

Project:

Padel at 21 Leafield Industrial Estate, Corsham

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Padel Court Acoustic Assessment

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Limitations			
This report has been prepared for the titled project and client in accordance with our agreed scope of work, document reference: PA-01299/SC1, dated 04 December 2025.			
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1.0 - Introduction

The industrial unit at 21 Leafield Industrial Estate, Corsham, Wiltshire, SN13 9RS, currently contains indoor padel courts.

It is proposed to have three outdoor padel courts positioned on the grass land to the east of the unit.

Pulsar Acoustics has been commissioned to undertake an acoustic assessment of the proposed padel courts, to recommend suitable acoustic guidance and criteria, determine its acceptability, and recommend acoustic mitigation measures if necessary.

2.0 - Site Description and Proposals

The industrial site has long established noisy uses including, packing and storage, metal works, vehicle repair/maintenance, engineering, industrial fabrication, printing, timber merchant, construction materials, food processing, logistics and distribution, etc.

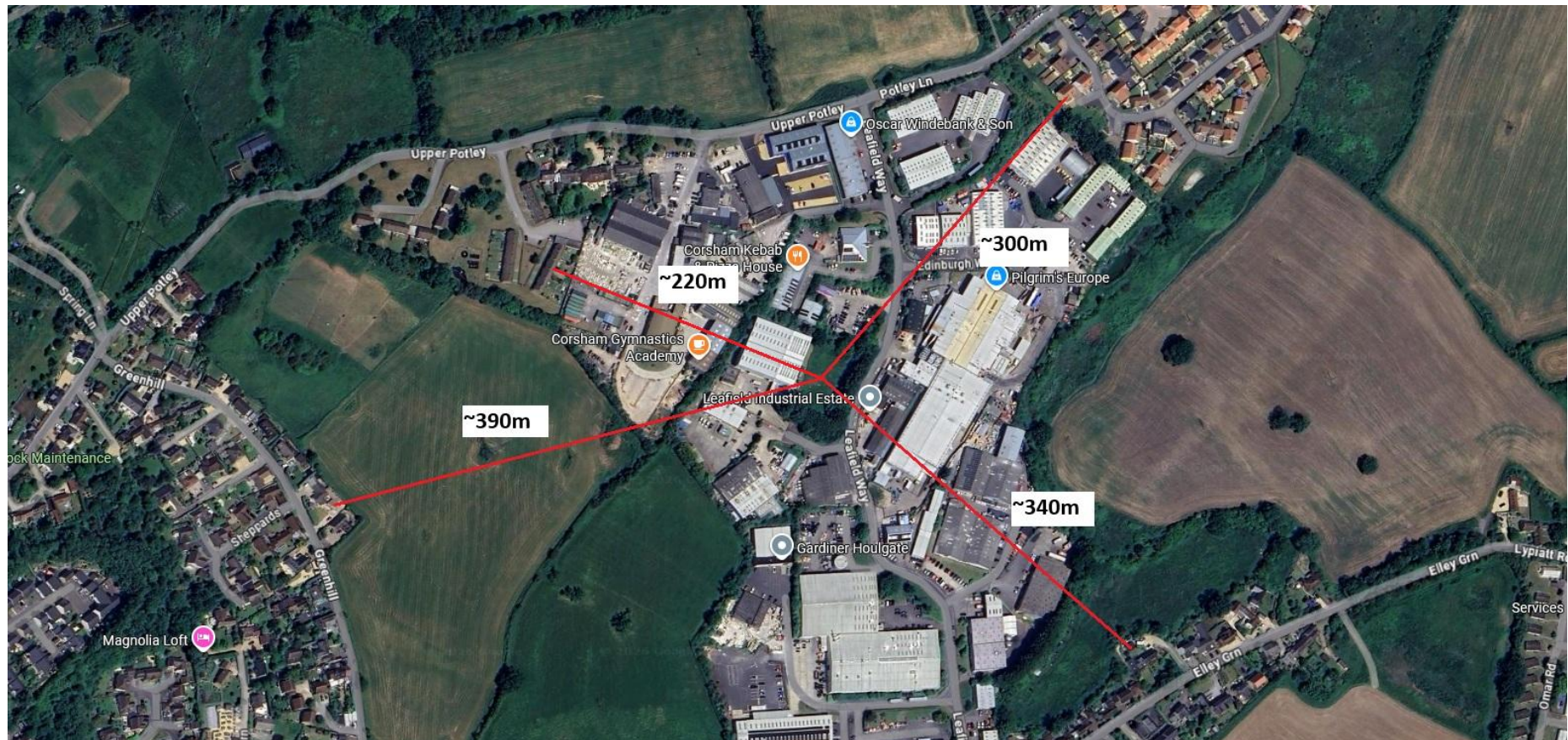
The unit at 21 Leafield Industrial Estate is in the middle of the industrial estate, and therefore benefits from being far away from noise sensitive residential dwellings, and being positioned between many existing noisy industrial units the new courts will be significantly screened from noise.

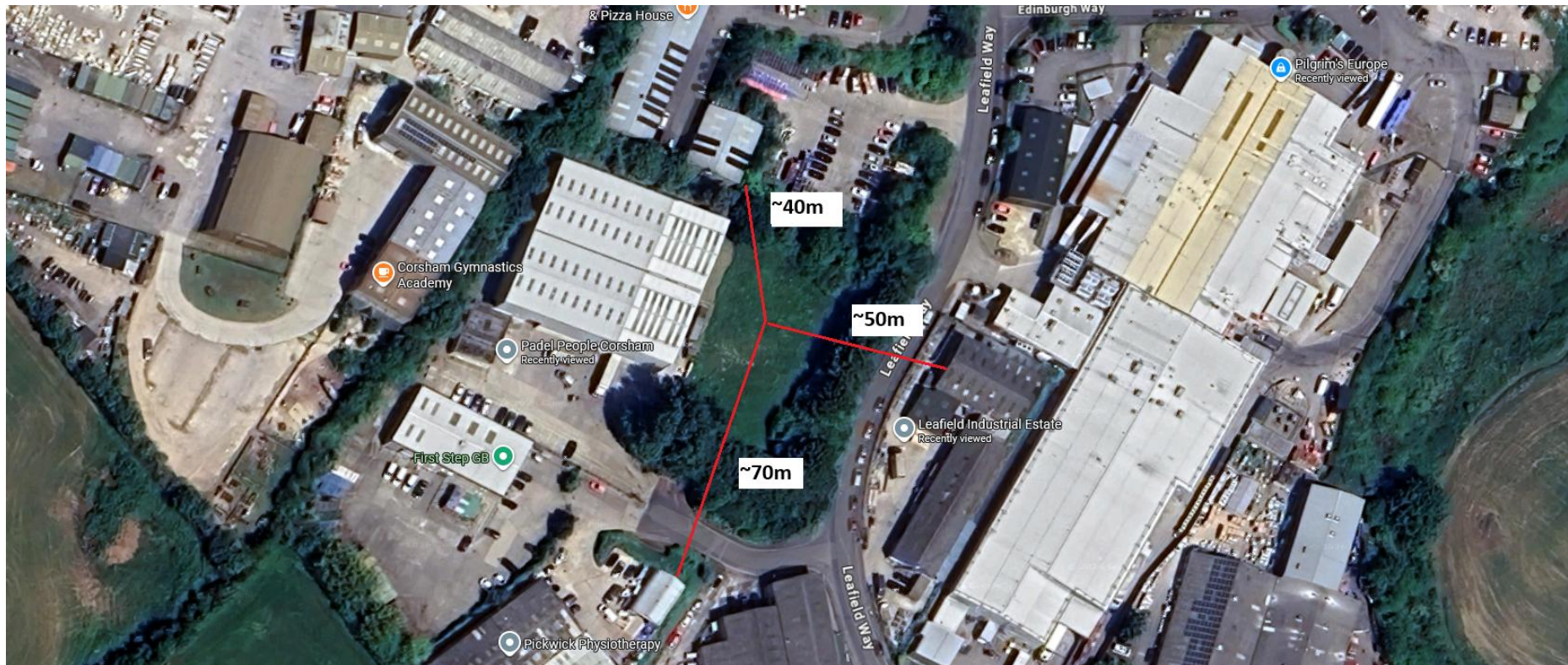
Our engineer on site noted the existing noise climate included, various building services from neighbouring units, extract fans, air-conditioning units, regular traffic/HGVs, and general outdoor clangs/bangs from other industrial units.

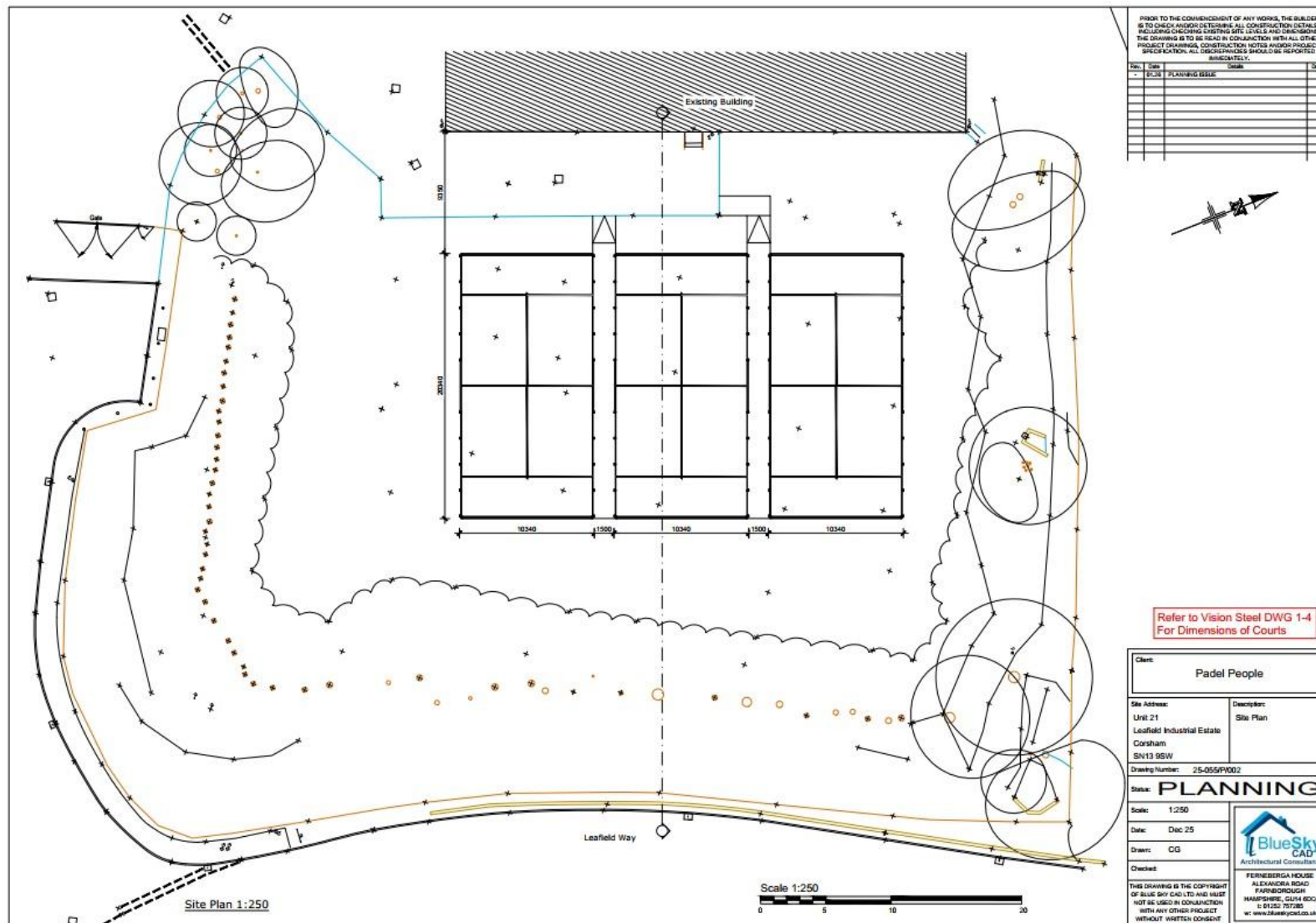
The images below outline the site and provide some approximate distances to noise sensitive residential dwellings, and the nearest industrial units. However, we do not believe the neighbouring industrial units are to be considered noise sensitive. Many of them already have far louder activities than padel courts would be.













3.0 - Guidance & Criteria

We are unaware of any Council specific guidance, methodology or criteria for assessing padel noise.

Padel tennis is relatively new in the UK and there is no definitive British Standard guidance. In the absence of official guidance, we note of recent years it is common for acoustic consultancies and planning applications to consider the following:

- Sport England Design Guidance - Artificial Grass Pitch (AGP) Acoustics - Planning Implications.
- British Standard BS8233 - Guidance on sound insulation and noise reduction for buildings.

3.1 - Sport England

The Sport England Design Guidance document - Artificial Grass Pitch (AGP) Acoustics - Planning Implications 2015, is often used by Councils when considering applications for multiuse games areas where various sports can be played, including football, hockey, rugby, tennis, netball, basketball, etc.

The Sport England guidance was determined following noise measurements made during nine sports sessions on three separate AGPs. The sessions included various sports and participation by men, women and children.

The purpose was to determine 'typical' noise levels from AGP sports sessions. Noise level measurements were taken at a distance of 10 metres behind the mid-way points along goal lines and sidelines. They were found to be highest behind the sideline halfway line. The most significant noise levels were found to be generally derived from the voices of players, with the exception of hockey where impact noises of balls hitting perimeter strike boards and goal back boards were more noticeable.

In terms of determining suitable noise criteria, the Sport England guidance suggests the following:

"Page 9 - The determining noise criteria for AGPs proximity to residential properties, to avoid moderate annoyance in the daytime and evenings, as set by The World Health Organisation's 'Guidelines for Community Noise': = 50dB LAeq1hour upper noise limit external to residential properties and within external living areas."



3.2 - BS8233

The guidance for noise impact on external amenity area from British Standard BS8233 - 'Guidance on sound insulation and noise reduction for buildings', Sport England AGP, and World Health Organisation 'Guidelines for Community Noise' (WHO), are very similar, and each make reference to a target 50dBA Leq,T value.

BS8233 Section 7.7.3.2 titled 'Design criteria for external noise' recommends:

"For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dBA Leq,T, with an upper guideline value of 55 dBA Leq,T, which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations, or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited."

"Other locations, such as balconies, roof gardens and terraces, are also important in residential buildings where normal external amenity space might be limited or not available, i.e. in flats, apartment blocks, etc. In these locations, specification of noise limits is not necessarily appropriate. Small balconies may be included for uses such as drying washing or growing pot plants, and noise limits should not be necessary for these uses. However, the general guidance on noise in amenity space is still appropriate for larger balconies, roof gardens, and terraces, which might be intended to be used for relaxation. In high-noise areas consideration should be given to protecting these areas by screening or building design to achieve the lowest practicable levels. Achieving levels of 55dBA Leq,T or less might not be possible at the outer edge of these areas, but should be achievable in some areas of the space."



3.3 - Example Padel Court Noise Data

It is necessary to obtain representative acoustic data for the use of outdoor padel courts. We have found an acoustic assessment report commissioned by a company called 'Padel Tech' that appears to have been used numerous times to gain planning permission around the UK.

Project details:

Solihull Arden Club - *"Installation of 4 No. padel tennis courts (2 No. covered) with 16 No. 6m high floodlighting, a touch tennis court and the creation of 10 additional car parking spaces and 6 additional cycle parking spaces."*

The acoustic report is titled - Sharps Redmore *'Environmental Assessment of noise from the playing of Padel Tennis'* - Date 20 March 2019 Project No 1717065, and we have included this in Appendix B.

The report is available from Solihull Council website for planning reference = PL/2019/01566/PPFL.

- <https://publicaccess.solihull.gov.uk/>

This report provides noise measurement data from people playing padel tennis, and we will use this data for comparison to the above industry standards.

This report provides noise measurement data from people playing padel in two courts, with four players in each court.

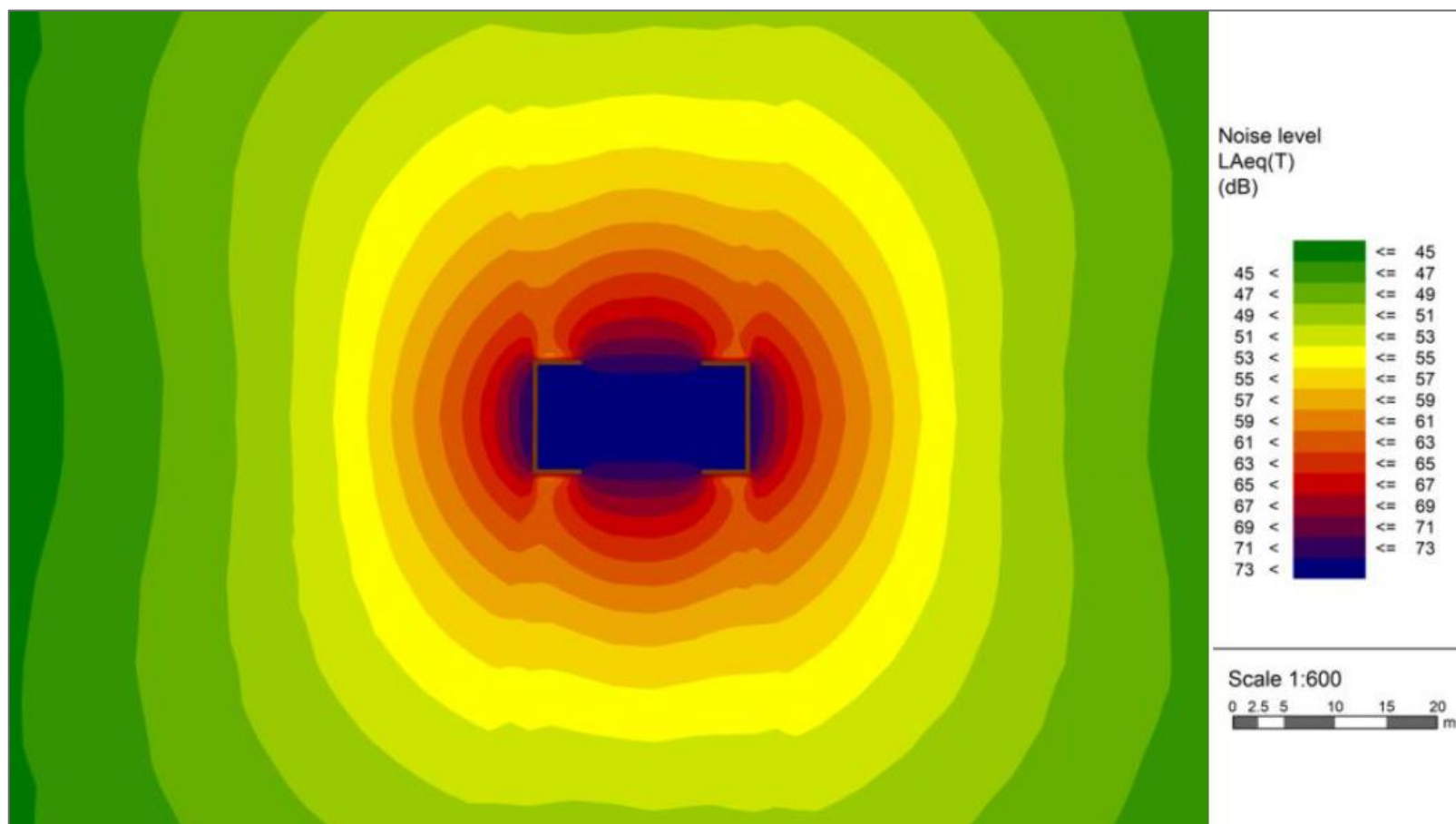
The measurements were undertaken at various distances from the side and rear of the court following methodology, which appears to be comparable to the recognised Sport England guidance for artificial grass pitches (AGP).

As described in the report, it was noted there was no significant difference in noise levels measured at the side and rear of the court. The results of the survey were input and analysed using computer noise modelling software.

The data from the report has been extracted and reproduced in the table and noise model image presented below.



Distance from court - Metres	Ambient noise level dBA Leq,1h	Peak noise level dBA Lmax
5	60.1	72
10	56.3	66
20	51.2	58
30	49.3	51
40	46.1	48





4.0 - Environmental Noise Survey

4.1 - Methodology

Sound level measurements were undertaken to determine the existing noise climate around site.

Two fixed position sound level meters were set up from approximately 11:30 hours on 12 January 2026 to 11:00 hours on 14 January 2026.

The equipment was set to log many statistical parameters in 15-minute intervals, including dBA Leq, τ for comparison to the industry standard guidance described in Section 3.0.

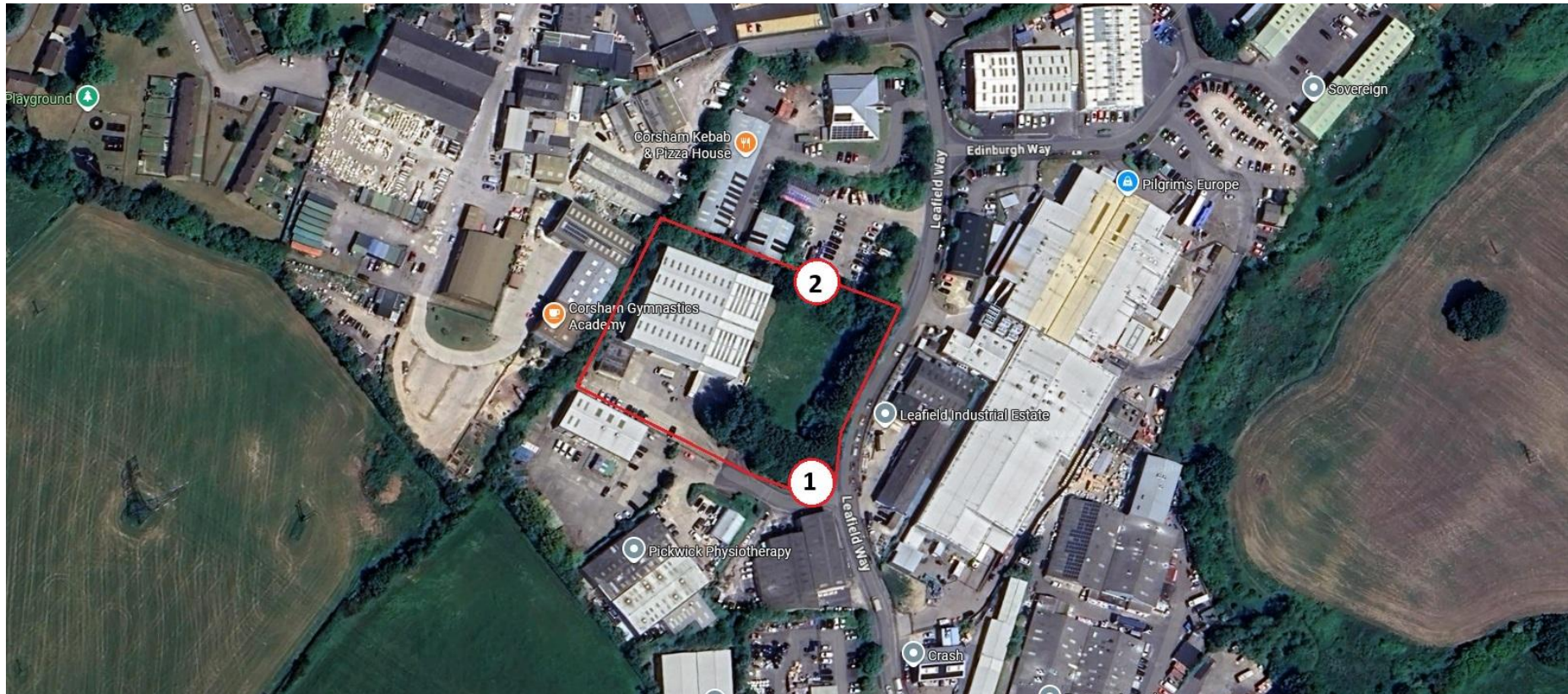
The following equipment was used to undertake the survey.

Position	Item	Make	Model	Serial Number
1	Sound Level Meter (SLM)	Casella	CEL-633C	1057028
	Preamp	Casella	CEL-495	004728
	Microphone	G.R.A.S.	GRAS-40AE	49590
2	Combined SLM, Preamp & Microphone	Convergence	NSRTW_mk4	AvP8hf2Y0901ohPyw6DZnD
Both	Handheld Calibrator	G.R.A.S.	GRAS-42AG	280968

The equipment was checked using the handheld calibrator before and after the survey. No significant drift was measured (no more than 0.1dB). The handheld calibrator and equipment has been calibrated to traceable standards within 12 months prior to the survey.

The equipment at both positions was attached to a tripod at a height of approximately 1.5m above ground level. Position 1 was located towards the south boundary and Position 2 was located towards the north boundary.

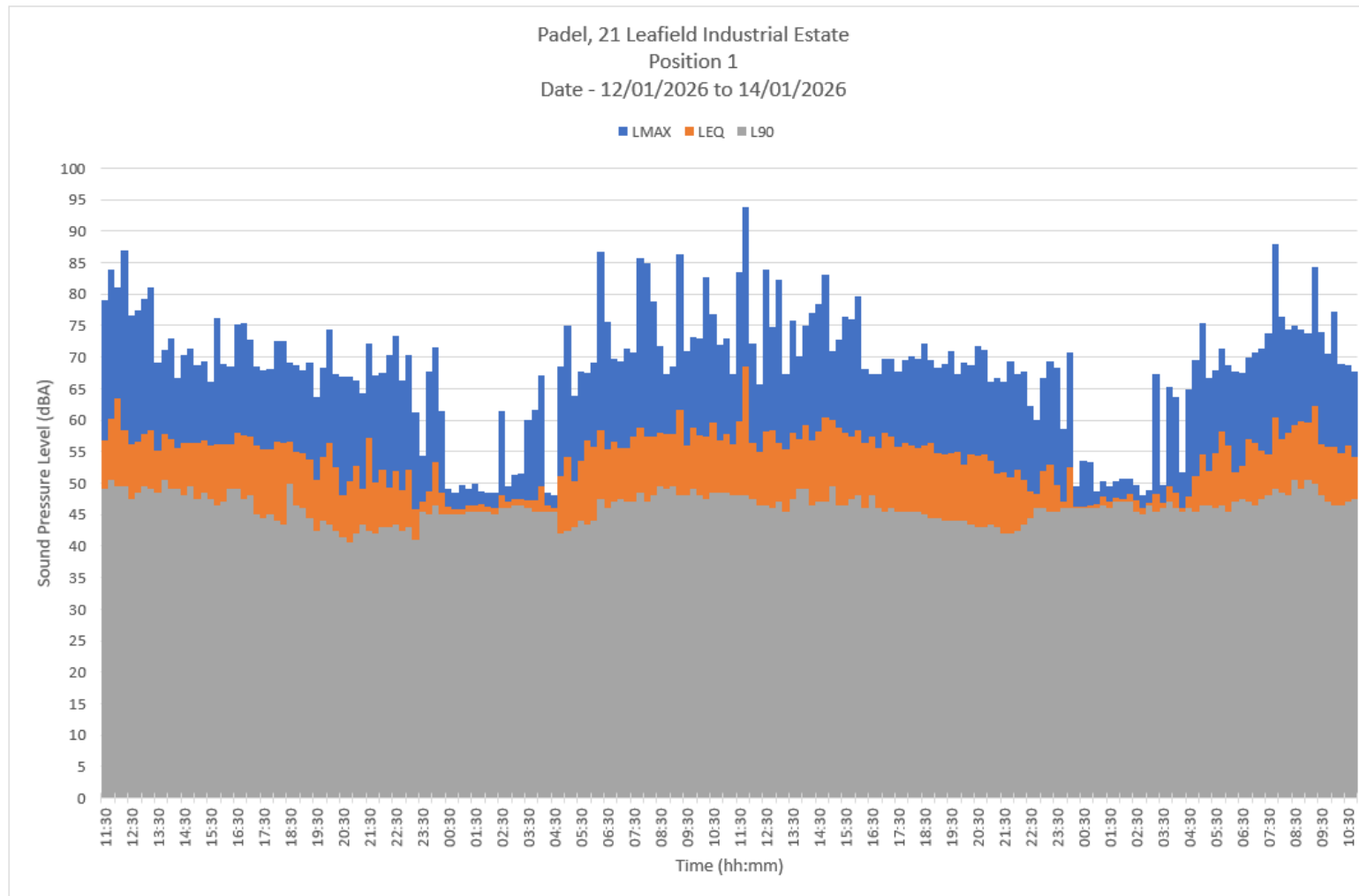
The approximate measurement positions are indicated on the site plan below.

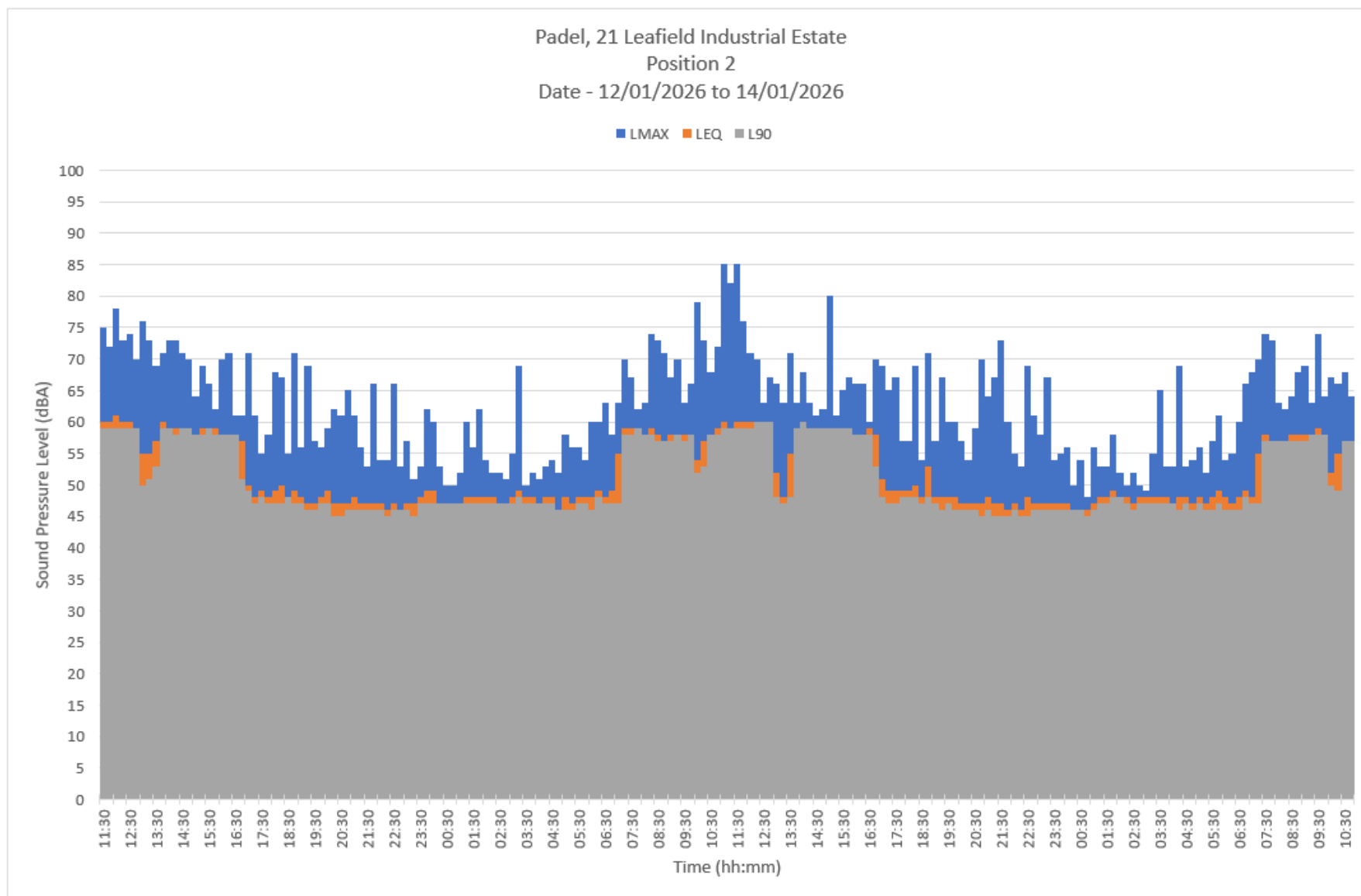




4.2 –Measurement Data

The measured sound level data has been plotted on the time history graphs below.







5.0 - Padel Court Noise Assessment

5.1 - Comparison to BS8233 Guidance

As described in Section 3.2, BS8233 suggests - *“For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50dBA Leq,T, with an upper guideline value of 55dBA Leq,T, which would be acceptable in noisier environments.”*

The Padel Tech/Sharps Redmore noise data presented in Section 3.3, suggests that at distances over around 15m away from a padel court the noise levels would be less than 55dBA Leq,T, and over 30m away from a padel court the noise levels would be less than 50dBA Leq,T.

The noise levels at Positions 1 and 2 around the boundary of site are higher than 50dBA Leq,T for the vast majority of the day, due to existing industrial activity. Noise from padel will be masked to some extent by industrial noise and likely go unnoticed.

The nearest noise sensitive residential dwellings are over 200m away. Over this distance and considering the additional barrier screening afforded by the buildings, we would expect attenuation of at least -30dBA.

Noise levels from the padel courts would probably be circa 20dBA and not audible outside any residential dwellings.

We therefore suggest the proposed padel courts should be deemed to comply with BS8233 criteria.



5.2 - Comparison to Sport England Guidance

Sport England guidance uses criteria established by the World Health Organisation (WHO), which is comparable to the BS8233 guidance described above.

As described in Section 3.1, Sport England recommends - *“The determining noise criteria for AGPs proximity to residential properties, to avoid moderate annoyance in the daytime and evenings, as set by The World Health Organisation’s ‘Guidelines for Community Noise’: = 50dB LAeq1hour upper noise limit external to residential properties and within external living areas.”*

The Padel Tech/Sharps Redmore noise data presented in Section 3.3, suggests that at distances over 30m away from a padel court the noise levels would be less than 50dBA Leq,T.

The noise levels at Positions 1 and 2 around the boundary of site are higher than 50dBA Leq,T for the vast majority of the day, due to existing industrial activity. Noise from padel will be masked to some extent by industrial noise and likely go unnoticed.

The nearest noise sensitive residential dwellings are over 200m away. Over this distance and considering the additional barrier screening afforded by the buildings, we would expect attenuation of at least -30dBA.

Noise levels from the padel courts would probably be circa 20dBA and not audible outside any residential dwellings.

We therefore suggest the proposed padel courts should be deemed to comply with Sport England and WHO criteria.



6.0 - Conclusion

The industrial unit at 21 Leaffield Industrial Estate, Corsham, Wiltshire, SN13 9RS, currently contains indoor padel courts.

It is proposed to have three outdoor padel courts positioned on the grass land to the east of the unit.

Pulsar Acoustics has been commissioned to undertake an acoustic assessment of the proposed padel courts, recommend suitable acoustic guidance and criteria and determine acceptability.

We have undertaken an environmental noise survey on site. We have subsequently reviewed the proposals and recommended suitable industry standard criteria. We have then compared padel court and environmental noise measurement data to recommended criteria.

In the context of Sport England, WHO, and BS8233 guidance, our assessment suggests there would be no noise impact from the proposed padel courts to the nearest noise sensitive residential neighbours.

Therefore, based on acoustic assessment we suggest planning permission should be granted.



APPENDIX A - Acoustic Terminology

The following is an explanation for some of the acoustic parameters used in this report to describe the measurements and mitigation.

- **dB** The decibel is used as a measurement of sound pressure level. It is the logarithmic ratio of the noise being assessed to a standard reference level. This approach is advantageous for handling sound levels, where the ratio of the highest to lowest sound which humans could encounter, can be as high as 1,000,000 : 1. The ratio is considered with respect to the quietest and loudest sound we can hear. This is the threshold of hearing at the frequency of 1000Hz, which is taken as $20\mu\text{Pa}$ ($2 \times 10^{-5} \text{ Pa}$) of pressure for the average person. (A decibel is simply a ratio and is used in many other industries too, but most commonly in acoustic or electrical signal analysis.)
- **dBA** The human ear is more susceptible to mid-frequency noise than to higher and lower frequencies. To take account of this when measuring noise, the 'A' weighting scale is used so that the measured noise corresponds to the overall level of perception by the average human. It is also possible to calculate the 'A' weighted noise level by applying certain corrections to an un-weighted frequency spectrum (Hz). The measured or calculated 'A' weighted noise level is known as the dBA level.
- **$L_{eq,T}$** The equivalent continuous sound level in decibels, equivalent to the total sound energy measured over a stated period of time and is also known as the time-averaged sound level.
- **dBA $L_{eq,T}$** The A-weighted equivalent continuous sound level in decibels measured over a stated period of time 'T', and is sometimes written dB $L_{Aeq,T}$.
- **L90** This parameter is the noise level exceeded for 90% of the period T (i.e. the quietest 10% of the measurement) and is often used to describe the background noise level.
- **dBA L_{max}** The maximum dBA noise level recorded during the measurement interval period.

When discussing sound levels as decibels we use a logarithmic scale, therefore the dBA values do not follow a linear relationship. When discussing similar noises, a change of 10dBA represents a doubling or halving of subjective loudness. A change of 3dBA is just perceptible by a human, but is a doubling/halving of sound energy. (i.e. $50\text{dBA} + 50\text{dBA} = 53\text{dBA}$).

If you require a more detailed explanation for any of the acoustic principles or parameters discussed in this report please do not hesitate to ask.



APPENDIX B - Padel Tech/Sharps Redmore Acoustic Report

SHARPS REDMORE
ACOUSTIC CONSULTANTS • Established 1990



Report

Environmental Assessment of
noise from the playing of
Padel Tennis

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Date 13 September 2017
Project No 1717065

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- 2.0 Assessment Methodology and Criteria
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- A. Acoustic Terminology



1.0 Introduction

- 1.1 Sharps Redmore (SR) to undertake an assessment of noise generated by the typical use of a padel tennis court
- 1.2 This report will be used as a generic study in support of planning applications for new padel tennis courts.
- 1.3 A guide to the assessment methodology and criteria used within this report is included in section 2.0. Details of survey noise survey is presented in section 3.0



2.0 Assessment Methodology & Criteria

2.1 The National Planning Policy Framework (NPPF), March 2012, sets out the Government's planning policies for England and "these policies articulate the Government's vision of sustainable development." In respect of noise, Paragraph 123 of the NPPF states the following:

"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."*

2.2 Guidance on the interpretation of the policy aims contained within the NPPF is contained within National Planning Policy Guidance (NPPG). The NPPG introduces the concept of a noise exposure hierarchy based on likely average response. The guidance contained in the NPPG is summarised in the table below:

Table 2.1: 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 change 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	



Perception	Examples of Outcomes	Increasing Effect Level	Action
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 Adverse Effect	Avoid
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

2.3 The NPPF and planning practice guidance reinforces the March 2010 DEFRA publication, "Noise Policy Statement for England" (NPSE) which states three policy aims, as follows:

"Through the effective management and control of the 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."*

2.4 Together, the first to aims require that no significant adverse impact should occur and that, where a noise level which falls between a level which represents the lowest observable adverse effect and level which represents a significant observed adverse effect, then according to the explanatory notes in the statement:

"All reasonable steps should be taken to mitigate and minimise adverse effect on health and quality of life whilst also taking into consideration the guiding principles of sustainable development. This does not mean that such effects cannot occur."

2.5 The above standards do not contain technical advice; however, technical design standards are given within World Health Organisation Guideline Values and British Standard (BS) 8233:2014.

2.6 Both the above documents focus on the achievement of acceptable living standards for future developments when the development is completed.

2.7 The WHO guideline values are appropriate to what are termed "critical health effects". This means that the limits are at the lowest noise level that would result in any



psychological, physiological or sociological effect. They are, as defined by NPSE, set at the Lowest Observed Adverse Effect Level (LOAEL), but do not define the level above which effects may be considered significant (SOAEL). Compliance with the LOAEL should, therefore, be seen as a robust aim.

2.8 The WHO LOAEL guideline values are summarised in the following table:

Value	Guidance	Location
$L_{AeqT} = 55 \text{ dB}$	Few seriously annoyed, Daytime and evening	Continuous noise, outdoor living areas
$L_{AeqT} = 50 \text{ dB}$	Few moderately annoyed, Daytime and evening	Continuous noise, outdoor living areas
$L_{AeqT} = 35 \text{ dB}$	Acceptable level to avoid speech disturbance interference, daytime and evening	Continuous noise, dwellings, indoors
$L_{AeqT} = 45 \text{ dB}$	To avoid sleep disturbance, window open at night	Continuous noise, outside bedrooms, outdoor values
$L_{AeqT} = 30 \text{ dB}$	To avoid sleep disturbance	Continuous noise, bedrooms, indoors
$L_{Amax} = 60 \text{ dB}$	To avoid sleep disturbance, window open at night	Noise peaks, outside bedrooms, outdoor values
$L_{Amax} = 45 \text{ dB}$	To avoid sleep disturbance at night	Noise peaks, bedrooms, indoors

2.9 The use of the WHO Guidelines is supported by the advice contained within Sport England Design Guidance Note on Artificial Grass Pitch (AGP) Acoustics – Planning Applications which was published in 2015. This guidance although relating to artificial grass pitches considers the noise impact from sporting activities and is therefore relevant in this case.

2.10 Therefore taking in account the above a noise criteria of 50 dB L_{Aeq1hr} is recommended.



3.0 Survey Details

3.1 Noise measurements of padel tennis court activity have been made at various positions around the Padel Tennis Court site at Streetly Academy, Sutton Coldfield. Measurements were taken during a game of mixed doubles.

Figure 1: Padel Tennis Courts, Streetly Academy



Court Activity

3.2 Based on observations court activity noise levels were made up of the following elements:

- Players shouting;
- Ball hitting padel tennis rackets;
- Noise hitting court screens.

3.3 Noise measurements of the court were undertaken with a Norsonic 118 precision sound level meter and Norsonic 140 precision sound level meter, the meters were calibrated at the beginning and end of each survey and showed no significant signs of drift. The meters were mounted on a tripod at a height of approximately 1.2 metres above ground level. Weather conditions during the survey were suitable for taking noise measurements being dry, warm with a light breeze.

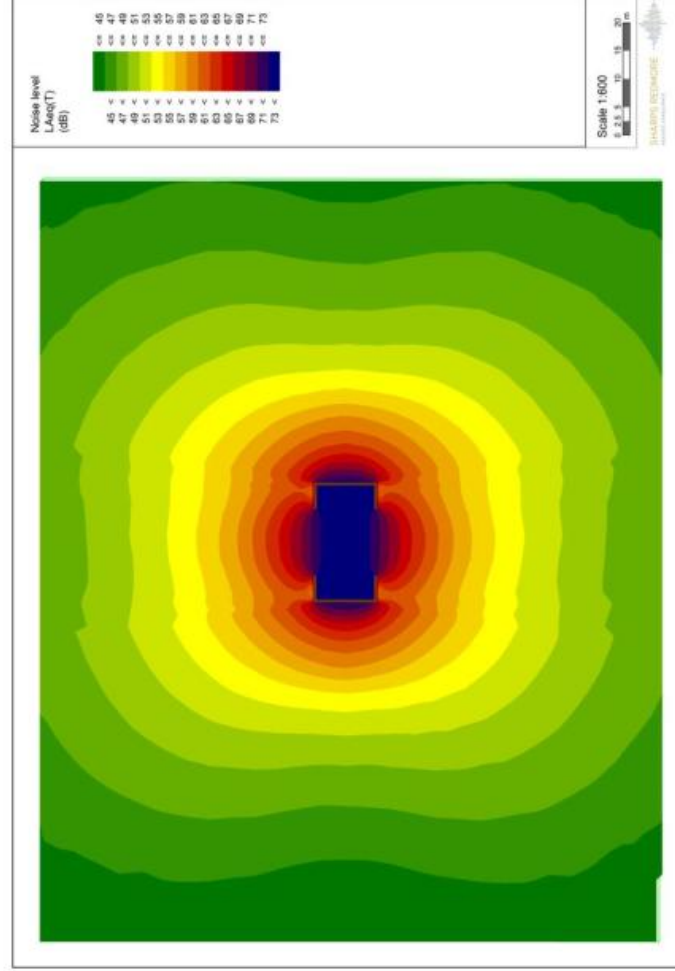
3.4 During the survey, 2 courts were in use with four players in each court. Measurements were taken at the rear and side of the court. There was no significant difference in noise levels measured at the side and rear of the court.

3.5 The noise levels from padel tennis court activity noise levels at various distances is shown in Table 1 and Figure 1 below:

Table 1: Padel Tennis Court Activity

Distance from court - metres	Ambient noise level L_{Aeq1hr} dB	Peak noise level L_{Amax} dB
5 m	60.1 dB	72 dB
10 m	56.3 dB	66 dB
20 m	51.2 dB	58 dB
30 m	49.3 dB	51 dB
40 m	46.1 dB	48 dB

Figure 1: Sound Propagation for Padel Tennis Court



- 3.6 Based on survey data to avoid exceeding the recommended guideline values in World Health Organisation and the advice contained within Sport England Design Guidance Note on Artificial Grass Pitch (AGP) Acoustics – Planning Applications, the minimum distance of the court to any noise sensitive properties over open space would need to be at least 30 metres.
- 3.7 Notwithstanding the above there are situations where for example there is additional screening or high ambient noise levels where padel tennis courts could be placed closer than 30 metres. In these situations a detailed noise assessment including survey of existing noise levels should be carried out.



APPENDIX A

ACOUSTIC TERMINOLOGY



Acoustic Terminology

A1 Noise, defined as unwanted sound, is measured in units of decibels, dB. The range of audible sounds is from 0 dB to 140 dB. Two equal sources of sound, if added together will result in an increase in level of 3 dB, i.e. 50 dB + 50 dB = 53 dB. Increases in continuous sound are perceived in the following manner:

1 dB increase - barely perceptible.

3 dB increase - just noticeable.

10 dB increase - perceived as twice as loud.

A2 Frequency (or pitch) of sound is measured in units of Hertz. 1 Hertz (Hz) = 1 cycle/second. The range of frequencies audible to the human ear is around 20Hz to 18000Hz (or 18kHz). The capability of a person to hear higher frequencies will reduce with age. The ear is more sensitive to medium frequency than high or low frequencies.

A3 To take account of the varying sensitivity of people to different frequencies a weighting scale has been universally adopted called "A-weighting". The measuring equipment has the ability automatically to weight (or filter) a sound to this A scale so that the sound level it measures best correlates to the subjective response of a person. The unit of measurement thus becomes dBA (decibel, A-weighted).

A4 The second important characteristic of sound is amplitude or level. Two units are used to express level, a) sound power level - L_w and b) sound pressure level - L_p . Sound power level is an inherent property of a source whilst sound pressure level is dependent on surroundings/distance/directivity, etc. The sound level that is measured on a meter is the sound pressure level, L_p .

A5 External sound levels are rarely steady but rise or fall in response to the activity in the area - cars, voices, planes, birdsong, etc. A person's subjective response to different noises has been found to vary dependent on the type and temporal distribution of a particular type of noise. A set of statistical indices have been developed for the subjective response to these different noise sources.

A6 The main noise indices in use in the UK are:

L_{A90} : The sound level (in dBA) exceeded for 90% of the time. This level gives an indication of the sound level during the quieter periods of time in any given sample. It is used to describe the "background sound level" of an area.

L_{Aeq} : The equivalent continuous sound level in dBA. This unit may be described as "the notional steady noise level that would provide, over a period, the same energy as the intermittent noise". In other words, the energy average level. This unit is now used to measure a wide variety of different types of noise of an industrial or commercial nature, as well as aircraft and trains.



- L_{A10}**: The sound level (in dBA) exceeded for 10% of the time. This level gives an indication of the sound level during the noisier periods of time in any given sample. It has been used over many years to measure and assess road traffic noise.
- L_{Amax}**: The maximum level of sound measured in any given period. This unit is used to measure and assess transient noises, i.e. gun shots, individual vehicles, etc.
- A7** The sound energy of a transient event may be described by a term SEL - Sound Exposure Level. This is the L_{Aeq} level normalised to one second. That is the constant level in dBA which lasting for one second has the same amount of acoustic energy as a given A weighted noise event lasting for a period of time. The use of this unit allows the prediction of the L_{Aeq} level over any period and for any number of events using the equation;
- $$L_{AeqT} = SEL + 10 \log n - 10 \log T \text{ dB.}$$
- Where
- n** = Number of events in time period T.
- T** = Total sample period in seconds.
- A8** In the open, known as free field, sound attenuates at a rate of 6 dB per each doubling of distance. This is known as geometric spreading or sometimes referred to as the Inverse Square Law. As noise is measured on a Logarithmic scale, this attenuation in distance = 20 Log (ratio of distances), e.g. for a noise level of 60 dB at ten metres, the corresponding level at 160 metres is:
- $$60 - 20 \log \frac{160}{10} = 60 - 24 = 36 \text{ dB}$$