

JD Sports Campus, Phase 2

Noise Impact Assessment

JD Sports

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Principal author: Michael Pimlott

Signed by: m.pimlott

28/11/2025

X 

Checked by: Simon Everett

Signed by: Simon Everett

28/11/2025

X 

Verified by: Mark Evans

Signed by: m.evans

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1.0

Introduction

1.0 Introduction

Cundall has been commissioned by JD Sports to prepare a Noise Impact Assessment for the proposed new JD Sports Campus Phase 2 development at Pilsworth Road, Bury.

The new single-storey pavilion building will comprise a large canteen area with associated amenity and kitchen spaces located in the eastern half, and a new gym occupying the western half of the building. Externally, a new Multi-Use Games Area (MUGA) and two padel courts are proposed to the south of the building.

Note: The gym element of the proposed development will be delivered as a shell-and-core project, with the final internal fit-out and associated plant selections to be undertaken by others at a later date. As indicative gym plant specifications are not available at the time of writing, this assessment has adopted the reasonable assumption that the noise contribution from the future gym plant will be comparable to that of the canteen plant. This approach is considered appropriate as a reasonable worst-case assumption for the purposes of the current assessment; however, further detailed analysis should be undertaken once the gym operator has confirmed the external plant requirements and final equipment selections.

1.1 Application site and surroundings

The site is located on land to the west of the existing JD Group Headquarters at Balmoral House, to the south of Bury town centre. It currently comprises uncovered parking areas and associated hardstanding.

The surrounding land uses are primarily industrial and commercial in nature, with the exception of the eastern boundary, which adjoins existing residential dwellings. The northern boundary is defined by Pilsworth Road, which connects to the nearby motorway running north to south.

The nearest existing residential receptors comprise detached bungalows situated on The Close and Applecross Close, along with eight apartments within the three-storey Beechwood Apartment Building.

The existing site layout, showing the location of the nearest noise-sensitive receptors, is presented in Figure 1-1 overleaf. The proposed site layout is provided in Figure 1-2.

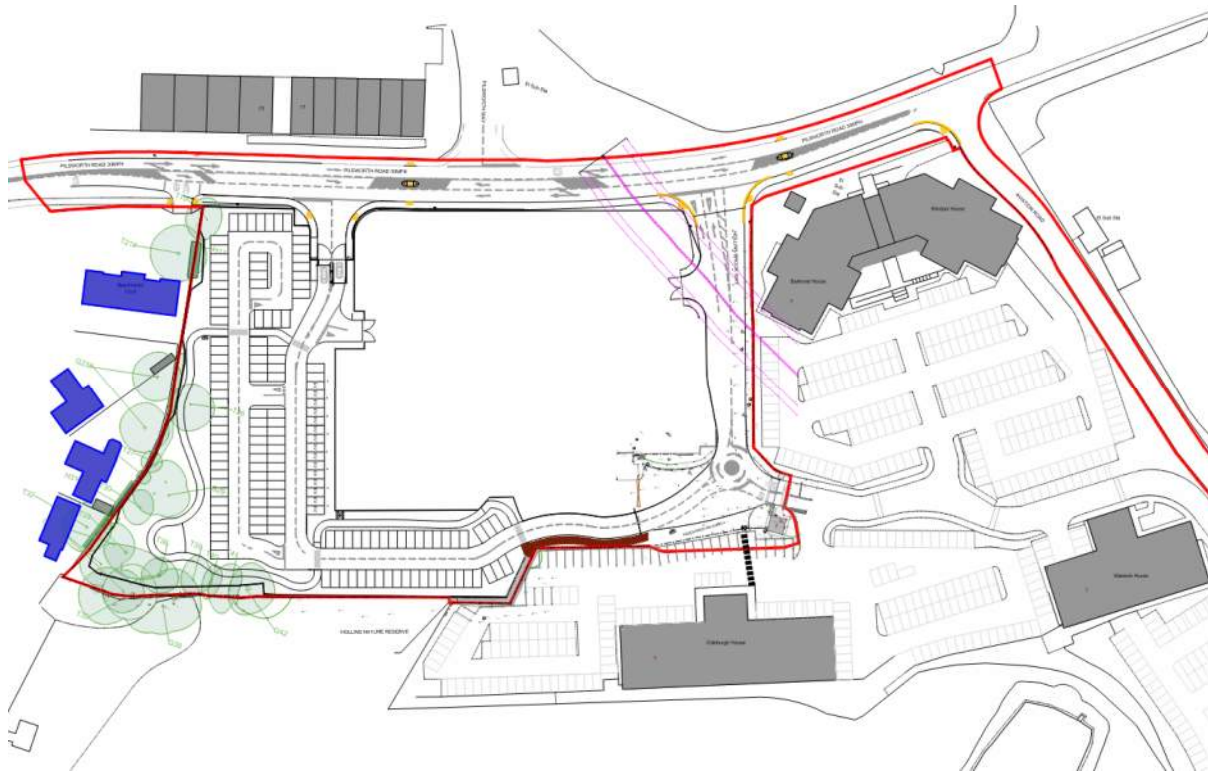


Figure 1-1: Existing site (nearest noise-sensitive receptors in blue)

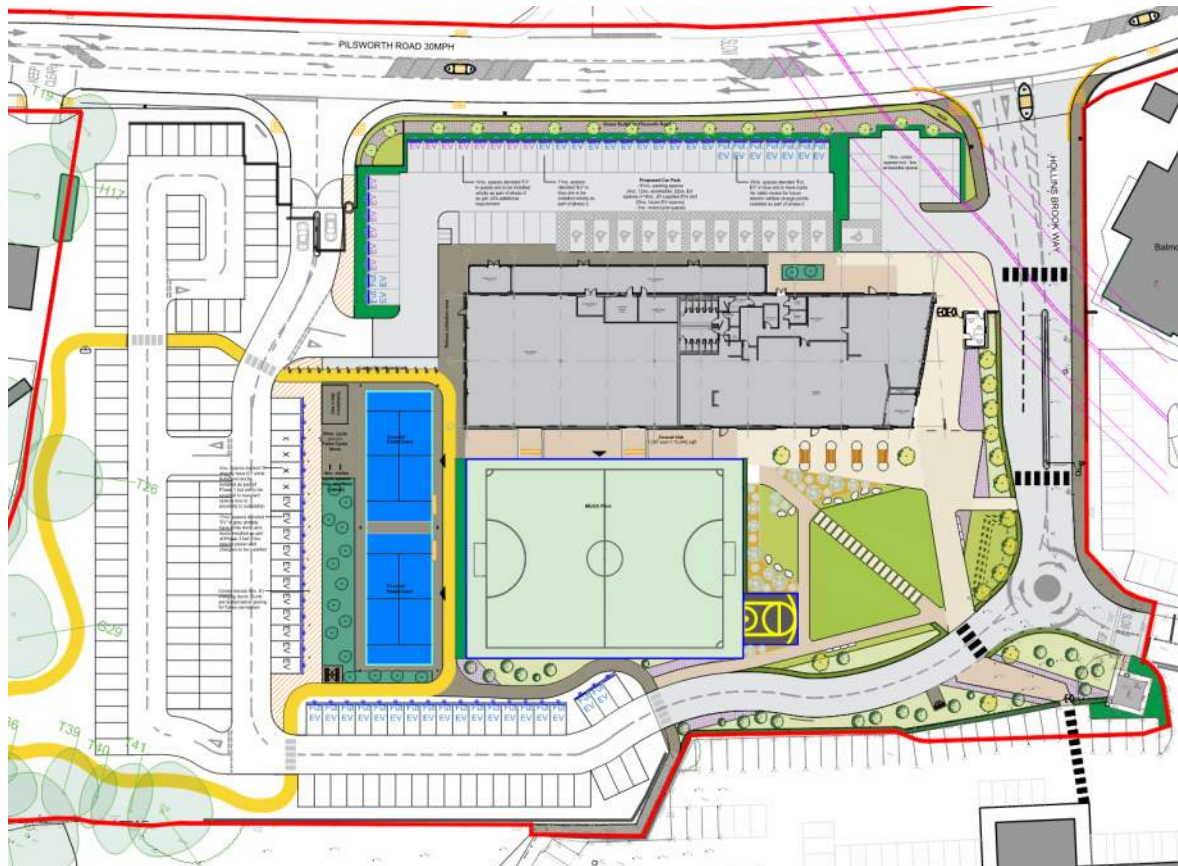


Figure 1-2: Proposed JD Sports Campus Phase 2 Development

1.2 Limitations

Details within this specification are believed to be accurate at the time of writing. It is strongly recommended, however, that confirmation be sought from specific manufacturers to see that the minimum performance requirements, as stated within this document, will be achieved by the chosen system / product / installation method.

2.0

Acoustic design criteria

2.0 Acoustic design criteria

This section identifies and summarises the key acoustic legislation and guidance relevant to the Development. Criteria and guidance for the following design items are outlined:

- National planning policy guidance for noise;
- Plant noise emissions; and
- Outdoor sports activity noise

2.1 Local and national noise policy

2.1.1 National Planning Policy Framework (NPPF)

The National Planning Policy Framework (published March 2012 and revised in December 2024 with February 2025 amendments) sets out the Government's planning policies for England and how these are expected to be applied.

187. Planning policies and decisions should contribute to and enhance the natural and local environment by;

[...]

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans;

188. Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

a) 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 the quality of life;

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; [...]

200. Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed."

2.1.2 Noise Policy Statement for England (NPSE)

The Noise Policy Statement for England was published by Defra in March 2010. This NPSE sets out the long-term vision of Government noise policy:

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 NPSE long term vision is supported by the following aims:

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.*

2.1.3 Planning Practice Guidance: Noise (PPG Noise)

The Department for Communities and Local Government (DCLG) launched a planning practice guidance in March 2014 (last updated July 2019) which is a web-based resource and includes a section on noise. This resource provides guidance on how to determine the noise impact in terms of whether a significant adverse effect is likely to occur and/or whether a good standard of amenity can be achieved.

In line with the NPSE, PPG Noise introduces the concept of:

- Significant observed adverse effect level (SOAEL) – this is the level of noise exposure above which significant 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;
- 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 2-1 summarises the noise exposure hierarchy, based on the likely average response:

Perception	Examples of Outcomes	Increasing Effect Level	Action
No Observed Effect Level (NOEL)			
Not present	No effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level (NOAEL)			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level (LOAEL)			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, 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 small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level (SOAEL)			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, 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 Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

Table 2-1: PPG noise exposure hierarchy

2.1.4 Draft Bury Local Plan (March 2025)

The Draft Bury Local Plan (March 2025) sets out the planning framework for the district up to 2043 and will deliver sustainable development. In the aim to raise the standards and quality of the layout and design of new developments, and to protect new amenity of new and existing noise sensitive receivers, Policy 'LP-BE8: Amenity' states:

Policy LP-BE8: Amenity

The Council will ensure that new development would not lead to unacceptable adverse impacts on the amenity of the surrounding area or users and occupants of the development, particularly in terms of:

- a. Overshadowing and loss of light;*
- b. Dominance and loss of privacy by virtue of separation distances, height, depth, mass, location of a building/extension and window positions;*
- c. Pollution and general disturbance arising from noise, vibration, smell, litter, artificial light and opening hours; and*
- d. Parking and servicing provision associated with the proposed development and its effects in terms of road safety, traffic generation and movement.*

Pollution and general disturbance arising from noise, vibration, smell, litter, artificial light and opening hours can also have a significant impact on amenity and people's quality of life. Consequently, these issues will be fully considered when dealing with proposals that have the potential to generate these issues.

2.2 Plant noise emission

BS 4142: 2014 + A1: 2019 'Methods for rating and assessing industrial and commercial sound' (BS 4142) provides a methodology for assessing the impacts arising at sensitive receptors due to noise from industrial and commercial activities. A formal BS 4142 impact assessment has not been carried out in this report; however, the principles of the standard have been used to inform this assessment.

A key aspect of the BS 4142 assessment method is a comparison between the background noise level in the vicinity of receptor locations and the rating level of the noise source under consideration. The relevant parameters in this instance are as follows:

- Background sound level – $L_{A90,T}$ – defined in the Standard as the 'A' weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using time weighting F and quoted to the nearest whole number of decibels;
- Specific sound level – $L_{Aeq,Tr}$ – the equivalent continuous 'A' weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, T_r ; and
- Rating level – $L_{Ar,Tr}$ – the specific sound level plus any adjustment made for the characteristic features of the noise.

BS 4142 recommends that the specified interval over which the specific sound level is determined as 1-hour during the day from 07:00 to 23:00 hours and a shorter period of 15-minutes at night from 23:00 to 07:00 hours.

The standard recognises that certain acoustic features of a sound source can increase the impact over that expected based purely on the sound level. Once any adjustments have been made, the background level and the rating levels are compared. BS4142 advises the following:

- a) Typically, the greater the difference, the greater the magnitude of impact.*
- b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending upon the context.*
- c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending upon the context.*
- d) The lower the rating level is to the measured background sound level, the less likely it is that the specific sound 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 upon the context.*

The initial estimate of the impact needs to take in account the context and pertinent considerations regarding the nature of the acoustic environment, the specific sound source, and the affected receptors. BS 4142 advises that where rating levels and background levels are low, that “*absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.*”

As the standard suggests, the noise source of interest will have a ‘low impact’ when the ‘rating level’ is less than or equal to the existing background noise level (depending on the context).

2.3 Outdoor sports activity noise

There are currently no mandatory or legislative upper noise limits that apply specifically to noise generated by sports activity sources. The following subsections identify proposed external noise limits for the MUGA and padel court uses, informed by relevant Good Acoustic Design guidance documents.

2.3.1 MUGA activity noise

The Sport England document ‘Artificial Grass Pitch (AGP) Acoustics – Planning Implications (2015)’ provides typical noise levels for the use of outdoor MUGA pitches, expressed as a single-figure value of 58 dB $L_{Aeq,T}$ at a distance of 10 m from the pitch ‘halfway line’.

The guidance also proposes external noise limits informed by the World Health Organisation’s Guidelines for Community Noise, setting an upper limit of 50 dB $L_{Aeq,1\text{ hour}}$ at the façades of residential properties.

2.3.2 Padel activity noise

Padel is a relatively new sport within Great Britain, and at the time of writing no authoritative guidance is available regarding appropriate noise limits for padel activities. In the absence of such specific guidance, the 50 dB $L_{Aeq,1\text{ hour}}$ criterion set out in Sport England’s Planning Implications guidance has been deemed appropriate for this assessment.

This approach has been successfully adopted in previous Noise Impact Assessments for similar padel court developments and has been accepted by a number of local authorities across the UK as a reasonable and proportionate basis for assessing padel-related noise impacts in the absence of sport-specific guidance.

3.0

Environmental noise survey

3.0 Environmental noise survey

3.1 Equipment and methodology

In order to assess prevailing levels of environmental noise affecting the proposed development, primarily due to the adjacent Pilsworth Road to the north of the site, a mixed attended and unattended noise survey has been undertaken. The noise survey was undertaken between approximately 07:00 on 17 March and approximately 08:00 on 18 March 2022.

- **MP1** – Short term attended measurements at northern site boundary. Position selected to quantify noise from Pilsworth Road.
- **MP2** – Unattended and short term attended measurements at south-western site boundary. Position selected to be representative of the environmental noise levels at the nearest noise-sensitive receptors.

Approximate survey positions are identified in Figure 3-1 below:

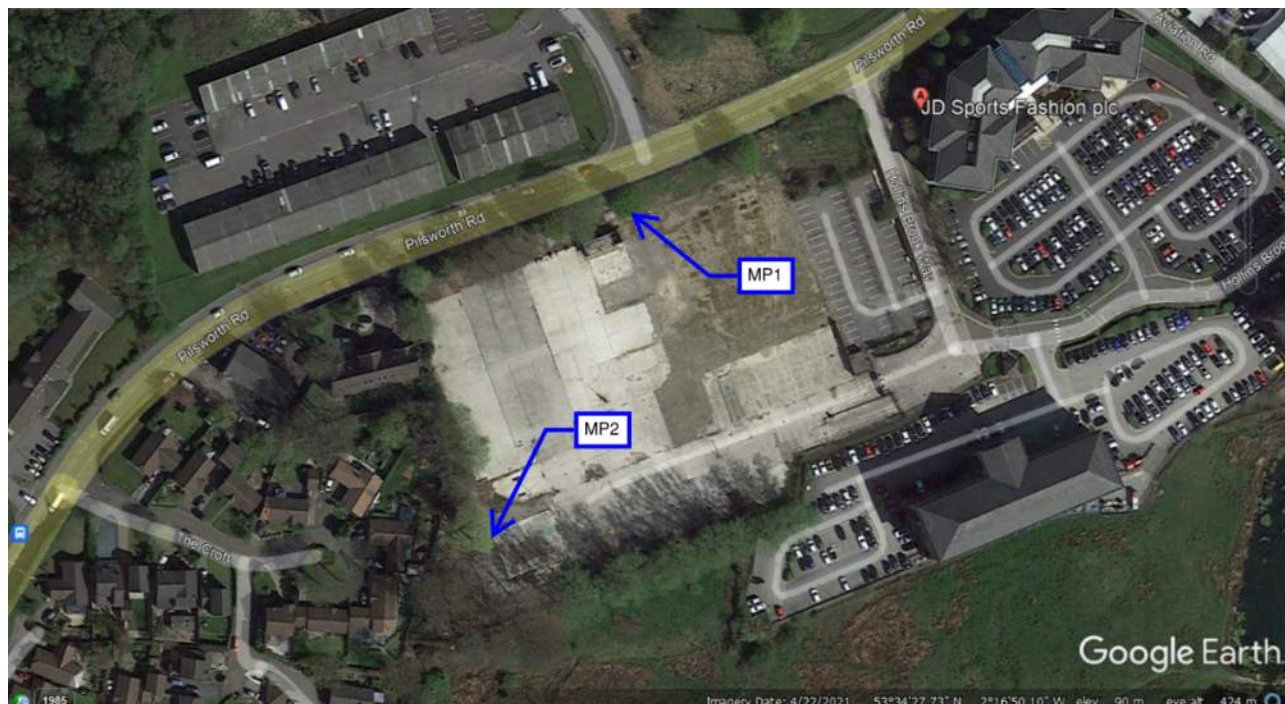


Figure 3-1: Measurement positions

For attended measurements at MP1 the sound level meter was mounted directly on a tripod approximately 1.3 metres above local ground level. For the MP2 unattended portion of the survey, the microphone was extended with a cable and fitted within a weatherproof enclosure, also approximately 1.3 metres above local ground level and in a free-field position.

Measurements were undertaken using a NTi XL2 precision sound level meter (serial number: A2A-16315-E0), in accordance with BS 7445-1: 2003. The meter was field-calibrated before and after the attended and unattended surveys to ensure a consistent and acceptable level of accuracy was maintained throughout. No significant drift was observed. Calibration certificates for all items of noise survey equipment are available on request.

All noise measurements were undertaken by competently trained Cundall acoustics staff. Subjective impressions were that the noise climate was dominated by road traffic on Pilsworth Road to the north of the site.

Weather conditions throughout the survey were overcast, dry and cool with dry roads and wind speeds throughout were below 5 m/s.

3.2 Results summary

A summary of the average daytime (07:00 – 23:00) and night-time (23:00 – 07:00) ambient noise levels recorded is detailed within Table 3-1 and Table 3-2 below for the attended and unattended monitoring periods, respectively. The values are the logarithmically averaged or representative levels for the extended day/night periods and range of shorter-term measurements results within those periods. All values have been rounded to the nearest integer value (as fractions of a decibel are imperceptible) and are given in dBA.

Start time (Measurement duration, T)	$L_{Aeq,T}$ (dB)	$L_{A01,T}$ (dB)	$L_{A90,T}$ (dB)
07:00 (T = 2 hours)	63	67	58

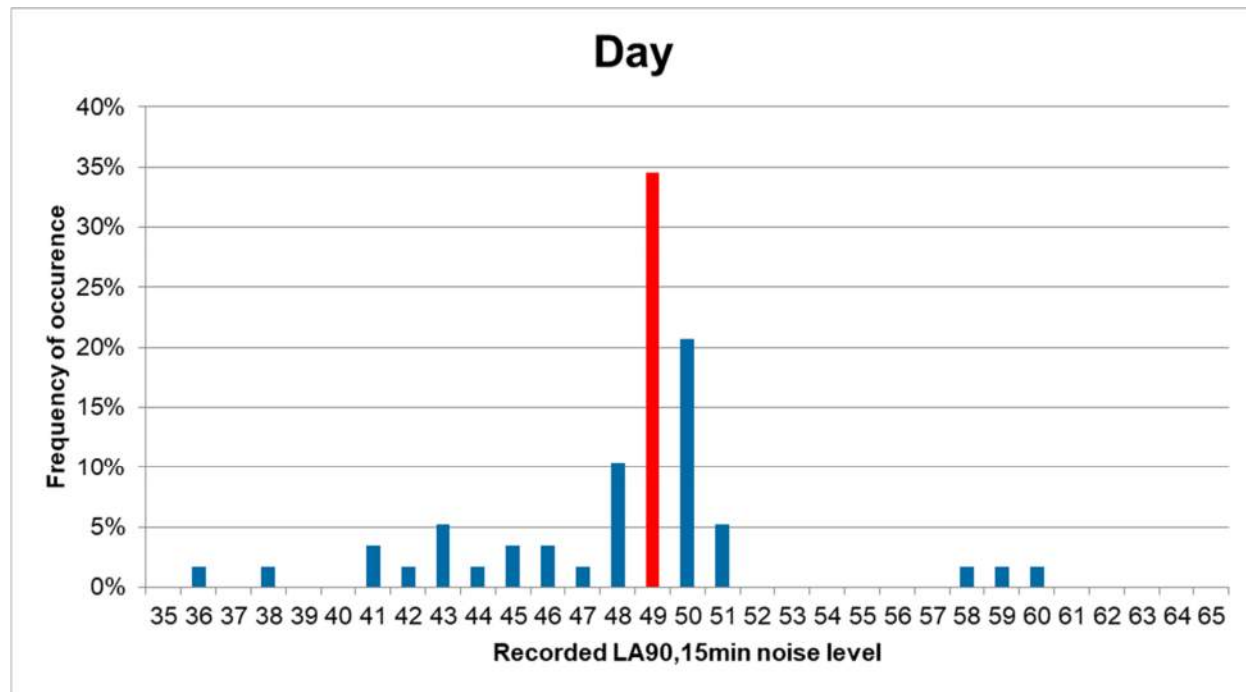
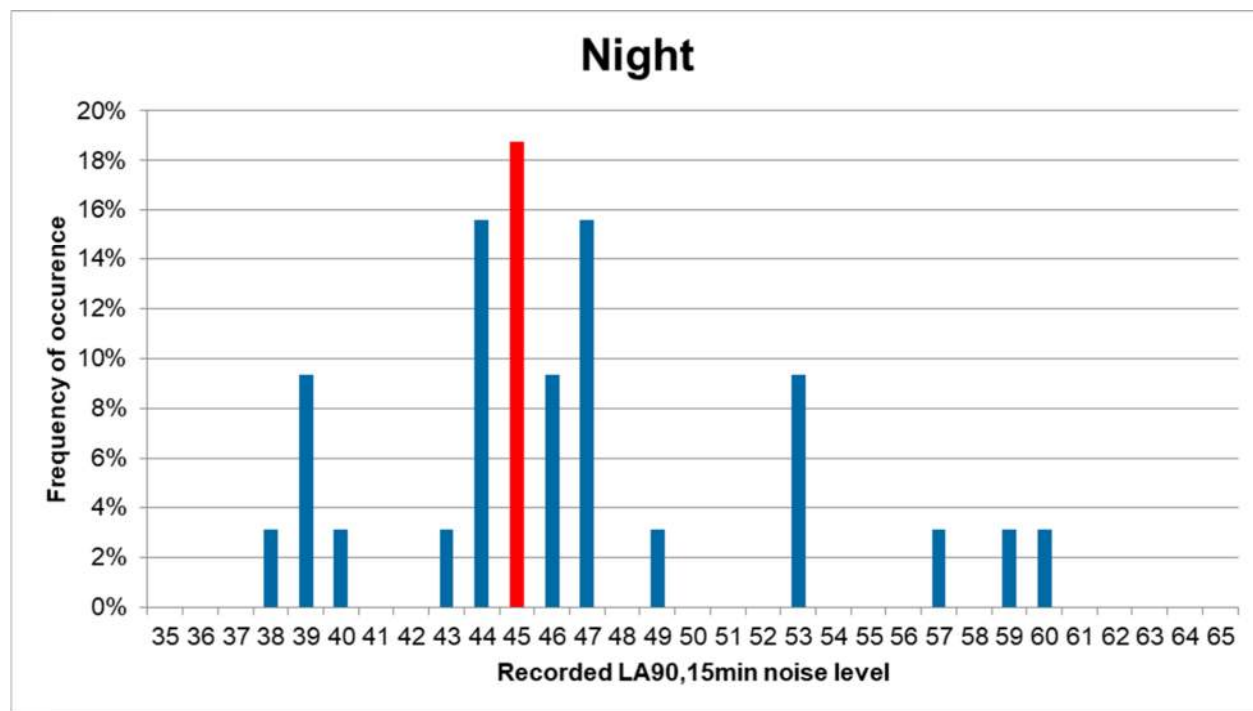
Table 3-1: Attended environmental noise survey results summary at MP1

Period (Measurement duration, T)	$L_{Aeq,T}$ (dB)	$L_{A01,T}$ (dB)	$L_{A90,T}$ (dB)
Combined daytime (T = 14.75 hours)	53	62	46
Daytime (T = 1 hour)	50 – 60	54 – 64	47 – 59
Daytime (T = 15 minutes)	43 – 61	50 – 66	36 – 60
Night-time (T = 8 hours)	53	62	43
Night-time (T = 15 minutes)	44 – 61	51 – 66	38 – 60

Table 3-2: Unattended environmental noise survey results summary at MP2

As can be seen from the results in Table 3-1 and Table 3-2, the noise levels at MP1 are higher than at MP2 – due to closer proximity to the main noise source at the site. Position MP1 is representative of the noise levels from Pilsworth Road and were undertaken between approximately 07:00 and 09:00 on a typical weekday morning, which is the loudest part of the day-time period due to ‘rush hour’ traffic.

Histograms of the day and night-time $L_{A90,15min}$ levels recorded at MP2 are displayed in Figure 3-2 and Figure 3-3 below, with the representative levels highlighted in **RED** in the figures and specified in Table 3-3 below these.

Figure 3-2: Daytime $L_{A90,15min}$ histogramFigure 3-3: Night-time $L_{A90,15min}$ histogram

Time period	Representative $L_{A90,15min}$
Daytime (07:00 – 23:00)	49
Night-time (23:00 – 07:00)	45

Table 3-3: Representative $L_{A90,15min}$ noise levels

4.0

External building fabric

4.0 External building fabric

4.1 Glazing system requirements

For light-weight clad buildings, both the specification of building fabric and the specification of glazing are considered as primary factors in determining the internal ambient noise level within noise sensitive areas due to noise ingress from outside.

Based on meeting the 50 dB $L_{Aeq,T}$ Internal Ambient Noise Level criterion within the pavilion building, the minimum sound reduction requirements identified for façades across the development use the calculation procedure for determining the glazing attenuation as follows:

$$R_w + C_{tr} = \text{External Façade Level dBA} - \text{Internal Design Target dBA}$$

Table 4-1 presents the highest façade noise level incident on the development, along with a comparison against the proposed internal noise level criterion.

Space type	Worst case external façade noise level *	Most onerous Internal Ambient Noise Level criterion (dB $L_{Aeq,T}$)	Required sound insulation, dB $R_w + C_{tr}$
Canteen	63 dB $L_{Aeq,T}$	≤ 50 dB $L_{Aeq,T}$	13
* This represents an absolute worst-case value. In practice, the canteen will be exposed to lower levels of external road traffic noise, as the façades of the canteen space are generally afforded additional screening due to the building's internal layout and massing.			

Table 4-1: Minimum required sound insulation performance of external elements

Based on the above, Table 4-2 presents as an example glazing/facade configuration capable of achieving the minimum required façade sound reduction index value:

Minimum required sound reduction index, dB $R_w + C_{tr}$	Example facade specifications
≥ 13	Standard thermal double glazing Rated at $R_w + C_{tr}$ 28 dB*
	Insulated composite cladding panel to external walls with mineral wool insulation. Cladding support rails internally to Structural Engineer's design Rated at $\geq R_w + C_{tr}$ 29 dB
	Insulated composite roof panel with no additional linings Rated at $\geq R_w + C_{tr}$ 22 dB
* Based on values given in 'BS EN 12354-3: 2000 for a 4-12-6 mm glazing configuration.	

Table 4-2: Minimum sound insulation performance requirements

The specification applies to the glazing, the frames and all seals on any openable parts of the systems, and any required ventilation or condensation control mechanisms when in the 'open' or 'operating' position.

The glazing and external light-weight cladding suppliers should be expected to prove by means of certified test results that the above sound reduction figures can be achieved by the system being proposed.

5.0

External plant noise

5.0 External plant noise

5.1 Noise limits

Based on the guidance contained within BS 4142 (see Section 2.2) it is considered appropriate to set the mechanical services plant rating level limits to not exceed the existing representative background sound level ($L_{A90,T}$). The background noise levels at the site are detailed in Section 3.2 of this report with the resultant rating level limits to be achieved at 1 metre from noise-sensitive receptors as shown in Table 5-1:

Time period	Existing representative background sound level, dB ($L_{A90,T}$)	Resultant plant rating level limit, dB ($L_{A,r,T,r}$)
Daytime (07:00 – 23:00)	49	≤ 49
Night-time (23:00 – 07:00)	45	≤ 45

Table 5-1: Mechanical services rating level limits at nearest noise-sensitive receptors

By assuming an equal apportionment of noise attributable to the canteen external plant and the future gym external plant equipment (to be installed as part of a later tenant fit-out), the resultant individual rating level limits applicable to the gym and canteen plant are presented in Table 5-2 below.

Time period	Plant noise limit, dB ($L_{A,r,T,r}$)		
	Canteen	Gym	Cumulative (Canteen + Gym)
Daytime (07:00 – 23:00)	≤ 46	≤ 46	≤ 49
Night-time (23:00 – 07:00)	≤ 42	≤ 42	≤ 45

Table 5-2: Individual mechanical services rating level limits for Canteen and Gym external plant

The above limits are applicable to the cumulative noise level from all new items of plant when running under normal operation. Where applicable, acoustic feature corrections should be applied to the specific plant noise level to account for any distinguishable acoustic characteristics (e.g. tonality, impulsivity, intermittency).

5.1.1 Nearest noise sensitive receptors

The nearest existing residential receptors comprise detached bungalows situated on The Close and Applecross Close, along with eight apartments within the three-storey Beechwood Apartment Building, as identified in Figure 1-1.

5.2 Plant noise assessment

The following subsections provide an initial assessment of external plant noise impacts based on current design proposals.

5.2.1 Plant noise data

The Development will necessitate the installation of external plant within a louvred compound located to the north of the building. Manufacturers' sound power level data for indicative plant selections serving the canteen are provided, where available, in Table 5-3. For any items where indicative selections have not yet been made (highlighted grey), best efforts have been applied to assign reasonable sound power level assumptions based on comparable current selections. It should also be noted that the gym's external plant will be developed and specified at a later stage as part of the gym fit-out works.

Plant item	Indicative plant selection	Reference	Spectral sound power level L_w (dB)								Sound power level L_w (dBA)
			63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
Canteen AHU	N17T/EX/AT-LWP	AHU-01 (intake)	77	82	83	78	75	74	76	73	83
		AHU-01 (discharge)	80	82	84	83	82	82	79	75	88
		AHU-01 (break-out)	80	73	73	64	55	48	42	31	67
Kitchen AHU	TBC – No indicative selection available [1]	AHU-02 (intake)	77	82	83	78	75	74	76	73	83
		AHU-02 (discharge)	80	82	84	83	82	82	79	75	88
		AHU-02 (break-out)	80	73	73	64	55	48	42	31	67
Kitchen Extract Fans	SQFTA42-3	KEF-01 KEF-04	80	90	74	69	71	73	70	62	79
Kitchen Extract Fans	SQFTA42-3ES	KEF-02 KEF-03	83	94	75	70	73	75	72	64	82
Air source heat pump for DHWS	QAHV-N560YA-HPB	ASHP-01 ASHP-02 ASHP-03 ASHP-04	85	72	74	71	67	62	58	53	73
Canteen DX units	PURY-M-250 R32 [2]	CU-01 CU-01A CU-02	98	82	81	78	71	68	68	62	80
Comms room DX unit	PUZ-ZM71 R32 [3]	CU-03	61	68	70	64	59	59	56	54	67
AHU DX units	TBC – No indicative selection available [4]	CU-04 CU-05 CU-06 CU-07	61	68	70	64	59	59	56	54	67
Freezer and cold Room DX units	TBC – No indicative selection available [4]	CU-08 CU-09	61	68	70	64	59	59	56	54	67

Notes on Table:

[1] No indicative plant selection available at time of writing. Assumed sound power values have been based on AHU-01.

[2] Octave band data is only provided in terms of sound pressure level. The sound pressure level frequency spectrum has been applied to the manufacturers stated single figure sound power level value.

[3] Octave band sound power data is not available from the manufacturer. A typical frequency spectrum has been applied based on library data for similar units.

[4] No indicative plant selections available at time of writing. Assumed sound power values have been based on CU-03

Table 5-3: Manufacturer's sound power level data

5.2.2 3D noise propagation model

To determine plant noise propagation to the nearest affected residential properties, a 3D noise propagation model has been produced using SoundPLAN 9.1 acoustic modelling software. This model is capable of accurately determining sound propagation by considering variations in topography, barrier attenuation provided by plant screening, and distance attenuation.

The 3D noise model has been based on plant external compound layouts provided by Kennedy Redford (see Appendix A) and the information listed in Table 5-3 has been incorporated into SoundPLAN and used to calculate the noise propagation at 1 metre from facades of the nearest affected noise-sensitive receptors.

5.2.3 Proposed mitigation

The following acoustic mitigation has been allowed for within the design and has subsequently been included within the 3D noise propagation model.

1. An allowance has been made for atmosphere-side attention to all AHU and extract fan intakes and discharges. It has been assumed within the model that atmosphere-side attenuation to all AHUs and Kitchen extract fans will provide minimum 10 dB broadband reduction.
2. An allowance has been made for the perimeter to the external compound to comprise an acoustic louvre (see Figure 5-1). This louvre has been assumed to be constructed a minimum 0.5 metre taller than the highest ASHP or condenser unit axial fan, and with a minimum weighted sound reduction index of 10 dB R_w. An example suitable product selection along with octave-band sound reduction data is provided in Table 5-4.

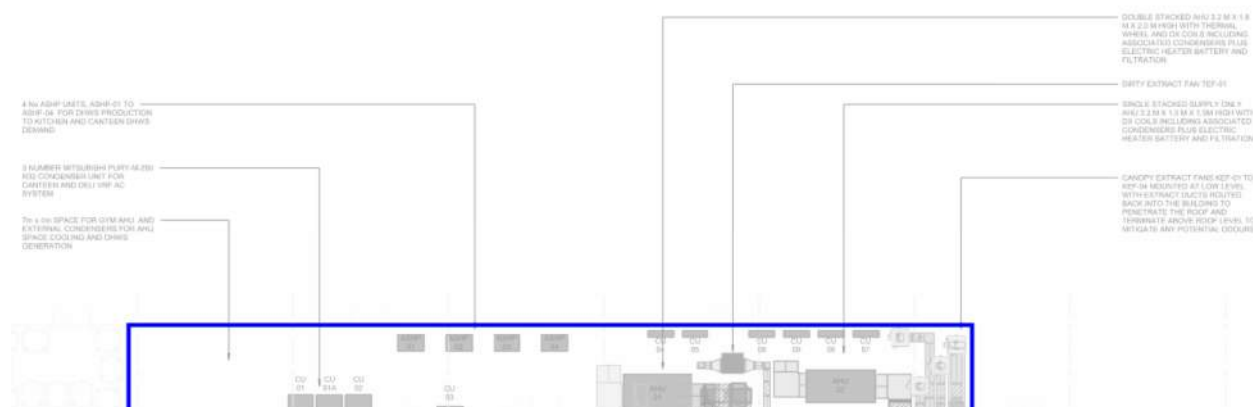


Figure 5-1: Extent of proposed plant compound perimeter louvre (blue)

Example product	Octave band sound reduction, dB R								Wighted sound reduction index, dB R _w
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
Slimshield SL-100 Acoustic Louvre	5	4	5	6	9	13	14	13	10

Table 5-4: Example suitable perimeter plant compound louvre sound reduction values

5.2.4 Results

Figure 5-2 presents the calculated plant noise specific sound level propagation and the resultant levels at the identified noise-sensitive receptors. Grid noise contours have been calculated at a height of 1.5 metres above ground level, while façade levels at NSRs are shown at the worst-case affected building window height. Table 5-5 provides a BS 4142 numerical assessment of noise impacts. The night-time period has been assessed on the basis that all plant could potentially operate on a 24/7 basis; consequently, demonstrating compliance with night-time limits ensures that the corresponding daytime limits at this location will be met by default.

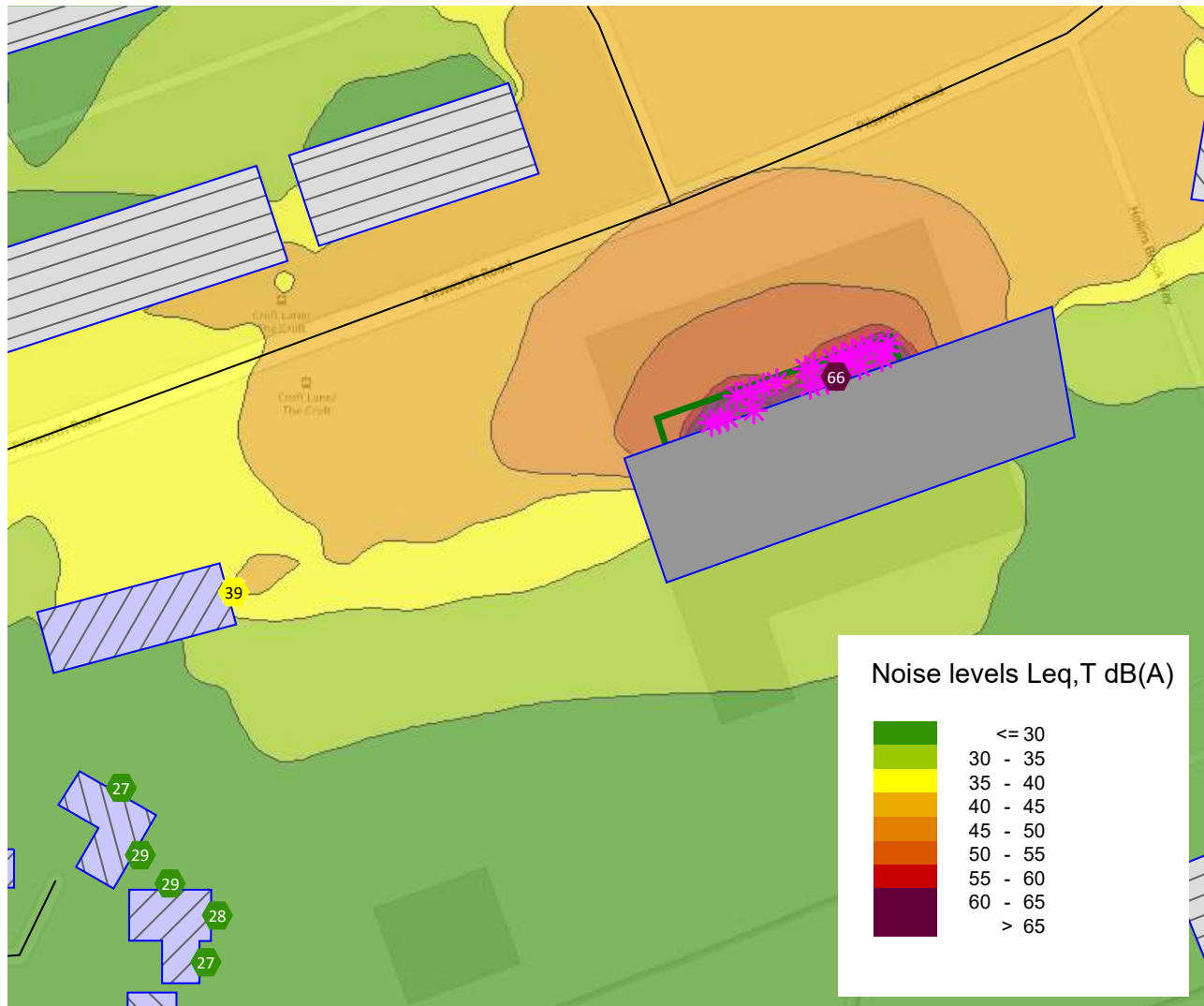


Figure 5-2: Calculated plant noise specific sound level at nearest noise-sensitive receptors

Assessment stage	Noise-sensitive receptor		BS 4142 Clause	Commentary
	Detached bungalows situated on The Close and Applecross Close	Beechwood Apartment Building		
Assessment Period, T_r	15 minutes		7.2	Continuous night-time operation assumed
Predicted specific sound level, L_s dBA	29	39	7.3.6; 7.3.8	Highest specific sound predicted by calculation and assumed to be continuous
Acoustic feature corrections, dB	+3	+3	9.2	Whilst there is no indication that the plant will exhibit tonal, intermittent, or impulsive acoustic characteristics, a +3 dB correction has been applied to account for potential general acoustic features
Rating Level, $L_{A,r,night}$	32	42	9.1	Specific sound + feature correction
Existing representative background sound level, dBA	45	45		See night-time limits presented in Table 5-1
BS 4142 numerical assessment outcome	13 dB below background	3 dB below background	11	Rating level is at least 3 dB below representative background sound level

Table 5-5: Plant noise assessment results at nearest residential receptors

As demonstrated by the results detailed above, with the proposed acoustic mitigation measures incorporated into the scheme, the worst-case sound impact from the building services plant associated with the canteen elements of the Development is predicted to be 3 dB below the representative background sound level when assessed at 1 metre from the nearest noise-sensitive receptors.

With reference to the proposed canteen limits presented in Table 5-2, it can be seen that the highest predicted rating level of 42 dB L_{A,r,T_r} also allows for an equal apportionment of future noise contributions from external plant associated with the future gym fit-out.

7.0

Sports activity noise assessment

6.0 Sports activity noise assessment

As part of the Development proposals, two external padel courts and a Multi-Use Games Area (MUGA) are proposed centrally to the site as identified in Figure 6-1 below:

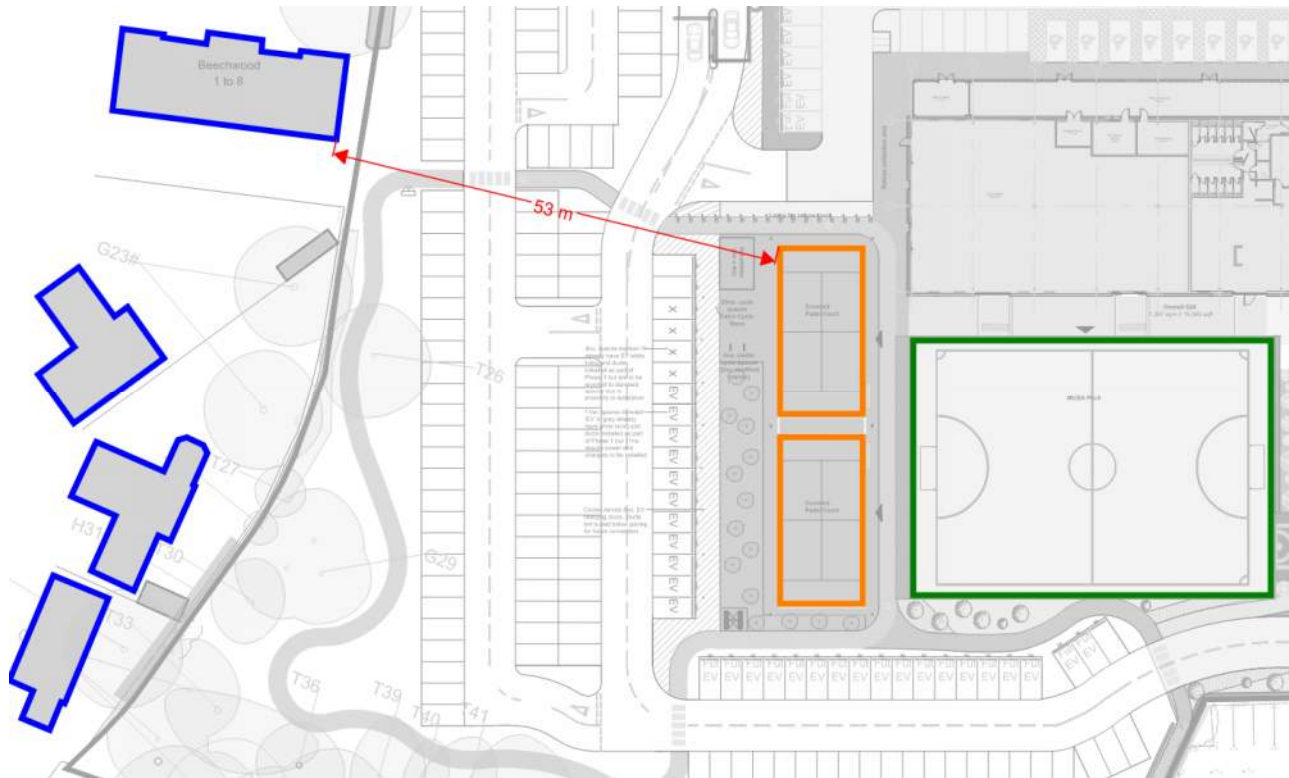


Figure 6-1: Location of Padel courts (orange), MUGA pitch (green) and nearest noise-sensitive receptors (blue)

The following sub-sections assess the predicted impact from future sports activity noise on existing nearby noise-sensitive residential properties.

6.1 Assessment criteria

6.1.1 Multi-Use Game Area (MUGA)

There is no legislative requirement or limits for noise from activities from sports pitches, however Sport England has produced a helpful guide in the Artificial Grass Pitch (AGP) Acoustics – Planning Implications (revision 1, November 2015).

The most appropriate criterion is considered to be from World Health Organisation Guidelines for Community Noise guidance. This states "

To enable casual conversation indoors during daytime, the sound level of interfering noise should not exceed 35 dB L_{Aeq} . The maximum sound pressure level should be measured with the sound pressure meter set at 'fast'."

The Sport England guide therefore suggests that, based on a 15 dB reduction through a partially open window, suitable criteria would be for noise levels not to exceed 50 dB at 1 metre from the façade of dwellings.

World Health Organisation Guidelines for Community Noise – in relation to outdoor amenity areas, states "...that to avoid 'moderate annoyance' during the daytime and evening the noise level should not exceed 50 dB $L_{Aeq(T)}$."

6.1.2 Padel courts

Padel is a relatively new sport within Great Britain and, at the time of writing, no authoritative guidance is available regarding appropriate noise limits for padel activities. In the absence of such specific guidance, it is proposed to adopt the same assessment criteria as presented in Section 6.1.1 for MUGA sources.

This approach has been successfully adopted in previous Noise Impact Assessments for similar padel court developments and has been accepted by a number of Local Planning Authorities across the UK as a reasonable and proportionate basis for assessing padel-related noise impacts in the absence of sport-specific guidance.

6.2 Source noise levels

6.2.1 MUGA

The Sport England document states the following:

“A typical free-field noise level from an AGP (at 10 m from the sidelines halfway marking) = 58 dB $L_{Aeq}(1 \text{ hour})$ ”.

This value was derived from measurements taken during nine sports sessions across three separate pitches, encompassing football, hockey, and rugby played by men, women, and children. As the document does not provide information regarding the acoustic spectrum of the noise source, library data from sports pitch measurements for a soccer match without spectators has instead been adopted, as detailed in Table 6-1.

Descriptor	Sound pressure level $L_{eq,T}$ dB spectrum at octave band centre							Overall sound pressure level $L_{Aeq,T}$ dB
	125 Hz	250Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
Average sound pressure level @ 10 m from sidelines halfway marking	58	53	52	53	51	51	39	58

Table 6-1: MUGA sound pressure level at 10 m from sidelines halfway marking

6.2.2 Padel courts

In the absence of authoritative British guidance on padel court noise emissions, the sound power level has been adopted from the 'Guideline: Padel and Noise' document published by The Royal Netherlands Lawn Tennis Association ¹. This document states the following (bold added for emphasis):

*In both the Netherlands and Belgium, many noise measurements have already been carried out on padel courts. Analysis of these reports generally shows sound power levels between 89 and 91 dB(A). In the guideline, a value of 91 dB(A) has been taken as representative of the sound power level of a single padel court.*²

The frequency spectrum has been informed by other in-situ measurements of padel court activities with the resultant values presented in Table 6-2 below:

Descriptor	Sound power level $L_{w,T}$ dB at octave band centre frequency							Overall sound power level $L_{WA,T}$ dB
	125 Hz	250Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
Sound Power Level (per court)	59	69	78	89	85	79	72	91

Table 6-2: Padel sound power level (per court)

¹ KNLTB (2023) *Handreiking Padel en Geluid: 'Een praktisch handvat dat partijen kan helpen bij een juiste afweging en inpasbaarheid'*. Version 1.0. Jan. 2023. The Royal Netherlands Lawn Tennis Association (KNLTB), Utrecht, Netherlands. Available at: <https://www.knltb.nl/media/ewkh5i05/handreiking-padel-en-geluid-v4.pdf> (Accessed: 10/11/2025).

² Text translated from Dutch using AI-assisted translation tools. The translations have been reviewed for accuracy and clarity.

6.3 Noise impact assessment

In order to determine noise propagation from the proposed external MUGA and padel courts, a model has been produced using SoundPLAN 9.1 acoustic modelling software. This model is capable of accurately determining sound propagation, by taking into account variations in topography, barrier attenuation provided by existing landscaping and buildings, and distance attenuation.

A model has been created of the proposed site, and the sound power data for sports activity sources has been calibrated based on source noise level data presented in Table 6-1 and Table 6-2. It has been assumed that the MUGA and padel courts will potentially be in continuous use for a 1-hour assessment period. Padel court glass walls have been included within the model; however, while the courts are proposed to feature a weatherproof fabric cover, this has not been modelled as it is expected to provide only a nominal acoustic benefit.

Without any specific acoustic mitigation for the MUGA or padel courts, it is expected that the averaged free-field noise levels at nearby residences **will not exceed 50 dB $L_{Aeq,T}$** as indicated in Figure 6-2 below. Grid noise contours are calculated at a height of 1.5 metres above the terrain, whereas façade levels at NSRs are presented at the worst-case affected building window height.

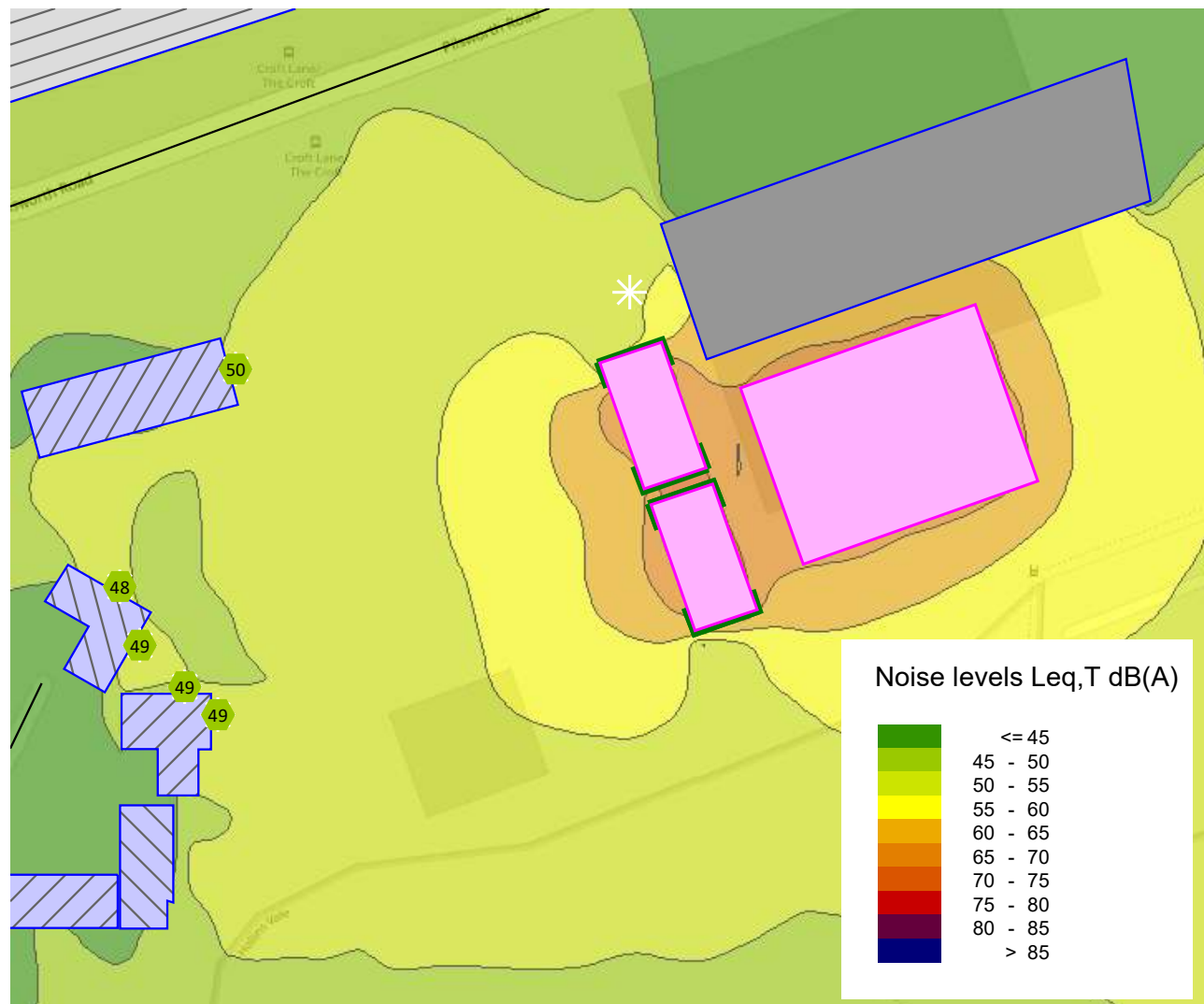


Figure 6-2: MUGA and padel court noise impact assessment (grid noise map @ 1.5 m)

6.3.1 Assessment summary

Based on the modelling results presented in Section 6.3, Table 6-3 below presents a summary of predicted levels with reference to the relevant BS 8233 criteria.

Acoustic metric	Sport England criteria	BS 8233 criteria	Calculated level	Assessment outcome
Equivalent continuous sound level	≤ 50 dB $L_{Aeq,1hr}$ at external facade	≤ 55 dB $L_{Aeq,T}$ in external amenity spaces	≤ 50 dB $L_{Aeq,1hr}$ at external facade < 50 dB $L_{Aeq,1hr}$ in external amenity areas	Compliant with BS 8233 and Sport England criteria

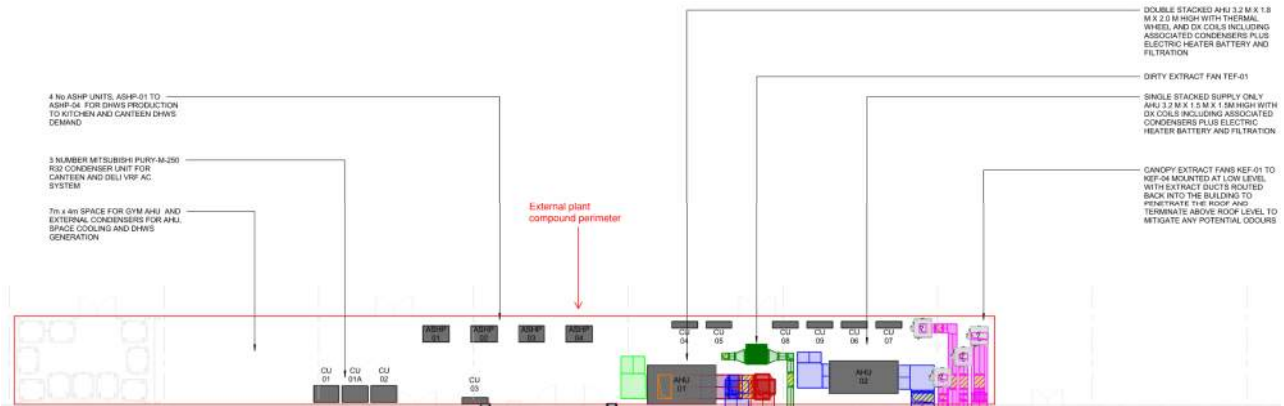
Table 6-3: Summary of sports activity noise impact assessment

It can be seen from the results in Table 6-3 above that, without the need for any specific acoustic mitigation, noise impacts associated with the MUGA are expected to be comply with both BS 8233 best-practice design criteria and the Sports England criteria.

Appendices

Appendices

Appendix A External plant compound indicative layout



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