

Environmental Noise Assessment

Primary School, Sports Facilities, and Allotments



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Issued by	Stantec Hydrock Limited Merchants' House North Wapping Road Bristol BS1 4RW UNITED KINGDOM stantec.com	+44(0) 1179 459225 stantec.com
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Issue number	P04	Name
Prepared by		Lawrence Norman BSc (Hons) MIOA
Checked by		Steffan Davies BSc (Hons) MIOA
Approved by		Patryk Rowinski BSc (Hons) MIOA

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Table of Contents

Document control sheet	i
1 Introduction	1
2 Applicable Guidance and Standards	3
2.1 Building Bulletin 93	3
2.2 BREEAM	3
2.2.1 HEA 05: Acoustic Performance	3
2.2.2 POL 05: Noise Pollution	4
2.2.3 Suitably Qualified Acoustician (SQA)	4
2.3 BS 8233:2014	4
2.4 Sports England Guidance	5
2.5 Previous Planning Application	6
2.5.1 Planning Condition	6
2.5.2 Previous Assessment	6
2.6 Demonstration of Compliance	7
3 Environmental Noise Survey	8
3.1 Noise Survey Summary	8
3.2 Survey Equipment List	9
3.3 Noise Survey Results	9
3.3.1 Ambient Sound Level	10
3.3.2 Background Sound Level	11
4 Noise Break-in Assessment	11
4.1 Design Target	11
4.2 Proposed Ventilation Strategy	11
4.3 Summertime Overheating	11
4.4 Façade Sound Reduction	12
5 Mechanical Plant Noise Limits	12
6 Sports Pitch & MUGA Assessment	13
6.1 Noise Sensitive Receptors	14
6.2 Proposed Assessment Criteria	15
6.2.1 Operation of Sports Pitches	15
6.3 Methodology	15
6.3.1 Noise Modelling	16
6.4 Initial Assessment Results	16
6.4.1 Daytime	16
6.4.2 Evening	17
6.4.3 Commentary Against Outline Assessment	17
6.5 Noise Mitigation	17
6.6 Assessment Results including Noise Mitigation	19
6.6.1 Daytime (09:00 - 19:00)	19
6.6.2 Evening (19:00 - 22:00)	19
6.6.3 Commentary	20
6.7 Ball Impact Sound Mitigation	20
7 Conclusion	21



List of Tables

Table 1. BS 8233 Guideline Internal Ambient Noise Levels for Dwellings	4
Table 2. Survey Equipment List	9
Table 3. Measured Ambient Sound Levels	10
Table 4. Measured Ambient Sound Levels for Sport Pitch/MUGA assessment	10
Table 5. Background Sound Survey Results.....	11
Table 6. Façade Sound Insulation Requirements	12
Table 7. Proposed Plant Noise Rating Limits	12
Table 8. Proposed Sports Pitch Noise Contribution Criteria.....	15

List of Figures

Figure 3-1. Measurement Location Markup	8
Figure 6-1. Site Plan	13
Figure 6-2. Noise Sensitive Receptors.....	14
Figure 6-3. Proposed Noise Barrier Locations	18

List of Appendices

Appendix A Measurement Time History Graph	
Appendix B Background Sound Level Frequency Distribution Plot	
Appendix C Noise Maps – MUGA & Sports Pitch Noise Emission	



1 Introduction

Stantec has been appointed to provide acoustic consultancy and design services for the proposed new primary school and sports pitches as part of the One Horton Heath development, Horton Heath, SO50 7QB.

One Horton Heath (OHH) is a comprehensive redevelopment scheme to the west of Horton Heath which will provide new retail, employment, residential, senior living, a new primary school, and a new local centre, amongst other new uses on land which is currently undeveloped. Outline planning permission for OHH was granted on 27 October 2025 under application reference O/20/89498.

The description of development proposed in the outline planning application was as follows:

“Outline: Phased mixed-use development comprising severable and separate phases of development (as per the Phasing Plan) consisting:

- Up to 2,500 residential units in total (across The Lower Acre, Quobleigh Breach, The Upper Acre, Round Copse, The Holme, The Homestall, Chalcroft Farm and The Folds phases and partially within Chalcroft Outfarm Works phase);*
- A Local Centre (and supporting secondary local centres) on land up to 3.1ha comprising mixed-use residential/retail/leisure/community/employment/day nursery/food establishment uses (Local Centre Phase);*
- Further non-residential floorspace on land up to 5ha comprising of office, commercial and industrial uses and general industrial and storage & distribution uses (Chalcroft Outfarm works and Fir Tree Farm Hub phases and partially within the Chalcroft Farm phase);*
- A 3FE Primary School (Primary School Phase);*
- Public open space including formal sports facilities and informal provisions (across Green Infrastructure Phases);*
- Allotments, ecological, landscape and sustainable drainage works;*
- Key infrastructure and utilities provision including new roads, footpaths, bridleways and cycle paths;*
- Vehicular access from Allington Lane, Fir Tree Lane and Burnetts Lane with improvements to the existing road junction at Fir Tree Lane/Burnetts Lane; and*
- Site preparation and demolition works All Matters Reserved Except Access.”*

A series of Reserved Matters submissions are being made to Eastleigh Borough Council for the detailed design of the development phases that were approved as part of the aforementioned outline planning permission.



This Reserved Matters submission principally comprises of the detailed design of the 3FE Primary School and the adjoining sports facilities, together with the following:

- Associated green infrastructure;
- Allotments, ecological, landscape and sustainable drainage works;
- Key infrastructure and utilities, including the provision of vehicular and pedestrian access, footpaths, and cycle paths.

The outline planning permission is subject to a total of 76 planning conditions.

This report considers those conditions that are relevant to the 3FE Primary School and adjoining sports facilities, which includes Conditions No. 48.

This document summarises the measured noise levels at the site and provides an assessment in relation to achieving the internal ambient noise criteria within the building, based on its proposed location. Internal noise criteria are based on Building Bulletin 93 Acoustic Design of Schools: performance standards (BB93). In addition, assessment of the noise emission from the proposed public 3G sports pitch and multi-use games area (MUGA) and informal grass pitch within the primary school boundary is provided.

A long-term unattended noise survey was carried out on site on the 01 – 08 September 2025.

This report presents details of the environmental noise survey conducted on site to quantify the existing acoustic environment, as well as a subsequent noise ingress assessment. Plant noise rating limits at nearby receptors are also provided, having been derived from the noise survey data in line with relevant planning guidance and BREEAM POL05 criteria. Plant noise rating limits will apply to all new plant associated with the proposed development.



2 Applicable Guidance and Standards

2.1 Building Bulletin 93

Requirements for acoustic conditions within new school buildings are mandated by Part E of Schedule 1 to The Building Regulations 2010. Requirement E4 states:

"Each room or other space in a school building shall be designed and constructed in such a way that it has the acoustic conditions and the insulation against disturbance by noise appropriate to its intended use."

Approved Document E (2015) provides further information on complying with the Building Regulations and includes the following statement:

"In the Secretary of State's view the normal way of satisfying Requirement E4 will be to meet the values for sound insulation, reverberation time and indoor ambient noise which are given in Building Bulletin 93 Acoustic Design of Schools: performance standards, published by the Department for Education and available on the internet at www.gov.uk".

The performance standards described in BB93 should therefore form the basis for the acoustic design of new schools. Note, the Building Regulations apply only to spaces used for teaching and learning, from BB93:

"The Building Regulations are not intended to cover the acoustic conditions in administration and ancillary spaces not used for teaching and learning except where they affect conditions in neighbouring teaching and learning spaces"

2.2 BREEAM

BREEAM is a sustainability assessment method which sets standards for the environmental performance of buildings and infrastructure. Requirements for relevant credits are set out below.

2.2.1 HEA 05: Acoustic Performance

The second credit of BREEAM HEA 05 relates to Indoor ambient noise levels and states that the development must 'achieve the indoor ambient noise level standards set out within Section 1 of BB93 for all room types'. This requirement is achieved by default when complying with BB93 and Building Regulations.



2.2.2 POL 05: Noise Pollution

Requirements for the BREEAM POL 05 credit is stated below:

“The noise level from the assessed building, as measured in the locality of the nearest or most exposed noise-sensitive development, must be at least 5 dB lower than the background noise throughout the day and night”. At this stage, plant noise limits will be set in accordance with this criterion.

2.2.3 Suitably Qualified Acoustician (SQA)

BREEAM requires that any assessment is undertaken by a Suitably Qualified Acoustician (SQA). The requirements for an SQA are to have at least three years relevant experience within the past 5 years, demonstrating a practical understanding of relevant acoustic issues; and to hold a recognised acoustic qualification and membership of an appropriate professional body, which for acoustics in the UK is the Institute of Acoustics. The reviewer of this report has more than eight years' relevant experience and is a full member of the Institute of Acoustics, therefore meeting the requirements for an SQA.

2.3 BS 8233:2014

BS 8233:2014, in relation to this development, sets out guideline values in habitable rooms, such as living rooms and bedrooms which should not be exceeded. These values are used within this report in relation to noise contribution from the proposed development upon nearby dwellings.

The guideline values relate to steady external noise without a specific character, previously termed ‘anonymous noise’. According to the standard, noise has a specific character if it contains features such as a distinguishable, discrete and continuous tone, is irregular enough to attract attention, or has strong low-frequency content, in which case lower noise limits might be appropriate. Examples of noise with a character may include tonal/intermittent plant noise emissions, music playback, and workshop noise. Examples of external steady noise sources may include environmental noise sources such as busy road traffic.

The guideline internal ambient noise levels for dwellings are presented in Table 1.

Table 1. BS 8233 Guideline Internal Ambient Noise Levels for Dwellings

Activity	Location	Internal Ambient Noise Level	
		07:00 to 23:00 hours	23:00 to 07:00 hours
Resting	Living room	35 dB $L_{Aeq,16hours}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16hours}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hours}$	30 dB $L_{Aeq,8hours}$
Note 4 Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or L_{AFmax}, depending on the character and number of events per night. Sporadic noise events could require separate values.			
Note 5 If relying on closed windows to meet the guide values, there needs to be an appropriate alternative source of ventilation that does not compromise the façade insulation or the resulting noise levels.			
Note 7 Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.			
*A selection of the available notes			



The standard also provides advice in relation to sound levels for external noise. It states that:

"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 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ 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 55 dB $L_{Aeq,T}$ or less might not be possible at the outer edge of these areas, but should be achievable in some areas of the space."

2.4 Sports England Guidance

The *Artificial Grass Pitch (AGP) Acoustics – Planning Implications New guidance for 2015* produced by Sport England recognises the value of good acoustic design in supporting the development of modern sporting facilities for all ages, and the importance of considering the potential disturbance to neighbours at an early stage in the planning and design of artificial grass pitches. The guidance aims to:

- Increase awareness of good design in sports facilities;
- Help key building professions, clients, user representatives and other stakeholders to follow best practice; and
- Encourage well designed sports facilities that meet the needs of sports and are a pleasure to use.

The guidance recommends that community noise such as that emitted from sports facilities is assessed in absolute terms against the guideline's values presented in the World Health Organisation's 1999 '*Guidelines for Community Noise*.' The guidelines suggest that daytime sound levels of above 50 dB $L_{Aeq,16hours}$ are of 'moderate annoyance' in the community with daytime sound levels above 55 dB $L_{Aeq,16hours}$ of 'serious annoyance'.



It is suggested that the $L_{Aeq,16hr}$ reference period in WHO for assessment of the outdoor sport/leisure activities is not truly representative as it would include periods of no use. A more appropriate assessment criteria is suggested as 50 dB $L_{Aeq,1hour}$ as this is typically the period for a community sports session.

The guidance also states:

"A 'slight' impact is considered for an increase less than 3 decibels. This generally conforms with the withdrawn Planning Policy Guidance Document 24 statement that a change of 3 dB(A) is the minimum perceptible under normal conditions.

Where noise from the new source (the AGP) does not exceed the existing noise climate the increase in noise will be no more than 3 decibels. This is the minimum that can normally be perceived."

2.5 Previous Planning Application

2.5.1 Planning Condition

The Decision Notice for the Outline Planning Application for the wider development (planning reference: O/20/89498) contains the following planning condition:

"The sports pitch development shall broadly be in accordance with the approved Land Use Parameter Plan EAST 200404_PP 02 P36, the Illustrative Masterplan ref 29607A/1000A Rev C and the detailed proposals to be submitted under Reserved Matters and the provisions and recommendations of the Sports Pitch Noise Impact Assessment 09820-HYD- XX-XX-1001-P01 dated 26 April 2021 and Lighting Assessment Addendum ESEN-09820 P03 dated 14 May 2021. All use of the sports pitches and associated lighting shall cease (including any closing down activities) before 2200 hours on any day.

Reason: to protect residential amenity and for compliance with Policies DM1 and HH1 of the Eastleigh Borough Local Plan."

2.5.2 Previous Assessment

The Sports Pitch Noise Impact Assessment 09820-HYD- XX-XX-1001-P01 dated 26 April 2021 included within the Outline Planning Application details the outline noise impact assessment of the sports pitch alone.

Due to the outline nature of the planning application, exact locations of the proposed dwellings within the wider development were unknown. As such the report provided an area where the noise level exceeded 50 dB $L_{Aeq,1hour}$ and where dwellings are provided within this zone, the following should be provided:

- Dwellings should be provided with alternative means of background ventilation, to allow windows to remain closed to mitigate the noise, whilst maintaining an adequate form of background ventilation.
- Gardens should be 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. The height of the fencing should be confirmed at the detailed design stage once the final location and orientation of dwellings are set.

The above recommendations relate to noise mitigation measures to be included as part of the design of the dwellings outside of the redline boundary and scope of this planning application. Therefore, to minimise the impact on the surrounding dwellings and to minimise the requirement for noise mitigation to be incorporated within the surrounding dwellings, a target of 50 dB $L_{Aeq,1hour}$ for noise emission from the sports pitches will be adopted at the southern dwellings located on the Upper Acre site.

2.6 Demonstration of Compliance

To demonstrate compliance with the Building Regulations, an acoustic report is usually required. The building control report should state the acoustic design criteria including any alternative performance standards and demonstrate how the proposed forms of construction achieve those criteria.

There is no requirement in BB93 to provide acoustic commissioning tests for Building Regulation compliance however per-completion testing is a requirement for award of BREEAM HEA 05 credits.



3 Environmental Noise Survey

3.1 Noise Survey Summary

A long-term unattended noise survey was carried out on site between 01 – 08 September 2025.

ML1 was used to establish representative ambient and background noise levels for the site and nearest noise-sensitive receptors. Results of these measurements were then used to assess potential noise ingress into the school building.

Figure 3-1 illustrates the measurement location in relation to its surroundings.

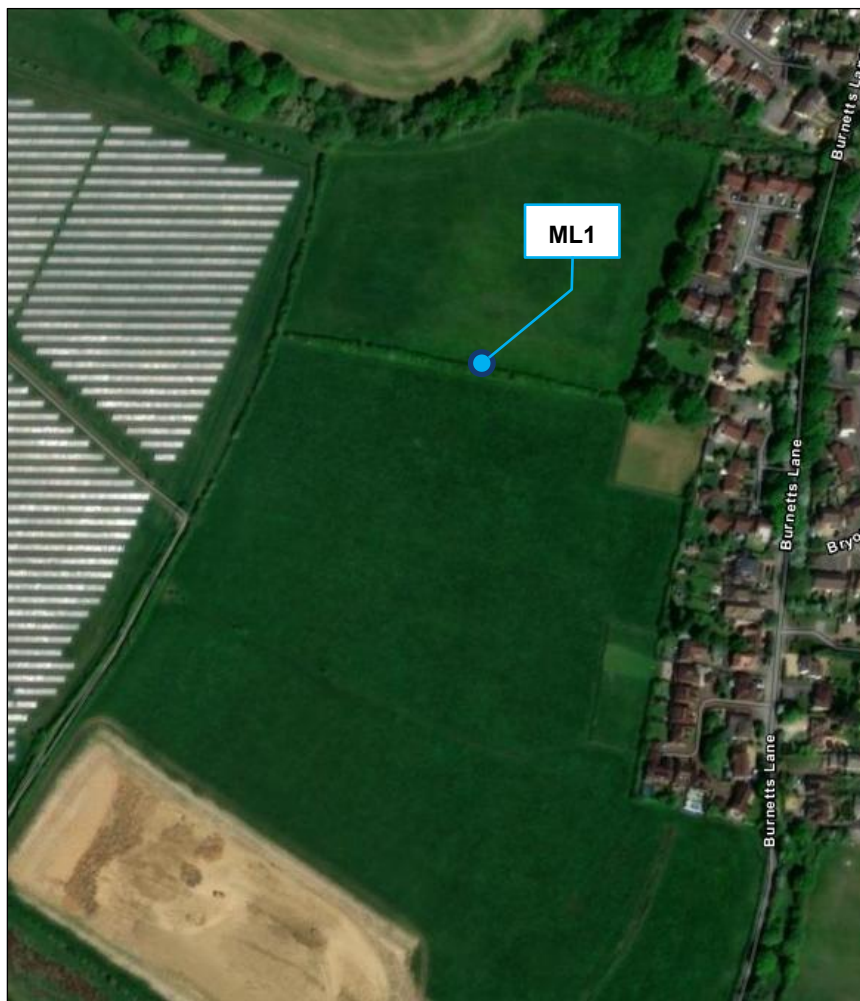


Figure 3-1. Measurement Location Markup

The measurement microphones were located at a height of ~1.5m above local ground. Measurements were undertaken in accordance with the guidance outlined in the relevant British Standards, BS 4142:2014 and BS 7445-1:2003. The monitoring procedure followed the guidance outlined in BS 7445:2003 Part 1, Section 5.2.3 and Section 5.2.2.

Measurements were 'free field', i.e. the microphone was more than 3.5m from reflective elements other than the ground. A suitable wind shield was fitted to the monitoring equipment throughout the monitoring period.

Observation and subjective evaluation of noise sources was carried out during the setup and collection of the survey equipment.

Average recorded wind speeds during the survey did not exceed 5 m/s for the majority of the noise survey. Noise levels during a brief period of unsuitable weather conditions were excluded from the calculations as they were not deemed representative for inclusion; all periods are highlighted in Appendix A and shown with a red line.

3.2 Survey Equipment List

Table 2 presents the equipment used for the noise survey.

Table 2. Survey Equipment List

Monitoring Location	Equipment Used				Time Interval
	Manufacturer	Instrument	Serial No.	Calibration Certificate No.	
ML1	Rion	Sound Level Meter	00775960	04438/1	5 min
		Pre-Amplifier	76077		
		Microphone	11690		
Calibrator	Rion	NC-74	35157401	TCRT22_1579	-

3.3 Noise Survey Results

The following noise level indices are relevant to this assessment:

- Ambient Sound Level - $L_{Aeq,T}$ dB ('A' weighted equivalent continuous sound pressure level) - defined as the level of a continuous noise with the same total energy as the actual fluctuating sound over the measurement time periods. It is sometimes referred to as the 'ambient noise level' and can be considered an average.
- Background Sound Level - $L_{A90,T}$ dB - defined as the 'A' weighted sound pressure level exceeded for 90% of the measurement period 'T'. It is used to describe the prevailing background sound level within BS 4142:2014 +A1 2019.

The noise level time histories over the full measurement period at ML1 is presented in **Appendix A**.



3.3.1 Ambient Sound Level

A summary of the ambient sound level measurements for the purposes of the external noise break-in assessment, $L_{Aeq,30min}$ is presented in Table 3. The ambient sound levels ($L_{Aeq,T}$) are logarithmically averaged over each 30-minute period during typical teaching hours. Tuesday 2nd September was used as a typical day with suitable weather conditions.

Table 3. Measured Ambient Sound Levels

Time Period	Measured Ambient Sound Level (dB, $L_{Aeq, 30min}$)
08:00	48
08:30	47
09:00	47
09:30	46
10:00	46
10:30	46
11:00	46
11:30	48
12:00	47
12:30	46
13:00	45
13:30	45
14:00	45
14:30	46

A summary of the ambient sound level measurements for the purposes of the sports pitch/MUGA assessment is presented in Table 4. The ambient sound levels ($L_{Aeq,T}$) are logarithmically averaged over operational periods daytime (09:00 – 19:00) and evening (19:00 – 22:00).

Table 4. Measured Ambient Sound Levels for Sport Pitch/MUGA assessment

Location	Date	Period, T	Measured Sound Level $L_{Aeq,T}$ (dB)
ML1	01/09/2025	Daytime (09:00 – 19:00 hours)*	47
		Evening (19:00 – 22:00 hours)	40
	02/09/2025	Daytime (09:00 – 19:00 hours)	50
		Evening (19:00 – 22:00 hours)	40
	03/09/2025	Daytime (09:00 – 19:00 hours)	52
		Evening (19:00 – 22:00 hours)	41
	04/09/2025	Daytime (09:00 – 19:00 hours)	48
		Evening (19:00 – 22:00 hours)	40
	05/09/2025	Daytime (09:00 – 19:00 hours)	43
		Evening (19:00 – 22:00 hours)	40
	06/09/2025	Daytime (09:00 – 19:00 hours)	47
		Evening (19:00 – 22:00 hours)	42
	07/09/2025	Daytime (09:00 – 19:00 hours)	46
		Evening (19:00 – 22:00 hours)	40

* Shortened measurement period.

3.3.2 Background Sound Level

Location ML1 was used to determine typical background sound levels at nearest sensitive receptors to allow for plant noise emissions limits to be derived.

Table 5. Background Sound Survey Results

Location	Period (hh.mm – hh.mm)	Typical Background Sound Level (L_{A90} , dB)
ML1	Day (07:00 – 23:00)	43
	Night (23:00 – 07:00)	30

The full background sound measurement results are presented in **Appendix B** in the form of a frequency distribution plot showing the analysis of the 15-minute background sound level measurements.

4 Noise Break-in Assessment

4.1 Design Target

For the purposes of assessing internal ambient noise levels, it is assumed that the most-sensitive internal ambient noise level criterion will be 30 dB $L_{Aeq,30mins}$ (SEND Classroom).

The proposed ventilation strategy within teaching spaces can be described as 'Hybrid Ventilation' due to the presence of both NVHR units and natural ventilation openings therefore a further 5 dB relaxation can be applied, resulting in a most onerous indoor ambient noise level requirement of 35 dB $L_{Aeq,30mins}$.

4.2 Proposed Ventilation Strategy

Based on the noise levels measured, the proposed ventilation strategy using NVHR units and rooftop ventilators will be suitable to allow BB93 internal ambient noise limits to be achieved, subject to selection of suitable NVHR units at a later stage.

Environmental noise break in via the ventilation system is unlikely to be a constraint on the selection of suitable systems. However, mechanical noise from the system must comply with relevant BB93 noise limits.

4.3 Summertime Overheating

BB93 also permits a further relaxation during the summertime or for intermittent locally controlled boost. Summertime is defined as the hottest 200 hours in peak summertime. During summertime, natural and hybrid ventilation systems are permitted to relax indoor ambient noise limits to an upper limit of 55 dB $L_{Aeq,30min}$.

As the measured external noise levels are below 55 dB $L_{Aeq,30min}$, this requirement may be met via fully openable windows.

4.4 Façade Sound Reduction

Based on measured noise levels most types of external building façade will be sufficient for sound insulation for compliance with BB93.

Table 6 presents minimum sound insulation requirement for façade elements.

Table 6. Façade Sound Insulation Requirements

Façade Elements	Minimum Sound Reduction
Glazing	27 dB R_w
Non-glazed elements	40 dB R_w

Most practicable forms of construction, including double-glazed windows, will be suitable.

5 Mechanical Plant Noise Limits

The proposed development will incorporate building services plant which will be externally located, or vent to external locations. These are capable of producing audible noise and may require noise and vibration control measures

It is proposed to control building services noise emissions to the limits set out in Table 7 at the nearest Noise-Sensitive Receptors (NSRs).

Rating plant noise limits have been set to 5 dB below to the typical Background Sound Level at existing receptors as per BREEAM POL05 criteria.

Table 7. Proposed Plant Noise Rating Limits

Location	Period (hh.mm – hh.mm)	Typical Background Sound Level (L_{A90} , dB)	Plant Noise Limits ($L_{Ar,Tr}$, dB)
ML1	Day (07.00 – 23.00)	43	38
	Night (23.00 – 07.00)	30	25

The noise limits above are ‘free-field’ levels at any height above ground and 1.0m from the nearest noise sensitive property façade. It applies to the overall cumulative operation of building services plant without any specific tone or character.

It is stressed that the above represents cumulative rating level limits. Therefore, individual items of plant should be designed to provide sufficient margin for the total noise from all simultaneously operational plant to not exceed the above level.

Please note once the locations and selections of any mechanical plant associated with development are finalised a further assessment will be required in order to ensure compliance with the above limits at the nearest receptors.

6 Sports Pitch & MUGA Assessment

This assessment evaluates the potential noise impact from the proposed development on adjacent residential receptors. Specifically, the assessment covers the two MUGAs and the sports pitch.

Figure 6-1 presents the proposed site layout including the locations of the MUGA, informal grass pitch and 3G sports pitch. The MUGA located to the north is an informal pitch with grass playing surface.

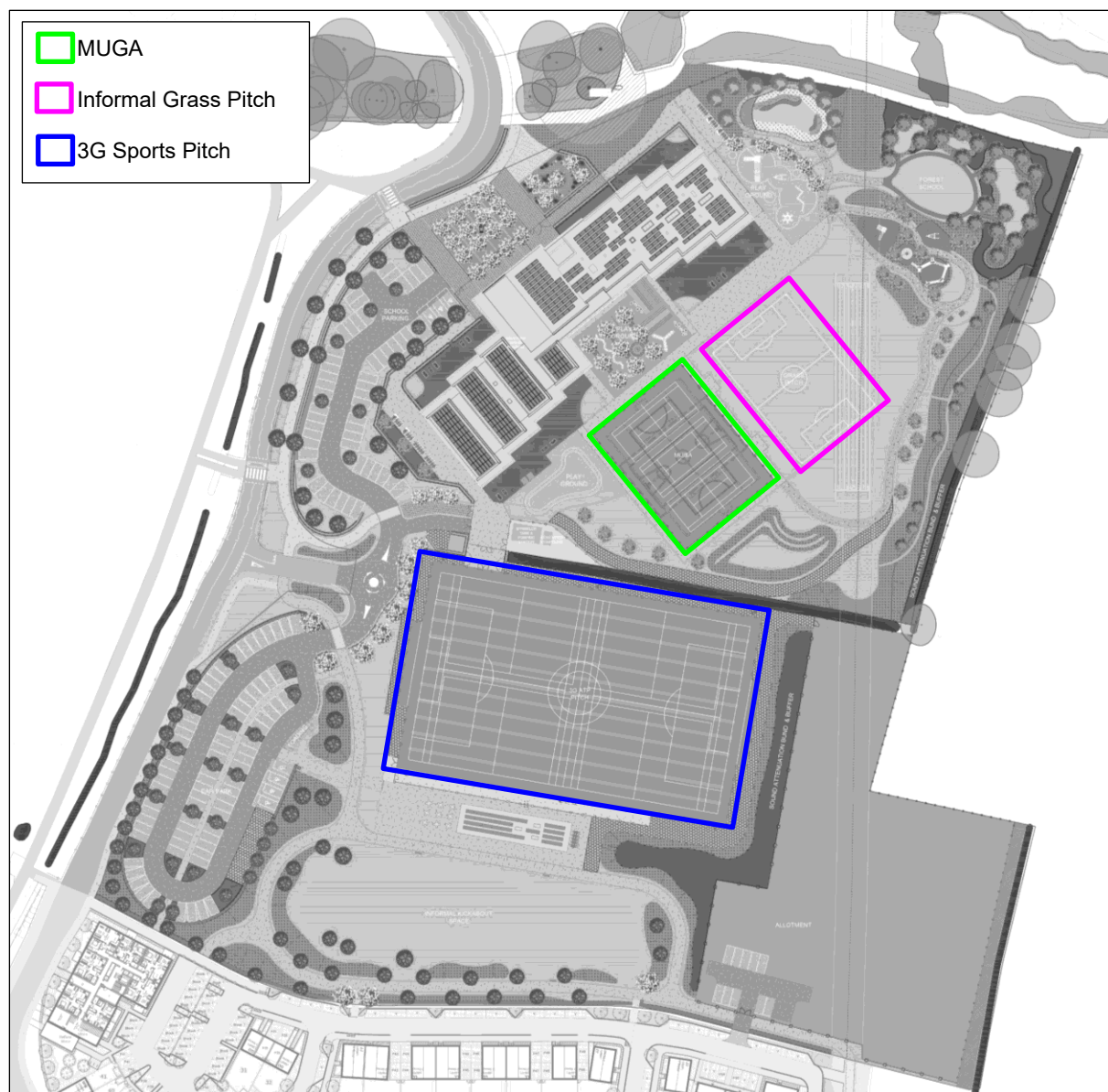


Figure 6-1. Site Plan

(Image Courtesy of Stantec Landscape Consultant)

6.1 Noise Sensitive Receptors

Figure 6-2 presents the nearest noise sensitive receptors (NNSRs) surrounding the proposed development which are considered within the assessment. NSRs to the south are part of the Upper Acre development (planning ref. RM/25/100575) within the wider One Horton Heath development which received planning approval in December 2025.

Sound levels at NSRs further away are anticipated to be lower than sound levels at the nearest noise sensitive receptors. Therefore, only sound levels at the nearest noise sensitive receptors on the boundary of the development will be assessed.



Figure 6-2. Noise Sensitive Receptors

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6.2 Proposed Assessment Criteria

In accordance with the requirements of the Local Planning Authority (LPA), informed by national and local planning policy and relevant standards and guidance, the proposed assessment methodology and criteria are detailed below.

6.2.1 Operation of Sports Pitches

It is proposed to assess noise contribution from the proposed sports pitches against criteria set out within the Sports England guidance document, BS 8233:2014 and the WHO Guidelines, as per the following:

Table 8. Proposed Sports Pitch Noise Contribution Criteria

Desirable Maximum Noise Contribution from Sports Pitches	Absolute Maximum Noise Contribution from Sports Pitches
50 dB $L_{Aeq, 1\text{hour}}$	55 dB $L_{Aeq, 1\text{hour}}$

In addition to the criteria above, the ambient sound levels at existing NSRs to the east are important. Comparison of the predicted sound levels against the existing ambient sound levels at the proposed NSRs within the Upper Acre development to the south is not considered to be appropriate as the receptors would not have experienced the sound climate on site prior to the construction of the school and sports pitches.

6.3 Methodology

A 3D computer-based model of the proposed development has been developed in SoundPLAN v9.1 to calculate the expected sound levels at the nearest residential receptors.

The assessment considers all external sports courts (1 MUGA, 1 grass pitch and 1 3G sports pitch).

The assessment has been carried out at the ground-floor of the nearest residential receptors where receptors are individual dwellings, as the pitches will only operate during the daytime (09:00 – 22:00). Where future receptors include apartments, the assessment has been undertaken across all floors of the building.

The southern 3G sports pitch may be operational during the following periods:

- All days - 09:00 to 22:00

The MUGA and informal grass pitch within the school boundary may be operational during the following periods:

- Weekdays - 09:00 to 19:00



Based on the above, the assessment has been split into two scenarios:

- Daytime (09:00 – 19:00) – Sports pitch, MUGA and informal grass pitch operational
- Evening (19:00 – 22:00) – Only the sports pitch operational

6.3.1 Noise Modelling

The Sport England document states that the typical free-field sound level of 58 dB $L_{Aeq,1\text{ hour}}$ at a distance of 10 metres from the side line halfway marking has been determined as representative of sound from an Artificial Grass Pitch. This level was found to be generally consistent with other international standards and has been used in the assessment for both the 3G sports pitch and MUGA sound sources.

To assess sound from the sports pitches associated with the proposed development, an acoustic model has been calibrated to the sound levels specified within the Sport England document, and predicted 3G sports pitch MUGA sound contribution at the facades of the nearest residential dwellings.

Details on the set up of the noise model are presented below:

- The noise model was set up to apply the prediction methodology set out in BS ISO 9613-2:2024 'Acoustics – Attenuation of Sound propagation outdoors – Part 2: General method of calculation'.
- The model was set up to include up to second order reflected sound from solid structures.
- Source sound levels have been determined based on Sport England guidance, calibrated to 58 dBA at 10 m from the side line halfway marking.
- The sound source has been modelled as an area source at 1.5 m above ground as per Sport England guidance.
- Ground absorption has been set to 1 for grass areas and 0 for paved areas.

6.4 Initial Assessment Results

6.4.1 Daytime

The calculated daytime $L_{Aeq,1\text{ hour}}$ sound levels due to noise emission from the sports pitch and MUGAs at the NSRs to the proposed development is presented in Figure C.1.

The calculated daytime façade incident sound levels are generally lower than the desirable design target, 50 dB $L_{Aeq,1\text{ hour}}$, at the NSRs with the exception of a single NSR to the east of the development, where façade incident sound levels of 51 - 52 dB $L_{Aeq,1\text{ hour}}$ are predicted.

The calculated daytime sound levels in all existing residential gardens to the east are between 44 – 54 dB $L_{Aeq,1\text{ hour}}$, exceeding the desirable design target in approximately ten residential gardens but sound levels in all residential gardens are calculated to be below the maximum design criteria, 55 dB $L_{Aeq,1\text{ hour}}$.

The calculated daytime sound levels at the façade and in the gardens of existing NSRs to the northeast exceed the existing ambient sound level during the daytime, 48 dB $L_{Aeq,10\text{ hour}}$.

The calculated façade incident sound levels and sound levels in all residential gardens within the proposed dwellings to the south are less than the desirable design criteria, 50 dB $L_{Aeq,1\text{ hour}}$.



6.4.2 Evening

The calculated evening $L_{Aeq,1hour}$ sound levels due to noise emission from the sports pitch at the NSRs to the proposed development is presented in Figure C.2.

The calculated evening facade incident sound levels are less than 48 dB $L_{Aeq,1hour}$ at the NSRs.

The calculated evening sound levels within all existing residential gardens to the east are between 42 – 50 dB $L_{Aeq,1hour}$ and less than 44 dB $L_{Aeq,1hour}$ in proposed residential gardens to the south.

The calculated sound levels in line with the proposed desirable criteria outlined in Table 8, 50 dB $L_{Aeq,1hour}$, at all NSRs and in residential gardens.

The calculated evening sound levels at the façade and in the gardens of the NSRs to the east exceed the existing ambient sound level during the evening, 42 dB $L_{Aeq,3hour}$.

6.4.3 Commentary Against Outline Assessment

The calculated façade incident sound levels and sound levels in all residential gardens within the proposed development to the south are less than 50 dB $L_{Aeq,1hour}$. Therefore, in line with the recommendations provided outline planning report detailed in Section 2.5.2, mitigation measures are not required to be incorporated into the design of the proposed dwellings to the south.

6.5 Noise Mitigation

Based on the results outlined in Section 6.4, noise mitigation will be required to reduce the sound level contribution from the sports pitches at the existing NSRs to the east of the development and therefore the potential impact at the NSRs.

A scheme of noise mitigation including acoustic bunds and barriers has been developed in collaboration with the landscape architect and architect to optimise the sound reduction whilst addressing other aspects/constraints of the design (e.g. aesthetics, site lines, civil engineering, etc.). The proposed mitigation includes:

- Acoustic bund with acoustic fence at the centre of the bund to the eastern boundary of the school development providing a total height of 3 m.
- Acoustic bund with acoustic fence at the centre of the bund to the southern and eastern boundaries of the 3G sports pitch providing a total height of 3 m.

Figure 6-3 presents the proposed location bunds and acoustic barriers.

The acoustic barriers must be a continuous construction with no gaps at the base or between panels and should be constructed from a material providing a minimum mass per unit area of 10 kg/m².



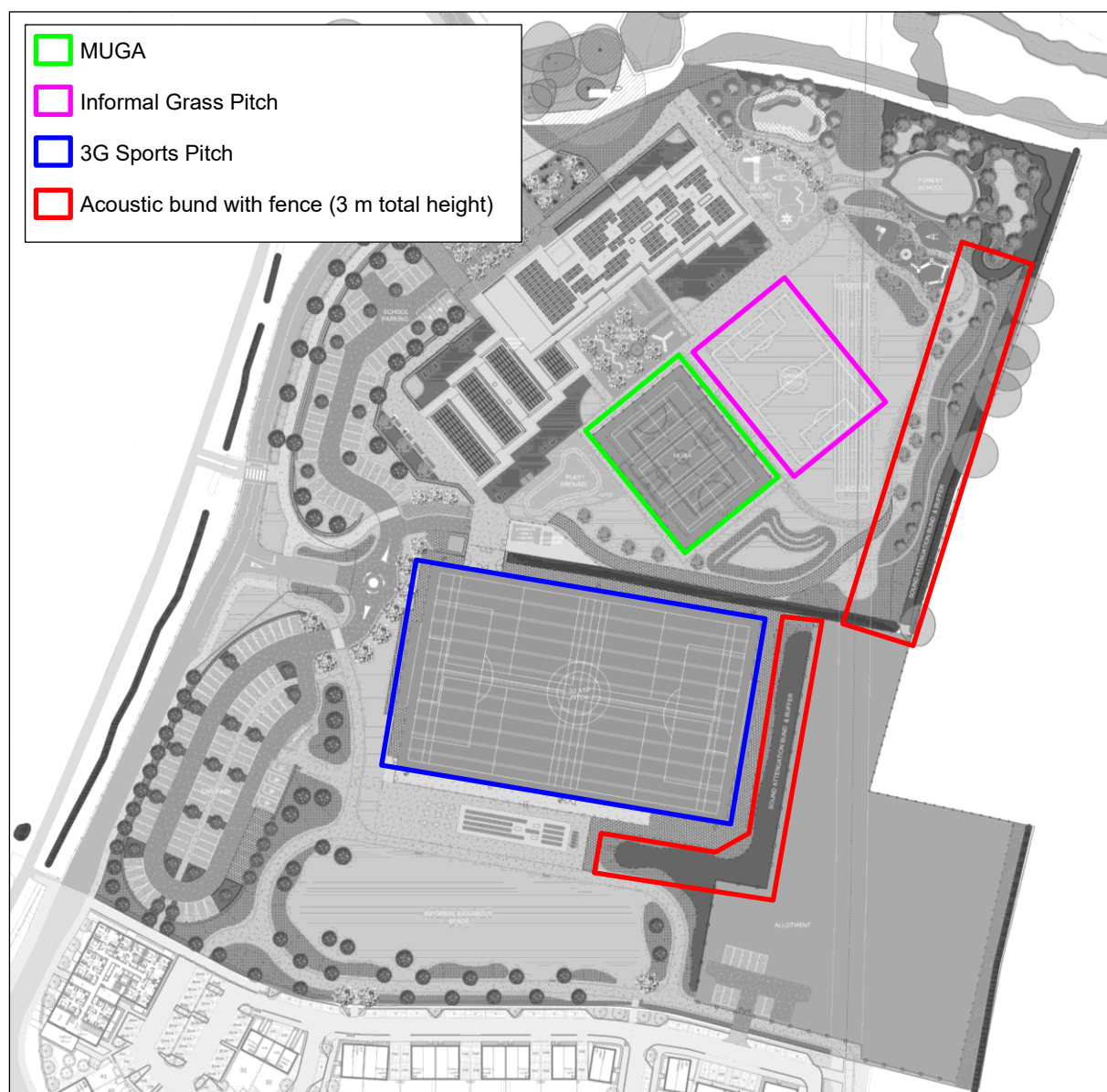


Figure 6-3. Proposed Noise Barrier Locations

Image Courtesy of Stantec Landscape Consultant

6.6 Assessment Results including Noise Mitigation

6.6.1 Daytime (09:00 - 19:00)

The calculated daytime $L_{Aeq,1hour}$ sound levels due to noise emission from the sports pitch and MUGAs to the proposed development with the recommended noise mitigation at the NSRs is presented in Figure C.3.

The calculated daytime façade incident sound levels are generally less than 48 dB $L_{Aeq,1hour}$ at the nearby existing NSRs which is below the desirable design target, 50 dB $L_{Aeq,1hour}$ and equal to or below the existing ambient sound level, 48 dB $L_{Aeq,10hours}$. At two NSRs to the east of the development, façade incident sound levels of 49 dB $L_{Aeq,1hour}$ are predicted which is a slight exceedance of the existing ambient sound level by 1 dB.

The calculated daytime sound levels in existing residential gardens to the east are generally below the desirable design target, 50 dB $L_{Aeq,1hour}$ with the exception of two gardens where sound levels up to 52 dB $L_{Aeq,1hour}$ are predicted.

The calculated sound levels assume that no garden fences are present as a detailed boundary survey is not currently available, however from a review of publicly available data it is anticipated that typical 1.8 m tall garden fences with surrounding foliage are generally installed along the western boundary of the residential gardens. With the inclusion of garden fences the sound levels in gardens are reduced to 49 dB $L_{Aeq,1hour}$ such that the sound levels are below the desirable design target and above the existing ambient sound level by 1 dB. In addition, daytime façade incident sound levels would be reduced to below or equal to the existing ambient sound level, 48 dB $L_{Aeq,1hour}$.

The calculated daytime sound levels in proposed residential gardens to the south are less than 42 dB $L_{Aeq,1hour}$ therefore significantly below the desirable design target.

6.6.2 Evening (19:00 - 22:00)

The calculated evening $L_{Aeq,1hour}$ sound level due to noise emission from the sports pitch at the NSRs to the proposed development with the recommended noise mitigation presented in Figure C.4.

The calculated evening façade incident sound levels are generally less than the existing ambient sound levels, 42 dB $L_{Aeq,1hour}$, at the existing NSRs to the east of the development with the exception of six NSRs, where façade incident sound levels of 43-44 dB $L_{Aeq,1hour}$ are predicted.

The calculated evening façade incident sound levels are between 42-46 dB $L_{Aeq,1hour}$ at the proposed NSRs to the south of the development, which is significantly below the desirable design target, 50 dB $L_{Aeq,1hour}$.

The calculated evening sound levels in existing residential gardens to the east are less than 46 dB $L_{Aeq,1hour}$, which is significantly below the desirable design target, 50 dB $L_{Aeq,1hour}$ but is slightly above the existing ambient sound levels.

The inclusion of garden fences to the western boundary of the eastern NSRs reduces the extent of the areas where sound levels exceed of the existing ambient sound level but does not remove the exceedances.

The calculated evening sound levels in proposed residential gardens to the south are less than 42 dB $L_{Aeq,1hour}$, and below the desirable design target, 50 dB $L_{Aeq,1hour}$.

6.6.3 Commentary

6.6.3.1 Façade Incident Sound Levels

Whilst the calculated sound levels may exceed the existing ambient sound levels at the existing NSRs to the east it is anticipated that the internal sound levels will remain suitable for residential use.

Based on the worst-case daytime façade incident sound level of 49 dB $L_{Aeq,1hour}$ and a level difference of 10 dB being provided by an open window facing the sound source, internal sound levels would be 39 dB $L_{Aeq,1hour}$ during periods when windows are open.

This level is likely to be at least 10 dB lower with closed windows, i.e. < 29 dB $L_{Aeq,1hour}$. For context, BS 8233:2014 advises that internal sound levels should ideally not exceed 35 dB $L_{Aeq,16hours}$ during daytime (07:00 – 23:00) hours with windows closed (although it is noted that this applies to steady external noise without a specific character).

6.6.3.2 Sound Levels in External Amenity Spaces

Whilst the calculated daytime sound levels in external amenity spaces of the eastern NSRs are predicted to exceed the existing ambient sound levels, the sound levels are below the desired design target, 50 dB $L_{Aeq,1hour}$, determined in line with guidance provided by BS 8233:2014 and WHO.

6.7 Ball Impact Sound Mitigation

It is understood that the pitches will typically be used for football, however, where the pitches may be used for hockey impact noise generated by balls hitting strike boards, goal boards and fencing has the potential to generate higher noise levels than the users of the MUGA themselves. Impact noises can be mitigated through the use of padding/dampening within the perimeter fence.

The following measures are presented in the Sports England document and can aid mitigation of ball impact sounds:

- Acoustic barriers should be built outside the perimeter fence so they are protected from being hit by balls and generating impact sounds
- Any weldmesh fencing panels should be securely clamped with resilient fixings to minimise vibrations.
- Sheet metal advertising signs can make a clattering noise when hit by a hockey ball and these should be avoided in proximity to the playing surface or replaced by soft vinyl signs (if applicable).
- Lightweight 'substitutes' shelters also have the potential to clatter when hit by hockey balls and should be located within recesses to reduce the risk of impact.

7 Conclusion

Stantec has been appointed to provide acoustic consultancy and design services for the proposed new primary school at One Horton Heath School, SO50 7QB.

A long-term unattended noise survey was carried out on site on the 01 – 08 September 2025.

Based on measured noise levels, the proposed hybrid ventilation strategy using NVHR units and rooftop ventilators is likely to be suitable to achieve all internal noise level criteria, pending suitable selection of NVHR systems. Standard façade construction elements will be permitted, with minimum acoustic performance requirements provided.

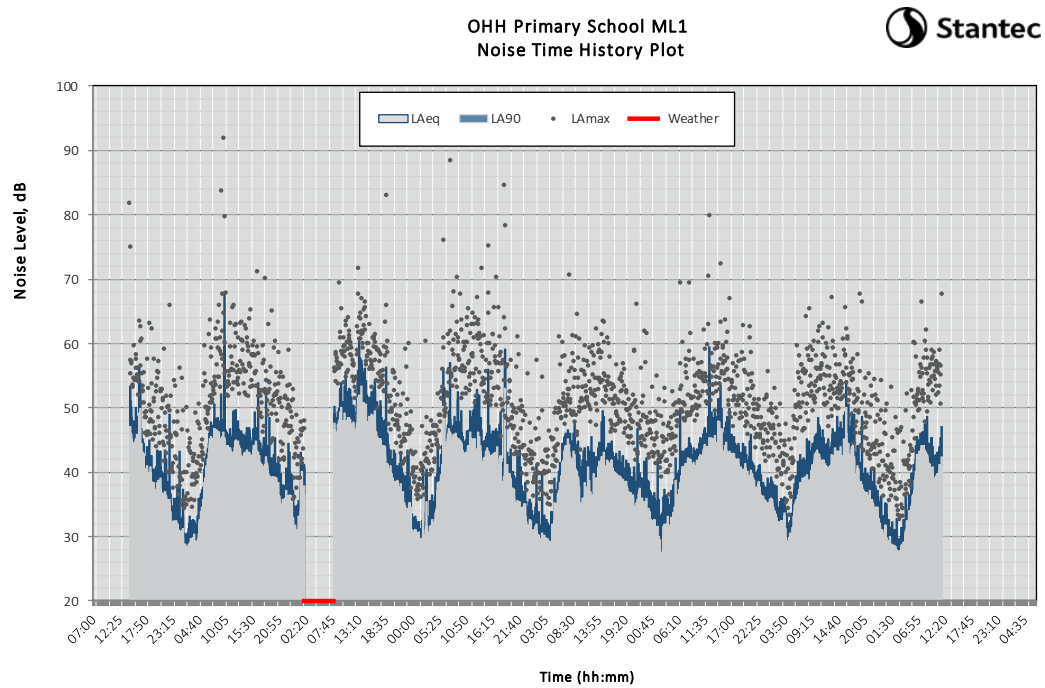
Plant noise rating limits at nearby receptors, having been derived from the noise survey data in line with relevant planning guidance and BREEAM POL05 criteria. Plant noise rating limits will apply to all new plant associated with the new development.

Assessment of the noise impact as a result of the proposed MUGA, informal grass pitch and sports pitch has been undertaken. Inclusion of the proposed noise mitigation via bunds and fencing is likely to achieve suitable sound levels at the noise sensitive receptors in line with relevant guidance.

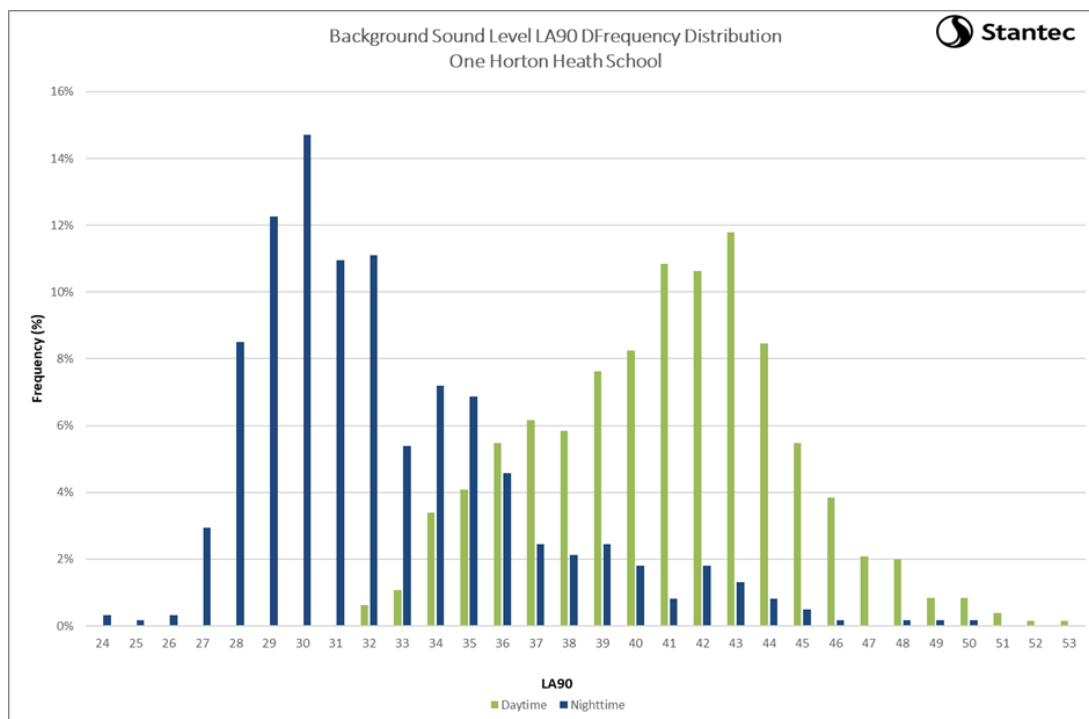
Appendices



Appendix A Measurement Time History Graph

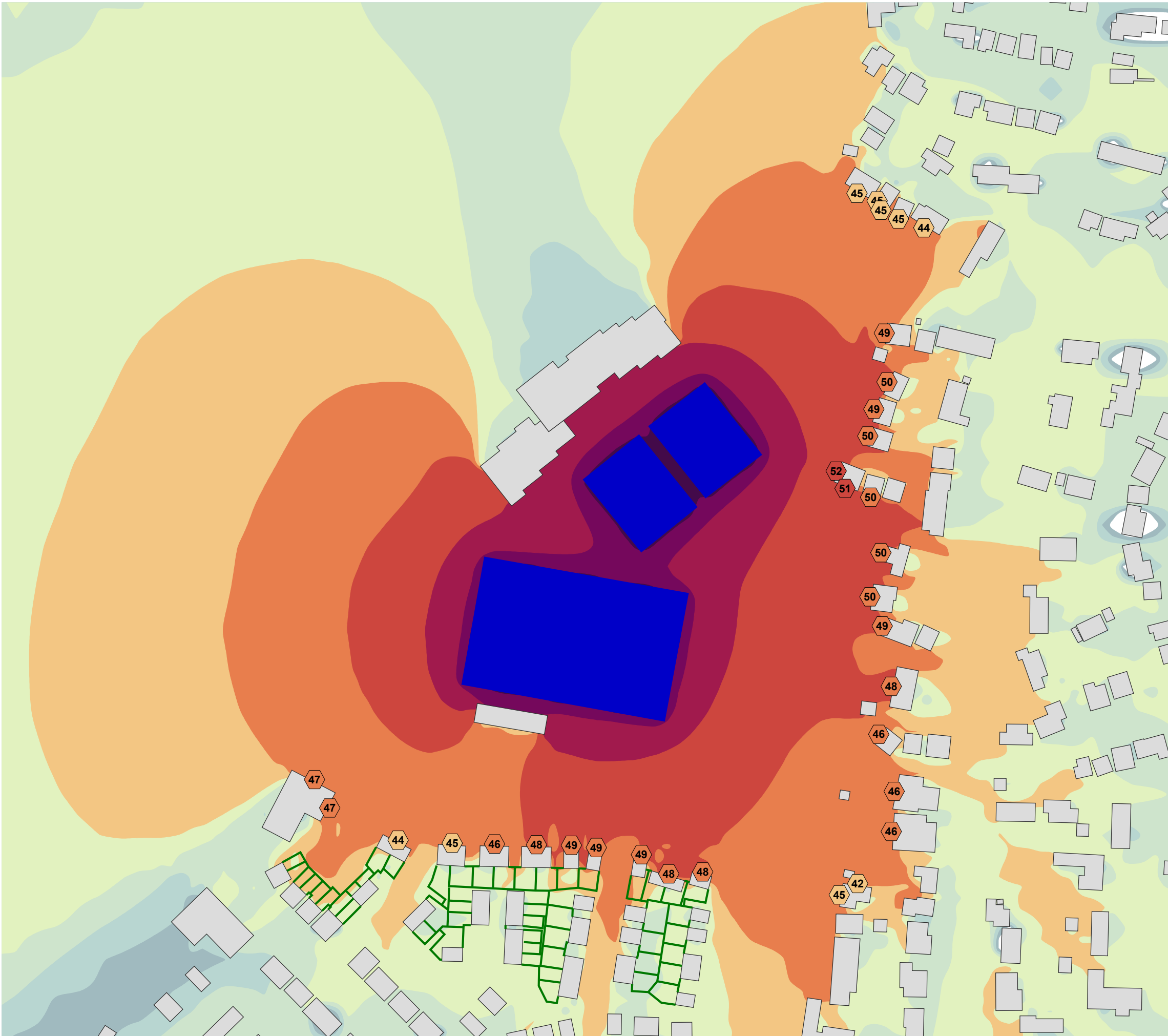


Appendix B Background Sound Level Frequency Distribution Plot



Appendix C Noise Maps – MUGA & Sports Pitch Noise Emission





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Sound Level
L_{Aeq,1hr} dB

	<= 20
20 <	<= 25
25 <	<= 30
30 <	<= 35
35 <	<= 40
40 <	<= 45
45 <	<= 50
50 <	<= 55
55 <	<= 60
60 <	<= 65
65 <	

Appendix C Figure C.1
Daytime Sound Levels
No Mitigation (09:00 - 19:00)

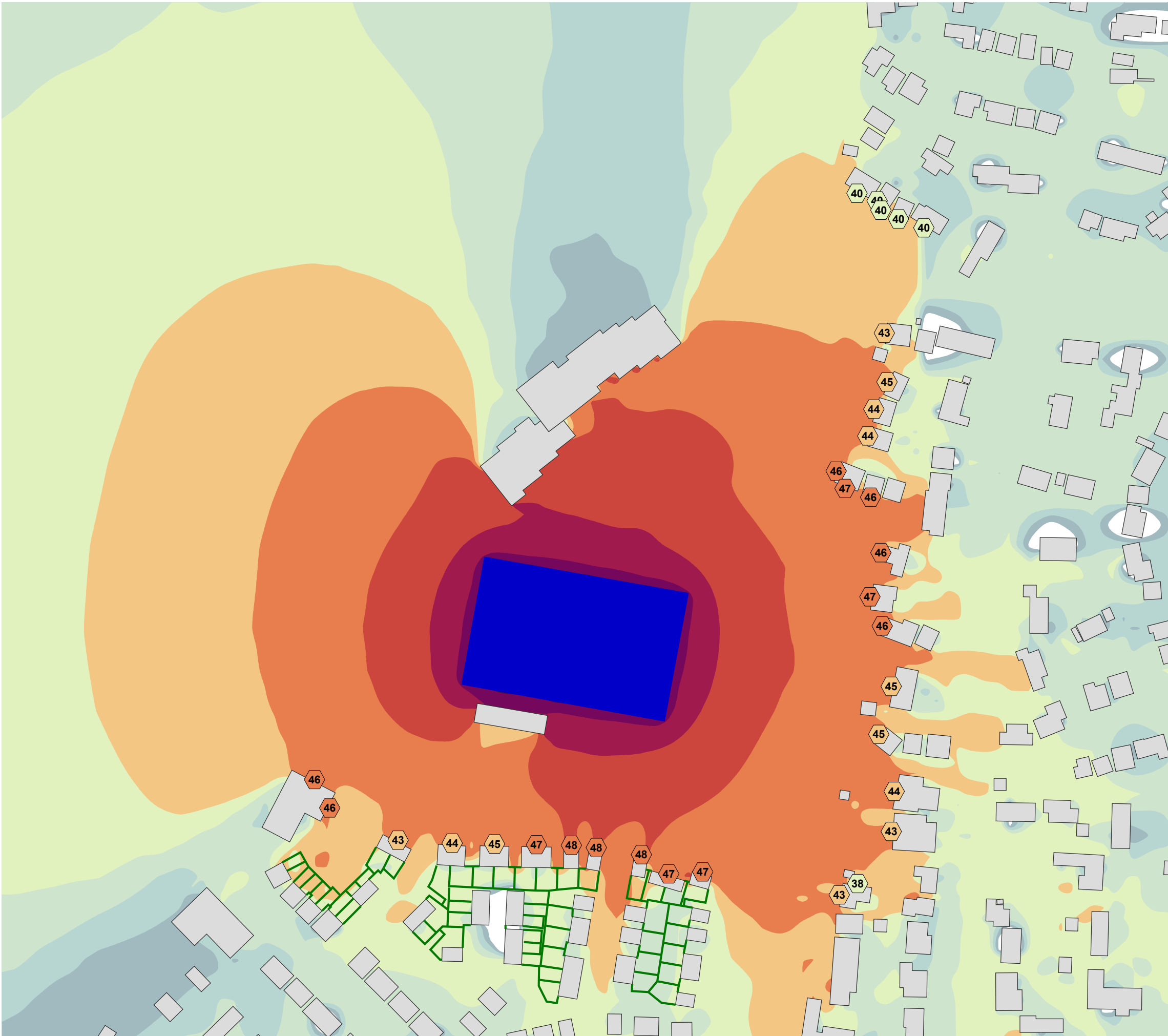
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Project: Primary School, Sports Facilities, and Allotments
Project Number: 331510103
Project Engineer: LAN
Grid Calculation at 1.5 m above ground
Created: 17/06/2026
Processed with SoundPLAN 9.1



Figure not to scale. Do not scale.

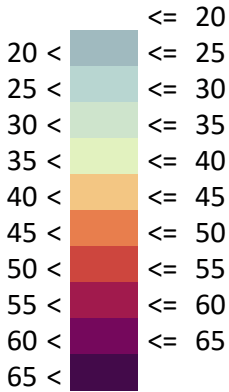
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Sound Level
L_{Aeq,1hr} dB



Appendix C Figure C.2
Evening Sound Levels
No Mitigation (19:00 - 22:00)

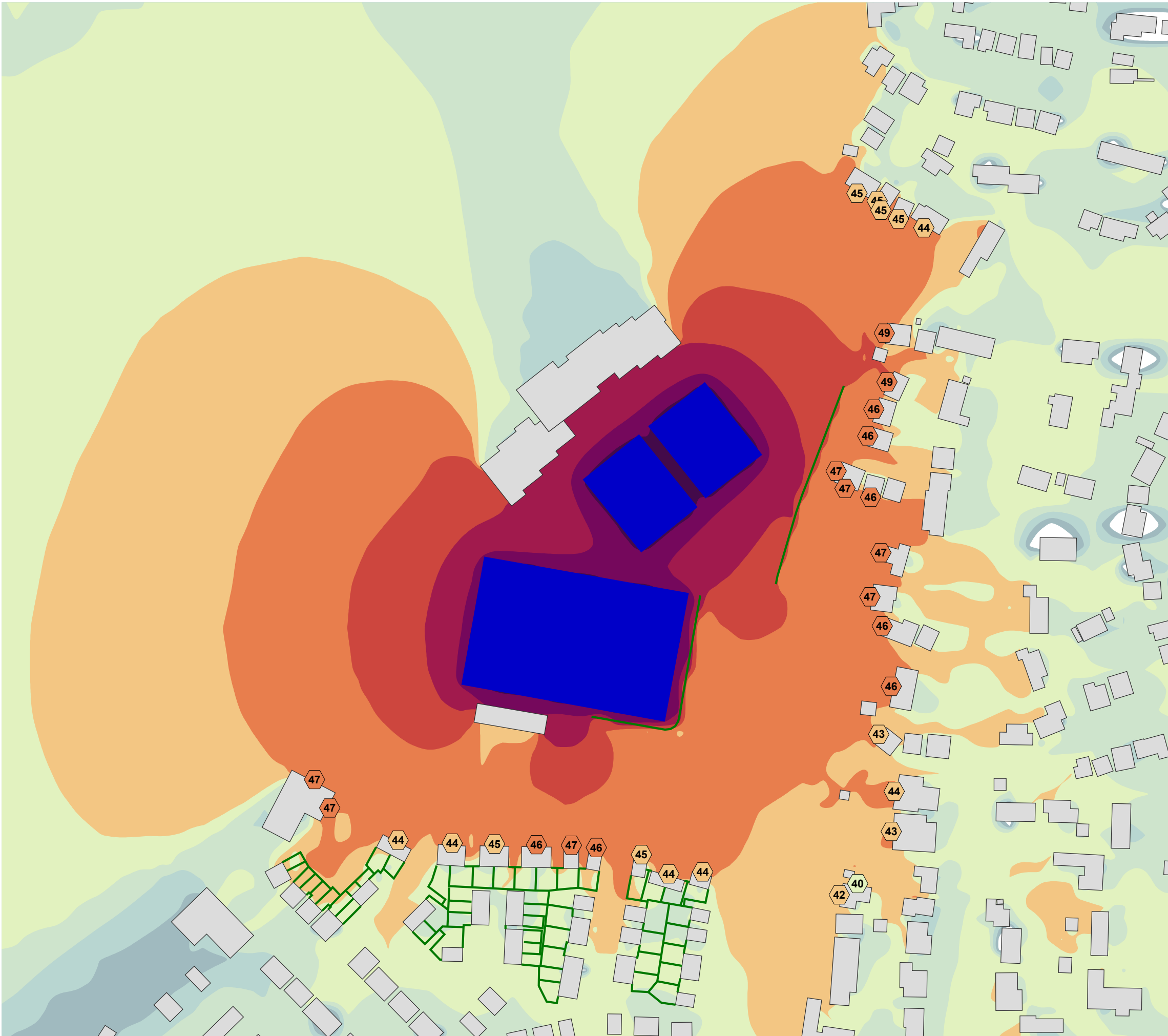
Client: Eastleigh Borough Council
Project: Primary School, Sports Facilities, and Allotments
Project Number: 331510103
Project Engineer: LAN
Grid Calculation at 1.5 m above ground
Created: 17/06/2026
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Sound Level
L_{Aeq,1hr} dB

	<= 20
20 <	<= 25
25 <	<= 30
30 <	<= 35
35 <	<= 40
40 <	<= 45
45 <	<= 50
50 <	<= 55
55 <	<= 60
60 <	<= 65
65 <	

Appendix C Figure C.3
Daytime Sound Levels
with Mitigation (09:00 - 19:00)

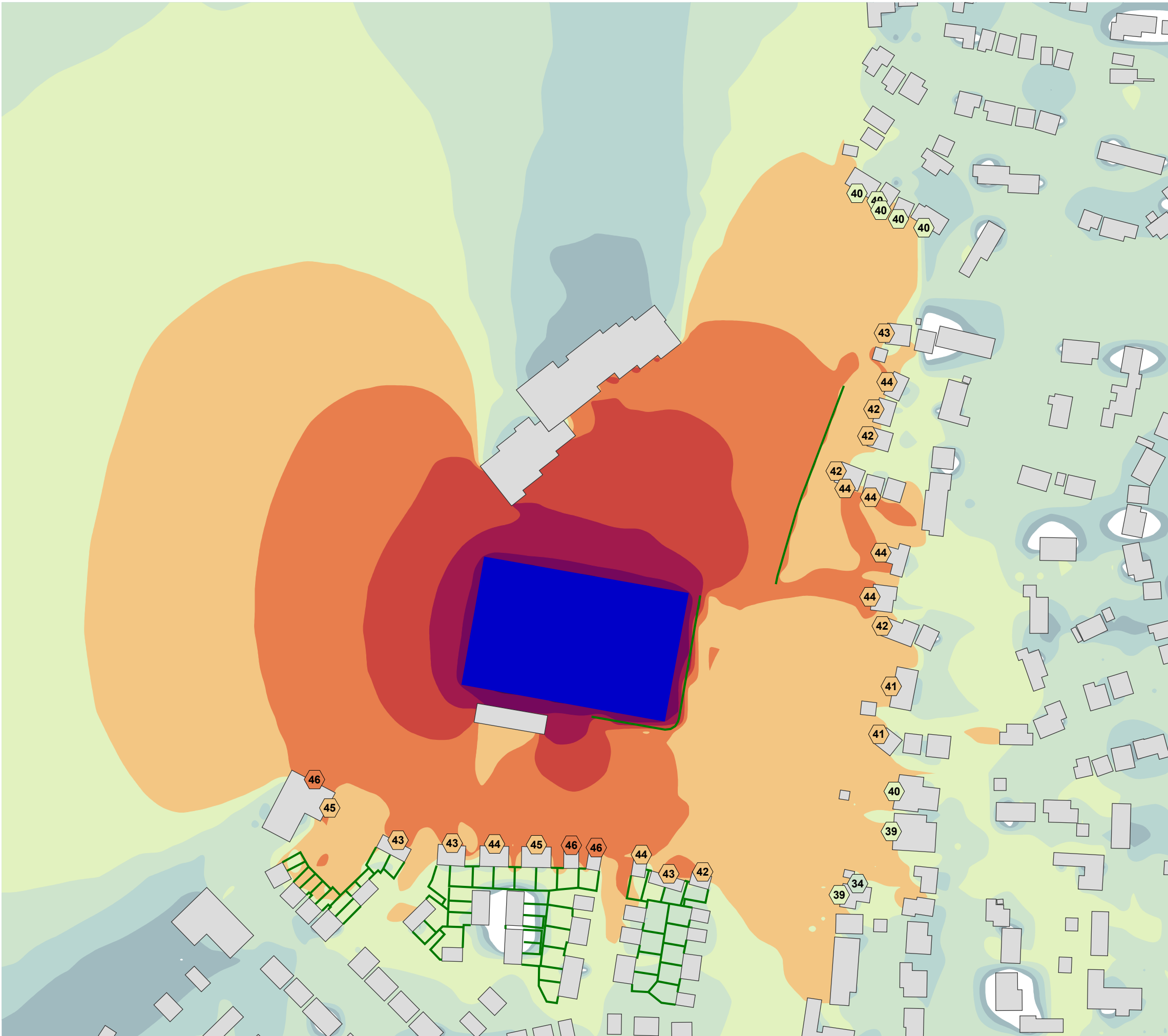
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Project: Primary School, Sports Facilities, and Allotments
Project Number: 331510103
Project Engineer: LAN
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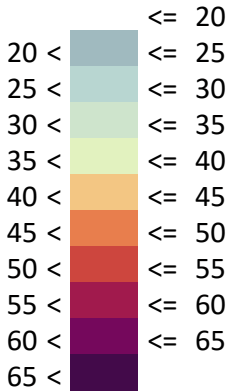
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Sound Level
 $L_{Aeq,1hr}$ dB



Appendix C Figure C.4
Evening Sound Levels
with Mitigation (19:00 - 22:00)

Client: Eastleigh Borough Council
Project: Primary School, Sports Facilities, and Allotments
Project Number: 331510103
Project Engineer: LAN
Grid Calculation at 1.5 m above ground
Created: 17/06/2026
Processed with SoundPLAN 9.1



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Stantec Hydrock Limited

Merchants' House North
Wapping Road
Bristol
BS1 4RW
UNITED KINGDOM
stantec.com