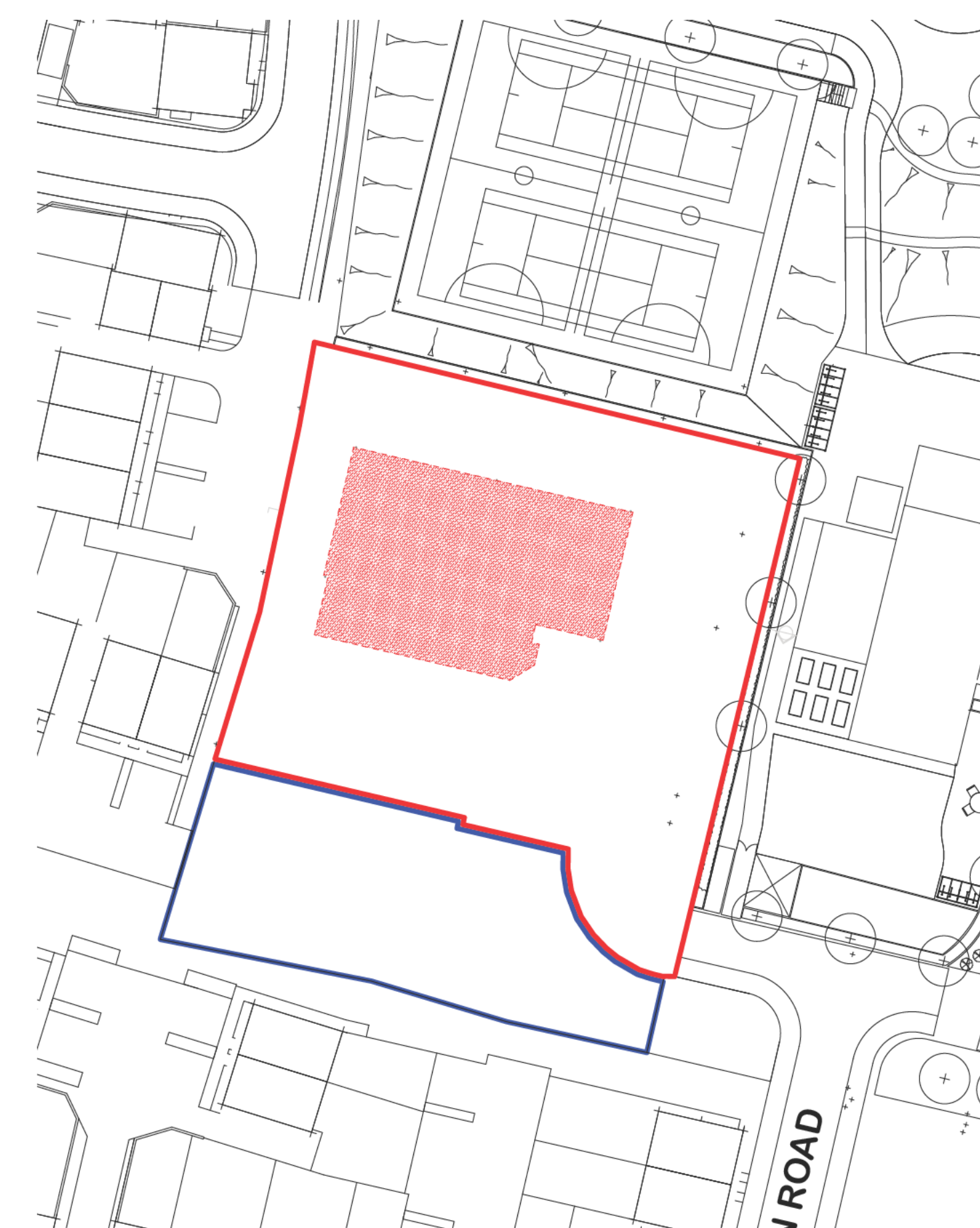
R_w : The single figure rating method is the rating used for laboratory airborne sound insulation tests. The figure indicates the amount of sound energy being stopped by a separating building element when tested in isolation in the absence of any flanking paths. (The higher the figure the better the sound insulation).

L_{AFmax} : A-weighted, fast, maximum sound level

L_{A90} : A statistical noise measure to show the noise level exceeded for 90% of the measurement period.

SECTION 6: APPENDIX

This report has been prepared by Energy Acoustics Limited (EA) with all reasonable skill, care and diligence in accordance with generally accepted acoustic consultancy principles and the purposes and terms agreed between EA and our Client. Any information provided by third parties and referred to herein may not have been checked or verified by EA unless expressly stated otherwise. This document contains confidential and commercially sensitive information and shall not be disclosed to third parties. Any third party relies upon this document at their own risk.



— refer to Aegaea's FRA & SWDS reports
Ref: AEG02758 SO32 Botley 07
& AEG5048 SO32 Botley 05

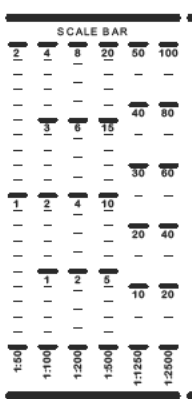
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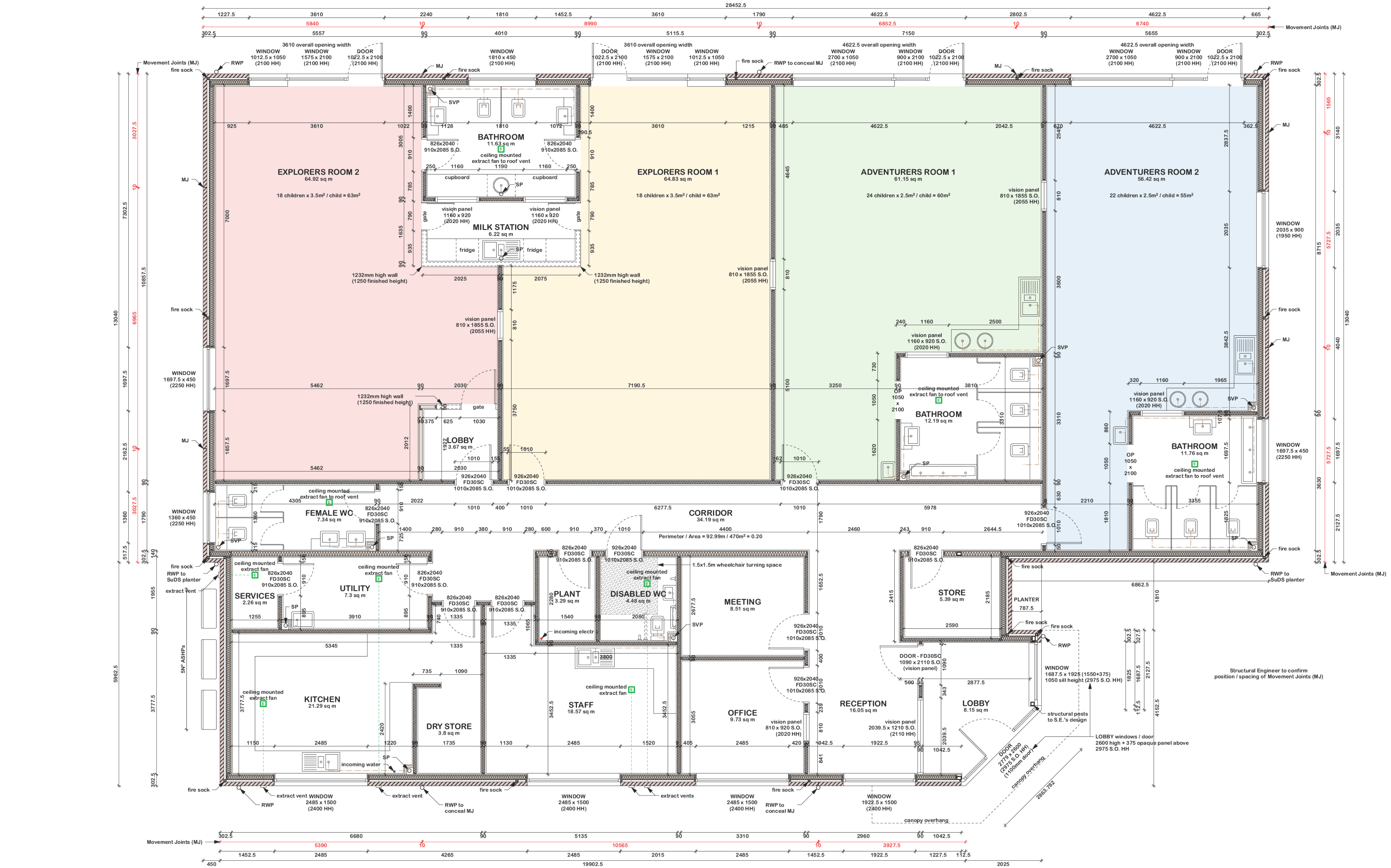
A	18/11/2024	Various amendments in accordance with end user's requirements
REV	DATE	NOTES
PROJECT		
Proposed Children's Nursery		
ADDRESS		
Land adj. to Boorley Park Primary School, Nairn Road, SO32 2SH		
CLIENT		DATE
NH Developments		May 2024
PURPOSE		PAPER
Building Regulations		A1
DRAWING		DRAWING N°
Site and Location Plans		240E-BR01A



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The logo graphic for ARCIMO DESIGN, featuring a stylized green icon composed of several parallel, slightly curved lines that form a square-like shape with a diagonal element.

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I	07/01/2025	Disabled WC walls moved
H	06/01/2025	Minor amendments to layout
G	12/12/2024	Minor amendments to layout
F	08/12/2024	RWP added to front elevation
E	03/12/2024	Female WC window & Store Room door moved
D	22/11/2024	Lobby window note amended
C	22/11/2024	Various minor amendments to layout
B	19/11/2024	Explorers Room 2 Lobby wall height amended
A	18/11/2024	Various amendments in accordance with end user's requirements
REV	DATE	NOTES
PROJECT		
Proposed Children's Nursery		
CLIENT		
NH Developments		
PURPOSE		
Building Regulations		
DRAWING		
Floor Plan		
DATE		
May 2024		
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