

Project name	One Horton Heath		
Design note title	Sports Pitch Noise Impact Assessment		
Document reference	09820-HYD-XX-XX-1001-P01		
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Revision	P01		
Date	26 April 2021	Approved	✓

ONE HORTON HEATH - SPORTS PITCH NOISE IMPACT ASSESSMENT

1. INTRODUCTION

1.1 OVERVIEW

Hydrock have prepared a noise and vibration ES chapter as part of the EIA for the proposal development known as One Horton Heath, including a detailed assessment of Phase 1.

Since the application was submitted comments were raised in relation to a possible noise impact associated with the proposed sports pitch, which was not included within the scope of the noise and vibration assessment chapter.

This technical note has been prepared to accompany the noise and vibration ES chapter. It considers the noise impact associated with sports on the proposed pitch with reference to the latest development framework at existing and proposed noise sensitive receptors, and sets out the requirement for noise mitigation measures, where appropriate.

2. ASSESSMENT METHODOLOGY

An assessment has been carried out to consider the noise impact from sports on the pitch itself, and from two crowd areas on each side of the playing field, at existing and proposed noise sensitive receptors.

An assessment of noise has been carried out in line with the following policy, standards and guidance documents:

- National Planning Policy Framework, 2019 (NPPF);
- Noise Policy Statement for England, 2010 (NPSE);
- Planning Practice Guidance – Noise, 2019 (PPG);
- World Health Organisation (WHO) Guidelines for Community Noise, 1999;
- British Standards 8233: 2014 ‘Sound insulation and noise reduction for buildings – Code of practice’ (BS8233); and

- Sports England – Design Guidance Note: Artificial Grass Pitch (AGP) Acoustics – Planning Implications, 2015.

An assessment of the noise from pitch should be carried out in line with the Sports England Guidance. The document provides guidance for the assessment of noise associated with artificial grass, but should be considered sufficient in supporting an assessment of noise from regular grass pitches, as all noise sources are similar.

Sports England recommends noise from a sports pitch should not exceed 50dB(A) at the nearest residential dwellings. The limit is based noise guideline level at external living areas as set by the WHO, and is set with an aim of avoiding moderate annoyance in the daytime and evenings periods. This also aligns with lower recommended guideline level at external living areas set out in BS8233.

Sports England measured noise levels from nine sessions on a pitch, and include sessions of football, hockey and rugby. Measurements were taken 10m behind the mid-way points of the goal line and sideline, and the highest noise levels were measurement from the sideline, where a free-field noise level of 58dB $L_{Aeq,1hour}$ was recorded. For the majority of sessions, the dominant source of noise was noted to be from voices.

Hydrock understand the pitch will mainly be used for football sports, and therefore an assessment has been carried out considering a typical football session.

2.1 Acoustic Modelling

SoundPLAN V8.2 acoustic modelling software has been used to support the assessment of noise. The model uses OS mapping and topographical information to create a study area of the site. Predictions of noise in the model are carried out in accordance with ISO9613-2.

The noise from a football session has been integrated into the model as an area source and has been calibrated to the measured level of noise by Sports England, 10m away from the mid-way point on the sideline.

We also anticipate that noise may emit from crowd areas on each side of the pitch. To allow for this, two additional area sources have been integrated into the model. The level of noise from the crowd area has been calculated with the following methodology, set out in SoundPLAN:

$$LwA'' = LwA + 10\log(N) + 10\log(K)$$

$LwA = 65 \text{ dB/person}$ (Level of a single person)

$n = 2,3 \text{ m}^2$ (occupied area per person)

$k = 50 \%$ (percentage of persons speaking at the same time)

$$LwA'' = 66 \text{ dB/m}^2$$

2.2 Receptors for Assessment

Existing receptors have been identified to the east of the pitch, the impact at any other existing nearby receptors is likely to be equal to or less than at the receptors identified. The receptors are detailed in **Table 1**.

Table 1: Receptors for Assessment

Existing Receptor	Address	Distance and Bearing from Site
ESR1	Yew Tree Cottage	East

At this stage the specific location of proposed residential dwellings is not available. However, this assessment is intended to inform the location, orientation and layouts of proposed dwellings.

3. NOISE ASSESSMENT

3.1 Existing Receptors

3.1.1 Football

The noise level from a sports pitch at existing and proposed receptors is recommended to not exceed 50dB, in accordance with Sports England, WHO and BS8233 guidelines.

Predictions of the noise level from a football session at the proposed pitch and associated crowd have been carried out in SoundPLAN, the results are shown in **Figure 1** appended to this technical note.

Figure 1 illustrates the level of noise at the existing receptor to be below 50dB(A), and furthermore shows a 50dB(A) limit line to be a moderate distance away from the receptors. This indicates the impact at the existing receptors will be low.

3.1.2 Other

For the majority of the time the proposed pitch will be used for football, and therefore an assessment has been carried out on the basis of the dominant source of noise being from voice. However, the pitch could also be used for other sports such as hockey.

During hockey games Sports England noted the ball hitting the strike boards and goal back boards to be dominant over voice. However, this was only likely to be dominant due to the difference in the character and duration of the noise compared to voice. Once both sound sources are corrected to an average L_{Aeq} noise level over the time, the noise levels from a football, hockey and rugby session are likely to be similar.

Moreover, the location of the 50dB(A) limit line, in relation to the existing receptors means the level of noise emitted from the pitch would have to approximately double in order to adversely affect the nearest sensitive receptors, and the possibility of the level of noise doubling from a hockey game is significantly low.

Therefore, due to the low frequency of hockey games, and the low potential for an increase in noise level. The impact would remain low at the nearest noise sensitive receptor, as represented in **Figure 1**.

3.2 Proposed Receptors

In order to avoid a noise impact at proposed receptors, dwellings should ideally only be proposed beyond the 50dB(A) limit line. Alternatively, where dwellings situated within the 50dB(A) limit line, mitigation measures would be required.

Where proposed dwellings are located within the 50dB(A) limit line, dwellings should have gardens placed on the screened side of dwellings, or implement acoustic screening in or to eliminate direct line of sight to the pitch. Sufficient acoustic screening can be achieved via the implementation of standard close boarded fencing. However, the height of the fencing would need to be confirmed at the detailed design stage once the final location and orientation of dwellings are set.

The facades of those dwellings within the 50dB(A) contour should be provided with façade insulation in the form of alternative means of background ventilation, to allow windows to remain closed to mitigate the noise, whilst maintaining an adequate form of background ventilation.

Legend

-  Existing Buildings
-  Football Pitch
-  Crowd Areas
-  Nearest Garden
-  50dB(A) Line

Noise Level $L_{Aeq, T}$ dB(A)

	<= 45.0
	45.0 < <= 50.0
	50.0 < <= 55.0
	55.0 < <= 60.0
	60.0 < <= 65.0
	65.0 <

PROJECT:
One Horton Heath

DRAWING TITLE:
Predicted Average Noise Levels
From Proposed Sports Pitch

DRG No. Figure 1	SCALE 1:2000
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DATE: 23/04/2021	PREPARED EG	APPROVED LS
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CLIENT:
Eastleigh Borough Council



4. CONCLUSION

Hydrock have carried out an assessment to determine the possible noise impact from a sports pitch, proposed as part of the One Horton Heath development.

An assessment has been carried out considering the main source of noise to be from football, together with associated crowd noise, as this is likely to be the most frequent sport played on the pitch, at nearby sensitive receptors.

To inform the assessment acoustic modelling has been carried out using SoundPLAN V8.2.

The results of the assessment found the impact of noise from sports on the pitch would be low at the nearest existing noise sensitive receptors, and therefore there are no mitigation requirements.

For a low noise impact at proposed receptors, dwellings should be allocated outside the 50dB(A) noise limit line as shown in **Figure 1**. Alternatively, dwellings to be located within the 50dB(A) limit line, mitigation measures would be required.

A noise impact of low can be considered to be below the Lowest Observed Adverse Effect Level (LOAEL) set out in NPSE. At a noise impact below LOAEL there are not likely to be detectable effects on health and the quality of life and therefore the pitch should be acceptable in planning terms.