

NOISE ASSESSMENT FOR EXTENDED HOURS OF USE OF SPORTS PITCHES

ENPLAN

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NOISE ASSESSMENT FOR EXTENDED HOURS OF USE OF SPORTS PITCHES

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1 INTRODUCTION

Anderson Acoustics Ltd has been commissioned by Enplan to undertake a noise assessment in support of a planning application for the extension of the hours of use of 2no. multi-use sports pitches on the grounds of Burgess Hill Girls School.

A noise assessment has been undertaken to consider the impact of noise from the use of the pitches on nearby noise sensitive properties.

This report is technical in nature and, as such, a summary of noise units and acoustic terminology can be found [here](#) for reference.

2 SITE DESCRIPTION

Burgess Hill Girls School is located on Keymer Road, Burgess Hill. The relevant part of the site is shown in Figure 2.1. The two sports pitches in question are to the south-east of the site located adjacent to the gardens of the properties on Ferndale Road.

Figure 2.1: Location plan, nearest noise-sensitive receptors and noise monitoring locations



The proposal is to extend the permitted hours of use of the two sports pitches highlighted in Figure 2.1 to include the hours of 7pm-9pm on weekdays during winter months (when floodlights are required). The use of the pitches is currently permitted until 9pm during summer months when floodlights are not required.

3 NOISE POLICY AND CRITERIA

3.1 Introduction

The Sport England *Artificial Grass Pitch (AGP) Acoustics – Planning Implications Design Guidance Note (2015)* is the usual guidance to refer to when assessing the use of sports pitches. The uses covered by the Note are not defined, but includes reference to measurements being made at sessions of “football, hockey and rugby...” and “participation by men, women and children”. The images in the Note are mostly football-related, but one image is of tennis court, as if it applies in this regard. Indeed, in the absence of other guidance, it is certainly used by default for outdoor sports facilities.

Since, therefore, the pitches are surfaced with artificial grass, and in the absence of more specific guidance at this time, it can safely be concluded that the Sport England Note is the best place to start.

Accordingly, the key details from the Note are presented below, but we have also considered any applicable local, regional and national policy. Whilst it could be argued that the proposed development is outside of the intended scope of BS 8233, we can see some justification for its consideration particularly in regard to its guidance to outdoor amenity areas.

3.2 Noise Policy

3.2.1 Noise Policy Statement for England

The Noise Policy Statement for England (NPSE) was published on 15 March 2010. It sets out the long term vision of the Government’s noise policy, which is to promote good health and a good quality of life through the management of noise within the context of sustainable development.

The NPSE sets out 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.”*

3.2.2 National Planning Policy Framework

The National Planning Policy Framework (NPPF) was published on 27 March 2012 and last updated on 7 February 2025. Along with the introduction of this document, a number of detailed planning policy guidance notes were withdrawn, including PPG24, on planning and noise.

The NPPF sets out how the Government’s planning policies should be applied. In terms of the detail of policies on environmental issues such as noise, the intention is for Local Planning Authorities to set their own guidance. This will form part of or be referred to in the relevant local plan.

3.2.3 Planning Practice Guidance, Noise

Following initial release in 2014, the planning practice guidance now forms part of the NPPF, referred to as relevant planning practice guidance, which includes guidance on the category of Noise. The guidance is often referred to as PPG-Noise, PPG-N or PPG(N).

In keeping with the NPSE and NPPF, no values (in dB) are presented; however, plenty of guidance is provided as to the issues to consider in assessing noise and determining suitable thresholds. Whilst, in keeping with this report, reference is made to BS 8233 (see further below).

A noise exposure hierarchy table is provided, which summarises the noise exposure hierarchy based on the likely average response of those affected and is reproduced below. It includes examples of outcomes relevant to the NOEL, LOAEL and SOAEL effect thresholds described in the NPSE. These outcomes are in descriptive form; there is no numerical definition of the NOEL, LOAEL and SOAEL.

Table 3.1: Noise exposure hierarchy table (as per PPG-N)

Response	Examples of outcomes	Increasing effect level	Action
No Observed Effect Level			
Not present	No effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
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			
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			
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

It is left to other guidance documents (e.g. BS 4142 and BS 8233) and professional opinion to determine relevant noise thresholds, where required.

3.3 Relevant Guidance

3.3.1 Artificial Grass Pitches (AGP) Acoustics – Planning Implications

Given no specific noise criteria exists for sports pitches, the Sport England 'AGP Acoustics – Planning Implications Design Guidance Note' refers to the WHO 'Guidelines for Community Noise' for the assessment of AGP noise. Since sports events could be considered to fall under the category of community noise, it is stated that the indoor sound level of interfering noise during daytime hours should not exceed 35dB L_{Aeq} within dwellings. This equates to a noise level 1m outside a residential

property should not exceed 50dB L_{Aeq} (assuming a typical 15dB reduction through a partially open window).

The level of 35 dB L_{Aeq} also corresponds to the internal daytime noise limit for living rooms and bedrooms given in BS8233:2014 as referenced in the Sussex wide Planning Noise Advice Document.

Further reference is made to the comparison of AGP noise with the existing noise climate which may be necessary in instances where the existing noise levels are high or changes are proposed to existing pitches. The document references the IOA/IMEA Working Part Consultation Draft 2002 stating an increase in less than 3dB is considered a 'slight' impact. This generally conforms with the now withdrawn PPG Document 24 statement that a change of 3dB(A) is the minimum perceptible under normal conditions.

It should be noted that this document has since been superseded by "Institute of Environmental Management & Assessment – Guidelines for Environmental Noise Impact Assessment" (IEMA), which is introduced in Section 3.3.4.

3.3.2 British Standard 8233

In respect of external noise levels in outdoor living areas, the guidance in BS 8233:2014 suggests that "it is desirable that the external noise level does not exceed 50dB $L_{Aeq,T}$, with an upper guideline value of 55dB $L_{Aeq,T}$ which would be acceptable in noisier environments". BS 8233:2014 however acknowledges that "these guideline values are not achievable in all circumstances where development might be desirable". These values also correspond with the guideline values for outdoor living areas in the World Health Organization Guidelines for Community Noise.

BS8233 is also referenced in Annex 1 of the Planning Noise Advice Document: Sussex, which refers to the relevant guidance documents for various development categories. For outdoor sports and recreational facilities, recommended noise thresholds should be taken from BS8233:2014 for daytime noise levels.

3.3.3 IEMA Guidelines for Environmental Noise Impact Assessment

The IEMA Guidelines for Environmental Noise Assessment address the key principles of noise impact assessment and are applicable to all development proposals where noise effects may occur. The guidance recognizes that the effect associated with a noise impact will be dependent on a number of factors including but not limited to the sensitivity of the receptor, frequency and duration of the noise source and time of day.

Absolute levels such as those set out in BS8233/WHO Guidelines are also considered and the guidelines suggest that a change in noise levels in an area where the existing levels are above BS8233/WHO Guidelines should be considered as having more of an adverse effect than a change in noise levels in an area where existing levels are well below.

The guidelines stop short of providing specific assessment criteria which developments should achieve but instead suggest that the methodology adopted should be selected on a site by site basis regarding relevant national and local standards. The guidelines contain effect descriptors for changes in noise levels and for noise effect levels. These are summarised below:

Table 3.2: IEMA Guidelines effect descriptors

Impact Classification	Effect descriptor
Very substantial	Greater than 10 dB L_{Aeq} change in sound level perceived at a receptor of great sensitivity to noise

Impact Classification	Effect descriptor
Substantial	Greater than 5 dB L_{Aeq} change in sound level at a noise sensitive receptor, or a 5 to 9.9 dB L_{Aeq} change in sound level at a receptor of great sensitivity to noise
Moderate	A 3 to 4.9 dB L_{Aeq} change in sound level at a sensitive or highly sensitive noise receptor, or a greater than 5dB L_{Aeq} change in sound level at a receptor of some sensitivity
Slight	A 3 to 4.9 dB L_{Aeq} change in sound level at a receptor of some sensitivity
None/Not Significant	Less than 2.9 dB L_{Aeq} change in sound level and/or all receptors are of negligible sensitivity to noise or marginal to the zone of influence of the proposals

The guidelines are not prescriptive as to how a noise impact assessment should be carried out, and allow assessors to consider factors such as frequency spectra, days and times of operation, frequency of operation and any other factor which allows the noise to be assessed in context.

3.4 Summary of Criteria

Tables 3.3 and 3.4 summarise the proposed assessment criteria for the extended hours of use for the two sports pitches.

Table 3.3: Summary of proposed design criteria

Standard/Guidance Document	Metric	Location	Assessment Criteria/ Threshold
Sports England / BS 8233/ Sussex wide Planning Noise Advice Document	$L_{Aeq,1hr}$	1m from façade of NSR	50 dB $L_{Aeq,1hr}$
BS8233	$L_{Aeq,1hr}$	Gardens	50/55dB $L_{Aeq,1hr}$

Where BS8233 levels are already exceeded (due to other prevailing noise sources), the criteria presented in Table 3.4 will also be considered.

Table 3.4: Summary of proposed design criteria

Standard/Guidance Document	Metric	Location	Assessment Criteria/ Threshold
IEMA	Change in $L_{Aeq,1hr}$	1m from façade of NSR	<3dB increase

4 BASELINE NOISE LEVELS

4.1 Survey Methodology

Continuous unattended noise measurements were obtained under free-field conditions over an approximate four-day period to capture baseline noise data at the two locations shown in Figure 2.1.

4.2 Equipment details

Noise levels were measured using Rion precision integrating sound level meters. The microphone were fitted with a weatherproof windshield and the sound level meter was powered by dry cell batteries and stored inside a weatherproof security box. The microphone was positioned at a height of 2m above the ground level in both measurement locations.

The equipment was calibrated before and after the survey using a Rion NC-74 sound calibrator to generate a calibration level of 94.0 dB at 1 kHz. No significant calibration drift was observed. Equipment details are fully summarised in Table 4.1.

Table 4.1: Survey equipment details

Equipment	Serial no.	Calibration expiry date	Calibration certification number
Rion NL-53 sound level meter * (Sports Pitch 1)	01130789	-	-
Rion NL-52 sound level meter (Sports Pitch 2)	00732147	04/02/2028	TCRT26/2065
Rion NC-74 calibrator	34304643	28/07/2026	TCRT25/1586

* Hired monitor. Under calibration as part of hire agreement however calibration certificate not available.

4.3 Weather Conditions

Weather conditions during the survey period have been obtained from an internet source www.wunderground.com (weather station at Gatwick Airport) which indicates dry conditions with gentle to moderate breezes.

It is considered that the weather conditions did not significantly affect the noise measurements.

4.4 Unattended Survey Results

The results of the continuous unattended noise monitoring surveys are presented in graphical form in the Appendix and summarised in Tables 4.2 and 4.3. The two right hand columns show the data for the 19:00-21:00 period when the courts will be in use.

Table 4.2: Unattended noise survey results at Pitch 1 - North (free-field), dB

Date	Daytime (07:00 to 23:00)		Night (23:00 to 07:00)		19:00-21:00	
	L _{Aeq,16hr}	Typical L _{A90}	L _{Aeq,8hr}	Typical L _{A90}	L _{Aeq,2hr}	Typical L _{A90}
27 th February 2026*	51	37	47	34	42	39
28 th February 2026	52	44	45	29	40	38
1 st March 2026	52	46	46	33	43	40
2 nd March 2026	56	45	48	26	41	38
3 rd March 2026*	54	41	-	-	-	-
Overall	54	45	47	29	42	38

*Measurement not full 16hr period

Table 4.3: Unattended noise survey results at Pitch 2 - South (free-field), dB

Date	Daytime (07:00 to 23:00)		Night (23:00 to 07:00)		19:00-21:00	
	L _{Aeq,16hr}	Typical L _{A90}	L _{Aeq,8hr}	Typical L _{A90}	L _{Aeq,2hr}	Typical L _{A90}
27 th February 2026*	49	39	46	36	45	40
28 th February 2026	49	46	44	31	43	40
1 st March 2026	51	47	44	32	45	42
2 nd March 2026	53	43	44	29	44	39
3 rd March 2026*	50	46	-	-	-	-
Overall	51	36	45	34	44	40

*Measurement not full 16hr period

On-site observations indicated that road traffic from Ferndale Road is the dominant noise source while some noise was noted from Keymer Road.

It is understood that during the survey period, the courts were in use on Monday 2nd March during the following periods:

- 09:00 -11:00
- 14:00-16:00

The measured sound pressure levels at the monitoring position during these times were 59 dBA L_{Aeq,T} at Pitch 1 (north) and 58 dBA L_{Aeq,T} at Pitch 2 (south). Once corrected for existing road traffic noise, the sound pressure levels at both locations was estimated as 57 dBA L_{Aeq,T} (at 3.5 metres from the edge of the courts).

5 NOISE ASSESSMENT

5.1 Noise Model

To reliably calculate the likely sound levels from the proposed courts, a computerised 3D acoustic model of the site and surrounding area has been constructed using the proprietary software, CadnaA 2026.

The open source OpenStreetMap data were imported in the first instance to initiate the model in the correct geographical location, which included the nearest dwellings. The topography has been determined from open-source LiDAR DTM data at 1 m resolution.

The included buildings have been defined as acoustically reflective, and the model set to account for four orders of sound reflections. Due to the nature of the surrounding area, the default ground correction has been set to being acoustically soft (e.g., grass).

5.1.1 Existing Noise Levels

Since the unattended survey was not carried out directly at the nearest noise-sensitive receptors (as it is private property), it was necessary in the first instance to model the existing noise levels due to road traffic only at the noise sensitive receptors, calibrated using the results of the unattended survey (Tables 4.2 and 4.3) during which we know there was no activity at the sports pitches. The results are shown in Table 5.1.

Table 5.1: Predicted existing noise levels at nearest NSRs (road traffic noise only)

NSR	Facade	L _{Aeq} at window (dB)	L _{Aeq} at garden (dB)
1,3 Ferndale Road	Front	52	46-57
	Rear	42	38-44
5 Ferndale Road	Front	52	49-57
	Rear	37	32-40
7 Ferndale Road	Front	52	47-56
	Rear	39	28-37

* Red text indicates adopted criteria is exceeded in the period 19:00-23:00 even when the courts are not in use. Green text indicates courts criteria is met. Orange text indicates some areas of gardens exceed the criteria

5.1.2 Predicted Noise Levels

Noise levels from sports pitches activity at the noise sensitive receptors were estimated by creating area sources at a height of 1.5m to match the extents of the sports pitches. The noise levels were calibrated to the levels measured during the noise survey (Section 4.4).

5.2 Results

Table 5.2 shows the estimated L_{Aeq,1hr} due to the use of the sports pitches only (no road traffic noise). A plan view of the noise model is shown in Figure 5.1, for comparison, noise from road traffic only

during the corresponding hours is shown in Figure 5.2. Table 5.3 shows the estimated total noise level due to road traffic noise and the sports pitches (Figure 5.3). Table 5.4 gives the predicted change in noise level where the existing noise level already exceeds the Sports England/BS8233 level.

Table 5.2: Predicted noise levels at nearest NSRs – sports pitch use only

NSR	Facade	Noise from sports pitches only		Meets Criteria	
		L _{Aeq} at facade (dB)	L _{Aeq} at facade (dB)	Sports England Design Guide	BS 8233 External Amenity
1,3 Ferndale Road	Front	50	40-42	Yes	Yes
	Rear	48	43-44	Yes	Yes
5 Ferndale Road	Front	38	38-41	Yes	Yes
	Rear	45	43-46	Yes	Yes
7 Ferndale Road	Front	27	30-39	Yes	Yes
	Rear	45	43-47	Yes	Yes

Table 5.3: Predicted noise levels at nearest NSRs – road traffic noise and sports pitches

NSR	Facade	Noise from road traffic and sports pitches	
		L _{Aeq} at facade (dB)	L _{Aeq} at facade (dB)
1,3 Ferndale Road	Front	54	47-57
	Rear	49	45-46
5 Ferndale Road	Front	52	49-57
	Rear	46	44-47
7 Ferndale Road	Front	52	47-56
	Rear	45	43-48

Table 5.4: Predicted noise levels at nearest NSRs – road traffic noise and sports pitches

NSR	Facade	Existing L _{Aeq} at facade (dB)	Predicted L _{Aeq} at facade (dB)	Change in L _{Aeq}	Impact Classification
1,3 Ferndale Road	Front	52	54	+2dB	Not significant
5 Ferndale Road	Front	52	52	+0dB	None
7 Ferndale Road	Front	52	52	+0dB	None

Figure 5.1: Estimated average noise levels ($L_{Aeq,1hr}$, dB) at the nearest noise sensitive receptor and in external amenity areas with both sports pitches in simultaneous use



Figure 5.2: Estimated average noise levels ($L_{Aeq,1hr}$, dB) at the nearest noise sensitive receptor and in external amenity areas due to road traffic noise



Figure 5.3: Estimated average noise levels ($L_{Aeq,1hr}$ dB) at the nearest noise sensitive receptor and in external amenity areas: road traffic noise and both sports pitches in simultaneous use



5.3 Discussion

Table 5.2 (and Figure 5.1) show that by itself noise from the use of the sports pitches meets the guidance presented in the Sports England Design Note and the desirable noise level for external amenity areas given in BS8233 at all noise sensitive receptors. While other receptors in the area will also be exposed to noise from the sports pitches, the impact will be less than those reported in the tables above.

Table 5.3 (and Figure 5.3) shows that the total noise level at front facades of the NSRs exceeds the adopted criteria, however it should be noted that the existing road traffic noise will have the greatest contribution to noise levels and for these properties it is considered appropriate to assess the resultant change in noise levels as discussed in Section 3.3.3.

Table 5.4 demonstrates that although the front façade of 1-3 Ferndale Road may experience an increase in noise of 2 dB on weekday evenings between 19:00 and 21:00, the impact may be classified as not significant. There is not expected to be an increase in noise levels at the front facades of 5 or 7 Ferndale Road.

While this assessment has focused on the hours of 19:00-21:00 on weekdays in winter months, it is important to place this use in the wider context of the site:

- The pitches are already permitted to be used between the hours of 19:00-21:00 during the summer months when floodlights are not required. While it would be misleading to suggest that nearby residents do not use their gardens or have open windows in the winter, gardens are more likely to be used more often and later into the evening in summer, with windows also more likely to be open for ventilation and cooling. Therefore, any impacts will be greater during the summer months when the pitch is already permitted to be in use.

- A new noise source is not being introduced to the area and the nature of the noise will be in keeping with the existing noise environment.
- The noise from the road traffic will continue to be the loudest noise source in the area.

6 SUMMARY

An initial noise assessment has been undertaken for an extension of the hours of use for 2 sports pitches on the grounds of Burgess Hill Girls School.

An assessment approach has been proposed that considers the noise level from the sports pitches at nearby sensitive receptors and in external amenity areas. Where target noise levels are already exceeded due to existing road traffic noise, the change in overall noise level has been considered.

Based on the results of a noise model, the impact of noise from the use of the sports pitches has been assessed in accordance with the Sport England Design Note, BS8233 and the IEMA Guidelines effect descriptors.

The results show that the predicted noise levels from the use of **both** sports pitches meet the Sport England default threshold of 50 dB $L_{Aeq,1h}$ at all properties.

The BS8233/WHO desirable level of 50 dB $L_{Aeq,T}$ in external amenity areas is met in all gardens. The use of the sports pitches does not have a material impact on the area of the gardens that exceed 50/55dB $L_{Aeq,T}$ (which is dominated by road traffic noise).

Where 50dB $L_{Aeq,T}$ is already exceeded at the facades of nearby properties, a change in noise level was considered. At the closest property (1 Ferndale Road) an increase of 2dB is estimated, according to IEMA Guidelines, this would correspond to a Not Significant impact. The change at all other facades that exceed 50dB $L_{Aeq,T}$ would be lower than 1dB, which is considered equally not significant / negligible.

While some receptors will experience an increase in noise between the hours of 19:00 and 21:00 during weekdays in winter months, context is important and should be considered. No new noise sources are proposed (the activities on the pitches will be the same). Furthermore, the sports are permitted to be used during these same hours in summer months when gardens are more likely to be in use, will be used later into the evenings and when windows are more likely to be open. As such, it is likely that impacts would be greater during the already consented evening hours in summer months.

There is a strong indication that noise need not be considered a barrier to granting planning permission for the extension of hours as proposed.

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APPENDIX A

ENVIRONMENTAL NOISE SURVEY DETAILS

Figure A.1: Unattended Survey Results (Sports Pitch 1 – North)

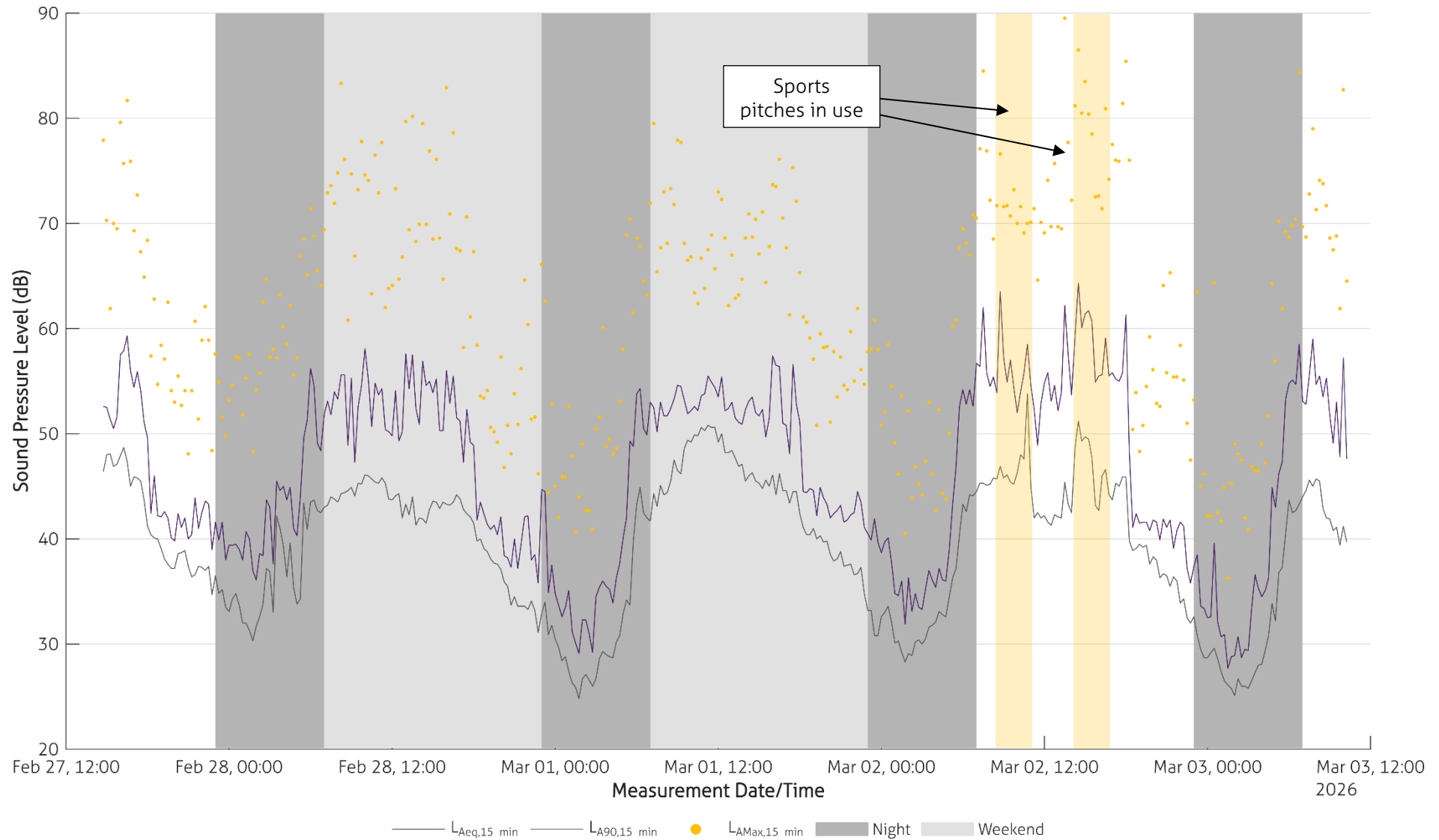


Figure A.2: Unattended Survey Results (Sports Pitch 2 – South)

