



REPORT REFERENCE:

IMP7664

## **NOISE IMPACT ASSESSMENT**

### **PROPOSED MUGA**

Sport England Design Guidance Note '(AGP) Acoustics'

CLIENT:

The Market Bosworth School

SITE:

The Market Bosworth School

Station Road

Market Bosworth

Warwickshire

CV13 0JT

SURVEY DATE:

22<sup>nd</sup> – 27<sup>th</sup> August 2024

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|          |                                                                                         |           |
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## 1 EXECUTIVE SUMMARY

### 1.1 Instruction

Impact Acoustics Ltd have been instructed by The Market Bosworth School to undertake a background noise survey at the existing premises at The Market Bosworth School, Station Road, Market Bosworth, Warwickshire, CV13 0JT to understand the level of impact at the existing site in relation to the proposed development of a new Multi-Use Games Area (MUGA) and calculate the resultant noise level at the nearest affected windows at first floor level at the southern boundary of the site and carry out assessments to the Sport England Design Guidance Note '(AGP) Acoustics'.

### 1.2 Scope of Report

The measurements have been undertaken in accordance with Sport England Design Guidance Note '(AGP) Acoustics' and ISO 1996 – Part 2: 2007 to establish if the proposed site has a demonstrable adverse effect in terms of noise that outweigh the benefits of the development. This report aims to establish the following:

- Existing background noise levels at the residential façade ( $L_{A90}$ );
- Noise levels from the Proposed Plant ( $L_{Aeq}$ );
- Impact on the nearest noise sensitive property.
- Mitigation Levels if Required

### 1.3 Summary of Report

Continuous background noise measurements were undertaken between 22<sup>nd</sup> and 27<sup>th</sup> August 2024 at the Assessment Position 1. The daytime background noise levels between 07:00 and 23:00 was found to be  $L_{A90,1 \text{ hour}}$  44 dB. This background noise level has been assessed during daytime periods only and none of the assessed operation will be present during night time periods.

|                                                                                  |                                          |                    |
|----------------------------------------------------------------------------------|------------------------------------------|--------------------|
| Daytime Equivalent Existing<br>Background Noise Levels<br>5 days (07:00 – 23:00) | Measured Levels at Assessment Position 1 | $L_{A90, t}$ 44 dB |
|----------------------------------------------------------------------------------|------------------------------------------|--------------------|

### 1.4 Proposed MUGA Activity

Sport England Design Guidance Note '(AGP) Acoustics' document suggest a CADNA A 3D model be generated to simulate the activities associated with the outdoor area with a profile of 58 dB(A) @ 10m. This has been accounted for within this report.

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': = 50 dB  $L_{Aeq}$ (1 hour) upper noise limit external to residential properties and within external living areas.

## 1.5 Traffic Movement

Recommendations have also been made for the introduction of a small car park to the north of the proposed MUGA with the following projected movements of no more than 20 cars / hr.

## 1.6 Proposed Mitigation Measures

The 3D model has been generated with a 2.5m Acoustic Screen in place as proposed on the detailed drawings. The screen should be continuous in length, have no gaps, be sealed to the ground and have a minimum mass of 14kg/m<sup>2</sup>.

The MUGA itself will need to be increased in depth from -3m below the residential ground level to -5m below.

## 1.7 Sport England Design Guidance Note '(AGP) Acoustics'

| Assessment                          | Sport England Design Guidance Note '(AGP) Acoustics' Criteria |                        |
|-------------------------------------|---------------------------------------------------------------|------------------------|
|                                     | Background Noise Level +5 dB(A)                               | Sport England Criteria |
| Criteria                            | 44 + 5 = 49 dB(A)                                             | 50 dB(A)               |
| Calculated Residential Façade Level | 49 dB(A)                                                      | 50 dB(A)               |
| Excess Over Criteria                | 0 dB(A)                                                       | 0 dB(A)                |
| Assessment Conclusion               | Low Impact                                                    | Low Impact             |

## 1.8 Conclusions

The operation of the Multi-Use Games Area has been assessed to establish if the development will have a demonstrable adverse effect in terms of noise that outweigh the benefits of the development. Measurements have been undertaken in accordance with Sport England Design Guidance Note '(AGP) Acoustics' and ISO 1996 – Part 2: 2017. This report has established the existing background noise levels at the closest residential façade and the assessment of the impact of the site operation on nearby residential properties. The resulting emissions from the site running on a worst case scenario show no conflict with 'low impact' criteria and give a strong indication that complaint and impact on the local amenity is unlikely.

## 1.9 NPPF 2023

National Planning Policy Framework 2023 suggests that planning permission should be granted unless any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in the framework taken as a whole, or specific policies in the framework indicate the application should be restricted.

### **1.10 Planning Approval Recommendation**

Based on the calculations and assessments made within this report it is the professional opinion of Impact Acoustics Ltd that the proposed development can demonstrate compliance with the National Planning Policy Framework 2023, NPPF & NPSE and that, with regards to sound, planning permission can be granted.

## **2 INTRODUCTION**

### **2.1 Instruction**

Impact Acoustics Ltd have been instructed by The Market Bosworth School to undertake a background noise survey at the existing premises at The Market Bosworth School, Station Road, Market Bosworth, Warwickshire, CV13 0JT to understand the level of impact at the existing site in relation to the proposed development of a new Multi-Use Games Area (MUGA) and calculate the resultant noise level at the nearest affected windows at first floor level at the southern boundary of the site and carry out assessments to the Sport England Design Guidance Note '(AGP) Acoustics'.

The purpose of this assessment is to ensure the acoustic protection of noise sensitive premises closest to the Multi-Use Games Area. Noise sensitive premises are not restricted to residential dwellings as offices can be affected by unwanted external noise. These have been established as the residential premises to the south of the site.

### **2.2 Ambient and Background Measurements**

External noise levels are to be recorded over, what has been considered for the site, an average / typical time period in order to assess the daytime noise levels. Levels have been recorded over more than one day in order to ensure the uncertainty of measurement aspects of SPORT ENGLAND DESIGN GUIDANCE NOTE '(AGP) ACOUSTICS' have been satisfied and that the data recorded is representative for the purpose of a robust assessment.

### **2.3 Sport England Design Guidance Note '(AGP) Acoustics'**

Sport England Design Guidance Note '(AGP) Acoustics' is to be adopted for the basis of this background noise level assessment. A Sport England Design Guidance Note '(AGP) Acoustics' noise assessment will be carried out in order to demonstrate the acoustic impact the proposed plant could have on the nearest affected premises and make suitable recommendations in order to demonstrate this unit will not have a significant and demonstrable adverse impact on the nearest noise sensitive premises in accordance with the National Planning Policy Framework, once remedial works are completed.

## **2.4 National Planning Policy Framework 2023 & Noise Policy Statement for England 2010**

References and evaluations are to be made to the National Planning Policy Framework 2023 (NPPF) and the Noise Policy Statement for England 2010 (NPSE). The purpose of this document is to include all aspects of environmental noise within assessments i.e. environmental noise, neighbour noise and neighbourhood noise. Noise is to be considered alongside other relevant issues relating to the site and should not be considered in isolation, according to the NPSE.

There are several key phrases within the NPSE aims and these are discussed below.

## **2.5 “Significant adverse” and “adverse”**

*There are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation. They are:*

## **2.6 NOEL – No Observed Effect Level**

*This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.*

## **2.7 LOAEL – Lowest Observed Adverse Effect Level**

*This is the level above which adverse effects on health and quality of life can be detected.*

*Extending these concepts for the purpose of this NPSE leads to the concept of a significant observed adverse effect level.*

## **2.8 SOAEL – Significant Observed Adverse Effect Level**

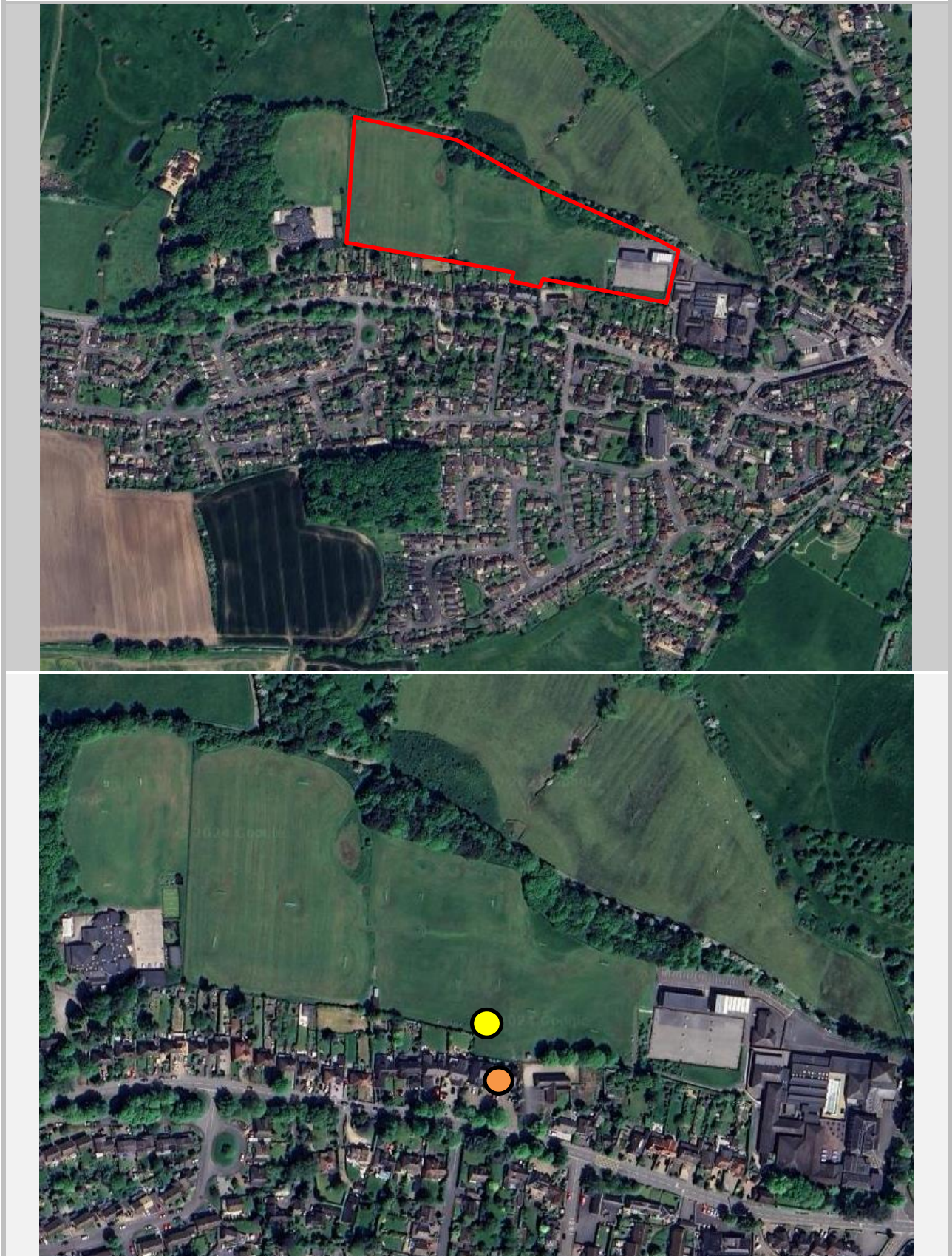
*This is the level above which significant adverse effects on health and quality of life occur.*

*It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available.*

### 3 SITE LOCATION

#### 3.1 Position of Site in Wider Area

- Yellow – Background Measurement Position
- Orange NSP (Noise Sensitive Premises)



## 3.2 Proposed Site Plan



| ID                   | EXISTING PITCHES |           |              | PROPOSED PITCHES, ETC. (Proposal 3) |           |               |
|----------------------|------------------|-----------|--------------|-------------------------------------|-----------|---------------|
|                      | Length (m)       | Width (m) | Current Sq.m | Length (m)                          | Width (m) | Proposed sq.m |
| Total Area - Ha      |                  |           | 40250        |                                     |           |               |
| <b>Grass Pitches</b> |                  |           |              |                                     |           |               |
| Pitch 1              | 72.00            | 40.00     | 2880         | 110.00                              | 68.00     | 7480.00       |
| Pitch 2              | 82.00            | 45.00     | 3690         | 64.00                               | 37.00     | 2368.00       |
| Pitch 3              | 90.00            | 50.00     | 4500         | 83.00                               | 46.00     | 3818.00       |
| Pitch 4              | 78.00            | 46.00     | 3588         | 83.00                               | 46.00     | 3818.00       |
| Pitch 5              | 72.00            | 40.00     | 2880         | 73.00                               | 46.00     | 3358.00       |
| Small Sided A        | 45.00            | 25.00     | 1125         | 40.00                               | 25.00     | 1000.00       |
| Small Sided B        | 45.00            | 25.00     | 1125         | 40.00                               | 25.00     | 1000.00       |
| <b>Sub-total:</b>    |                  |           | 19788.00     |                                     |           | 22842.00      |

### 3.3 Assessment Position and Background Position

Continuous measurement was undertaken at the assessment position between 22<sup>nd</sup> and 27<sup>th</sup> August 2024. Measurement was undertaken at the representative nearest noise sensitive premises / receptor in accordance with ISO1996 part 2: 2017. These have been established as the residential to the south of the site for daytime assessments.

4 BACKGROUND NOISE LEVELS

4.1 Measured Background Noise Levels

Continuous background noise measurements were undertaken between 22<sup>nd</sup> and 27<sup>th</sup> August 2024 at the Assessment Position 1. The daytime background noise levels between 07:00 and 23:00 was found to be  $L_{A90,1 \text{ hour}}$  44 dB. This background noise level has been assessed during daytime periods only and none of the assessed operation will be present during night time periods.

|                                                                                  |                                          |                    |
|----------------------------------------------------------------------------------|------------------------------------------|--------------------|
| Daytime Equivalent Existing<br>Background Noise Levels<br>5 days (07:00 – 23:00) | Measured Levels at Assessment Position 1 | $L_{A90, t}$ 44 dB |
|----------------------------------------------------------------------------------|------------------------------------------|--------------------|

4.2 Sport England Design Guidance Note ‘(AGP) Acoustics’

| Sport England Design Guidance Note ‘(AGP) Acoustics’ Criteria |                        |
|---------------------------------------------------------------|------------------------|
| Background Noise Level +5 dB(A)                               | Sport England Criteria |
| 44 + 5 = 49 dB(A)                                             | 50 dB(A)               |

## 5 APPARATUS

### 5.1 Equipment Calibration

The equipment was calibrated using a sound pressure level of 114.0 dB at an octave band centre frequency of 1000Hz with reference to  $2 \times 10^{-5} \text{ Nm}^{-2}$  before and after the tests and the equipment set to have no inaccuracy greater than 0.2 dB.

All the following equipment was calibrated in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service (UKAS) on the following dates.

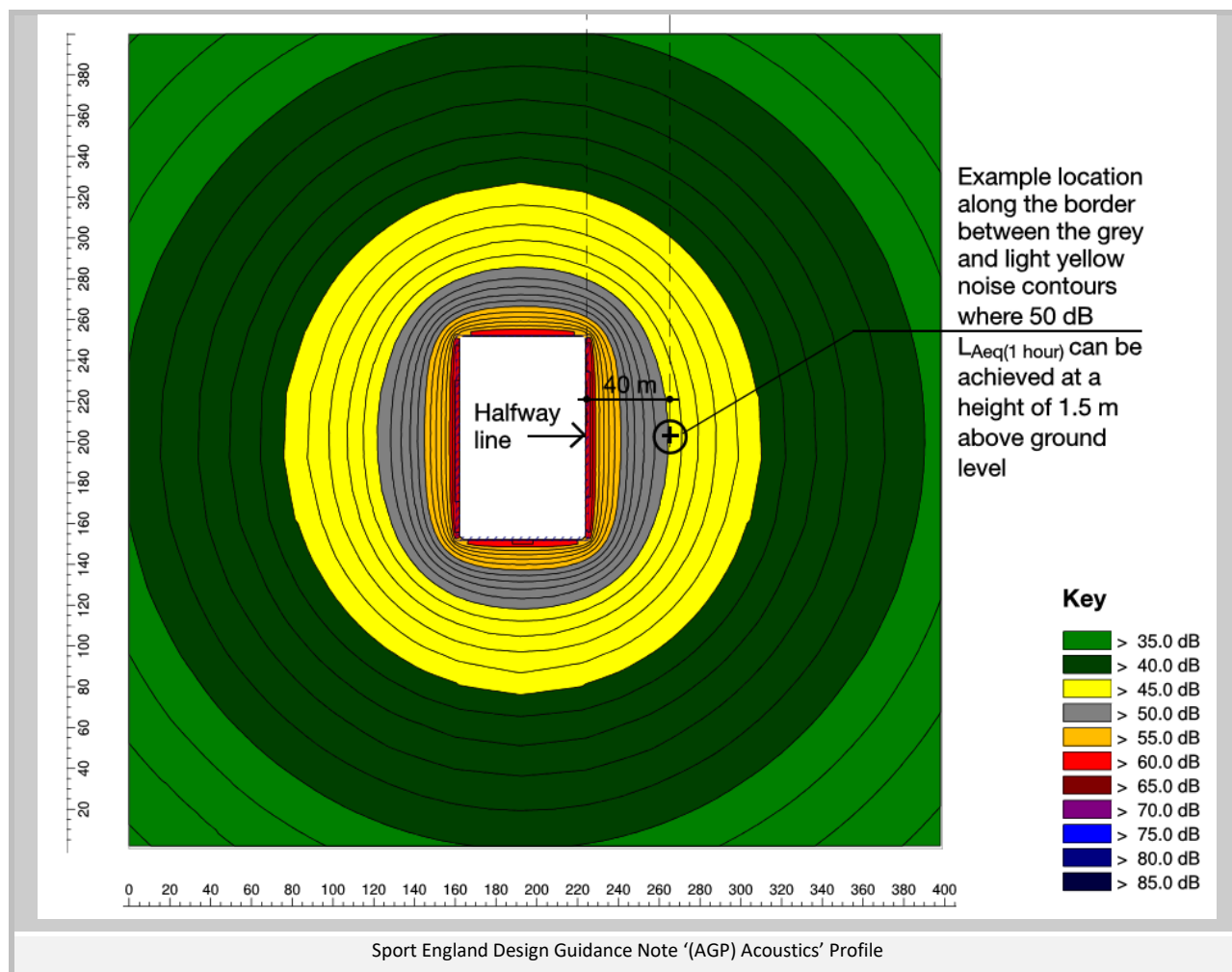
### 5.2 Position 1

| Description                         | Make     | Type | Serial No. | Calibration Intervals | Cert No.    | Last Calibrated | Next Due Calibration |
|-------------------------------------|----------|------|------------|-----------------------|-------------|-----------------|----------------------|
| Integrated Sound Level Meter        | Norsonic | 118  | 31632      | 2 YEARS               | TCRT22-1466 | 25.07.2022      | 25.07.2024           |
| 12.5mm Microphone (with windshield) | Norsonic | 1225 | 91720      | 2 YEARS               |             | 25.07.2022      | 25.07.2024           |
| Microphone Pre – Amplifier          | Norsonic | 1201 | 29307      | 2 YEARS               |             | 25.07.2022      | 25.07.2024           |

The noise meter was calibrated before and after the assessment period and found to be within the tolerance of the manufacturer's guidance. Full Calibration certificates are available upon request.

## 6 CALCULATIONS

### 6.1 Proposed MUGA Noise Contours



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': = 50 dB  $L_{Aeq}(1 \text{ hour})$  upper noise limit external to residential properties and within external living areas.

### 6.2 Traffic Movement

Recommendations have also been made for the introduction of a small car park to the north of the proposed MUGA with the following projected movements of no more than 20 cars / hr.

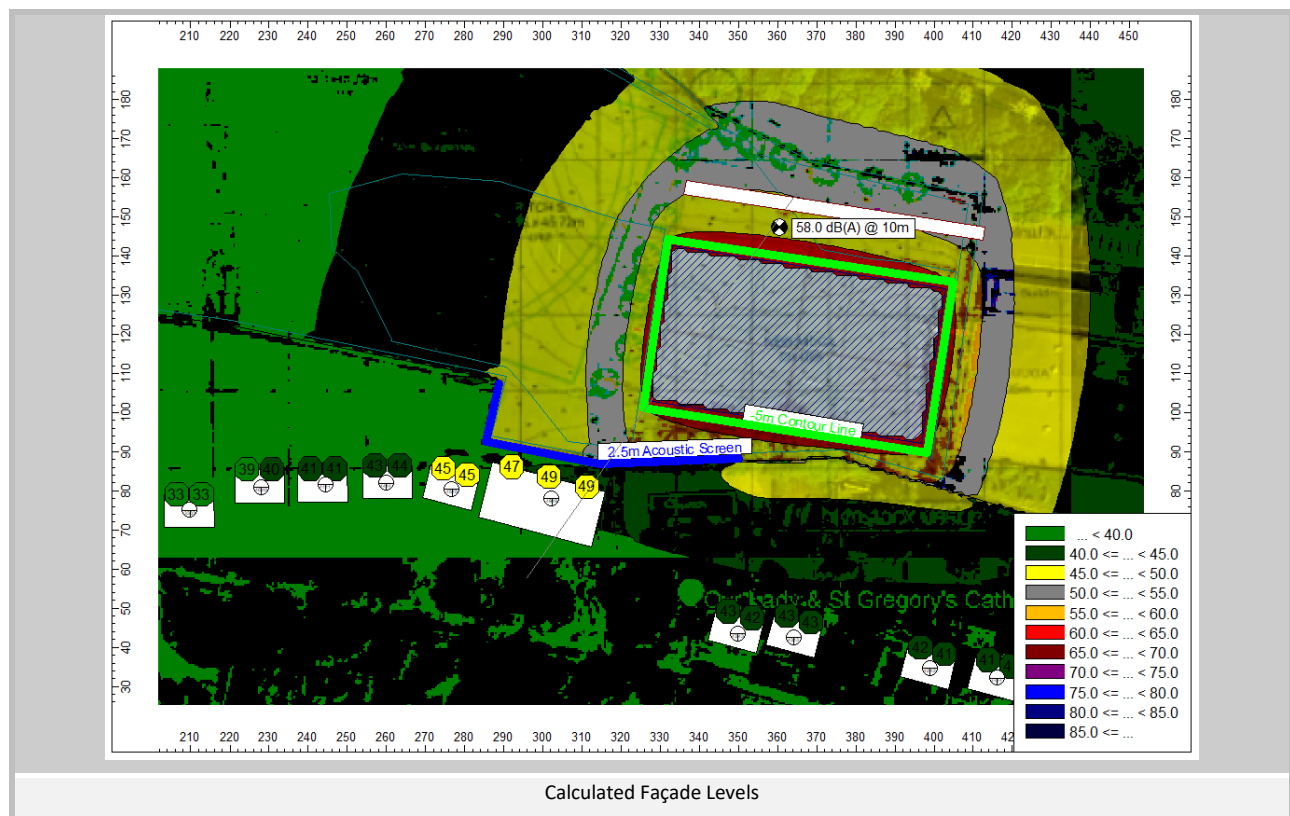
**Inputted Traffic Levels**

### 6.3 Proposed Mitigation Measures

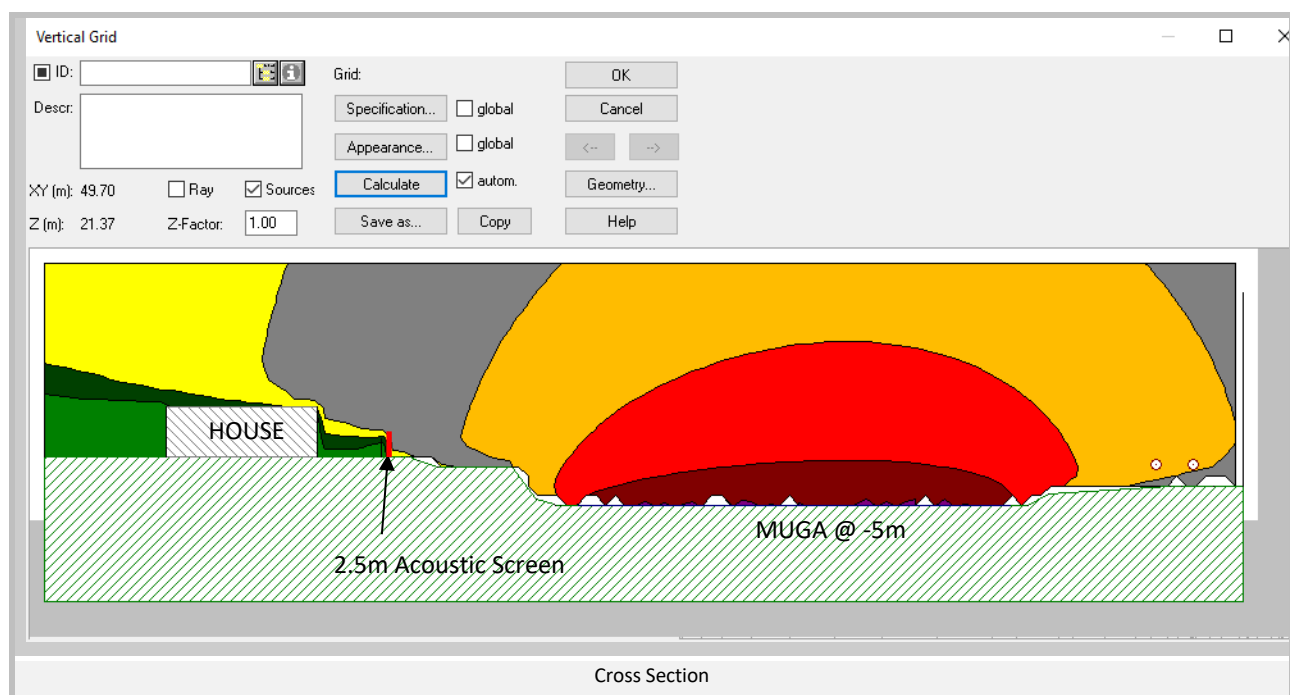
The following 3D model has been generated with a 2.5m Acoustic Screen in place as proposed on the detailed drawings. The screen should be continuous in length, have no gaps, be sealed to the ground and have a minimum mass of 14kg/m<sup>2</sup>.

The MUGA itself will need to be increased in depth from -3m below the residential ground level to -5m below.

### 6.4 Proposed Façade Level



### 6.5 Cross Section



## 6.6 Assessment

Based on the above calculations, the following assessments have been made at first floor level. These levels are likely to reduce by approximately 4 dB(A) for the ground floor.

| Assessment                          | Sport England Design Guidance Note '(AGP) Acoustics' Criteria |                        |
|-------------------------------------|---------------------------------------------------------------|------------------------|
|                                     | Background Noise Level +5 dB(A)                               | Sport England Criteria |
| Criteria                            | 44 + 5 = 49 dB(A)                                             | 50 dB(A)               |
| Calculated Residential Façade Level | 49 dB(A)                                                      | 50 dB(A)               |
| Excess Over Criteria                | 0 dB(A)                                                       | 0 dB(A)                |
| Assessment Conclusion               | Low Impact                                                    | Low Impact             |

## 7 NPPF & NPSE

The National Planning Policy Framework 2023 (NPPF) and assessments to the Noise Policy Statement for England 2010 (NPSE) should be made in conjunction with each other. Paragraphs 191 - 194 of the National Planning Policy Framework 2023 (NPPF) states the following:

**Paragraph 191** Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- a) Mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life.
- b) Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

**Paragraph 192** Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications.

**Paragraph 193** Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.

**Paragraph 194** The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities

**The Noise Policy Statement for England** gives various levels of effect as detailed within this report.

With the proposed development installed as detailed within this report, the MUGA can be implemented within the guidelines of the aforementioned documents and ensure a conclusion of **NOEL – No Observed Effect Level**. This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

8 CONCLUSIONS

8.1 Summary of Report

Continuous background noise measurements were undertaken between 22<sup>nd</sup> and 27<sup>th</sup> August 2024 at the Assessment Position 1. The daytime background noise levels between 07:00 and 23:00 was found to be  $L_{A90,1 \text{ hour}}$  44 dB. This background noise level has been assessed during daytime periods only and none of the assessed operation will be present during night time periods.

|                                                                                  |                                          |                    |
|----------------------------------------------------------------------------------|------------------------------------------|--------------------|
| Daytime Equivalent Existing<br>Background Noise Levels<br>5 days (07:00 – 23:00) | Measured Levels at Assessment Position 1 | $L_{A90, t}$ 44 dB |
|----------------------------------------------------------------------------------|------------------------------------------|--------------------|

8.2 Proposed MUGA Activity

Sport England Design Guidance Note ‘(AGP) Acoustics’ document suggest a CADNA A 3D model be generated to simulate the activities associated with the outdoor area with a profile of 58 dB(A) @ 10m. This has been accounted for within this report.

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’: = 50 dB LAeq(1 hour) upper noise limit external to residential properties and within external living areas.

8.3 Traffic Movement

Recommendations have also been made for the introduction of a small car park to the north of the proposed MUGA with the following projected movements of no more than 20 cars / hr.

8.4 Proposed Mitigation Measures

The 3D model has been generated with a 2.5m Acoustic Screen in place as proposed on the detailed drawings. The screen should be continuous in length, have no gaps, be sealed to the ground and have a minimum mass of 14kg/m<sup>2</sup>.

The MUGA itself will need to be increased in depth from -3m below the residential ground level to -5m below.

## 8.5 Sport England Design Guidance Note '(AGP) Acoustics'

| Assessment                          | Sport England Design Guidance Note '(AGP) Acoustics' Criteria |                        |
|-------------------------------------|---------------------------------------------------------------|------------------------|
|                                     | Background Noise Level +5 dB(A)                               | Sport England Criteria |
| Criteria                            | 44 + 5 = 49 dB(A)                                             | 50 dB(A)               |
| Calculated Residential Façade Level | 49 dB(A)                                                      | 50 dB(A)               |
| Excess Over Criteria                | 0 dB(A)                                                       | 0 dB(A)                |
| Assessment Conclusion               | Low Impact                                                    | Low Impact             |

## 8.6 Conclusions

The operation of the Multi-Use Games Area has been assessed to establish if the development will have a demonstrable adverse effect in terms of noise that outweigh the benefits of the development. Measurements have been undertaken in accordance with Sport England Design Guidance Note '(AGP) Acoustics' and ISO 1996 – Part 2: 2017. This report has established the existing background noise levels at the closest residential façade and the assessment of the impact of the site operation on nearby residential properties. The resulting emissions from the site running on a worst case scenario show no conflict with 'low impact' criteria and give a strong indication that complaint and impact on the local amenity is unlikely.

## 8.7 NPPF 2023

National Planning Policy Framework 2023 suggests that planning permission should be granted unless any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in the framework taken as a whole, or specific policies in the framework indicate the application should be restricted.

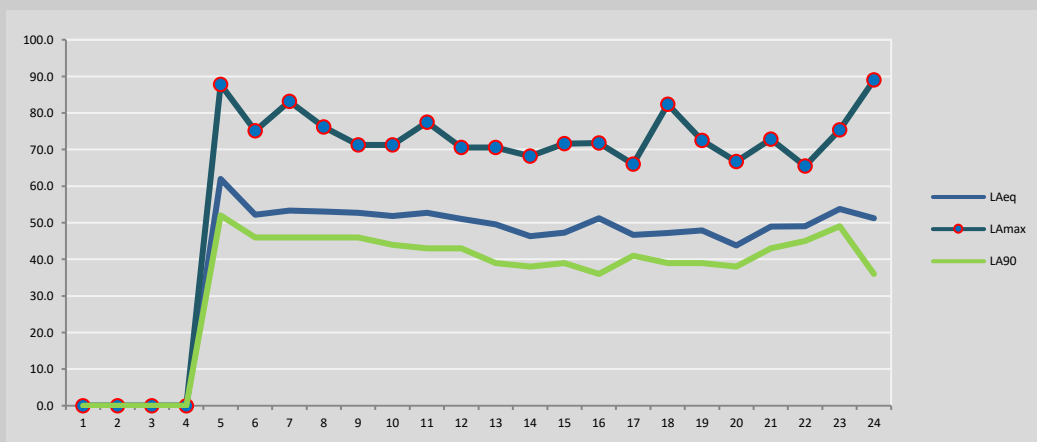
## 8.8 Planning Approval Recommendation

Based on the calculations and assessments made within this report it is the professional opinion of Impact Acoustics Ltd that the proposed development can demonstrate compliance with the National Planning Policy Framework 2023, NPPF & NPSE and that, with regards to sound, planning permission can be granted.

## 9 APPENDIX A – RESULTS

### 9.1 22<sup>nd</sup> – 23<sup>rd</sup> July 2024

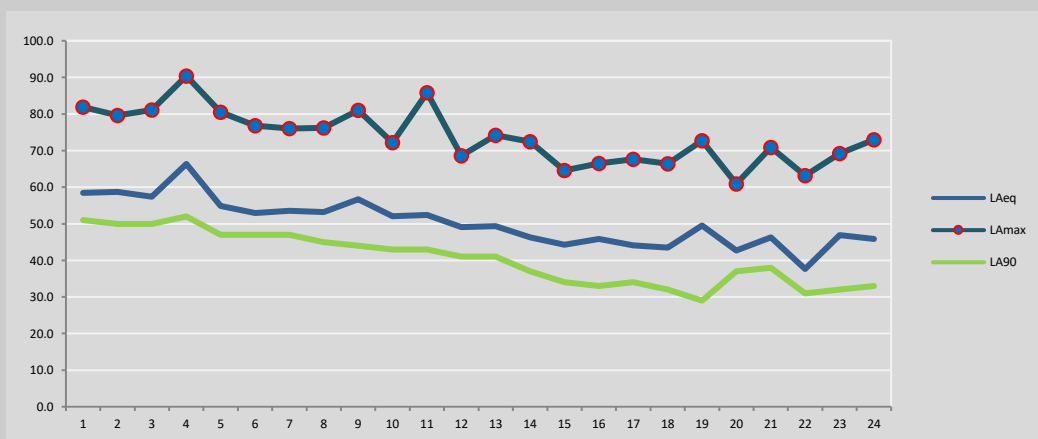
| Time          | L <sub>Max</sub> | Minimum 15 minute       |                          | 1 Hour                   |                          | Day and Night       |                           |
|---------------|------------------|-------------------------|--------------------------|--------------------------|--------------------------|---------------------|---------------------------|
| Period        |                  | L <sub>Aeq,15 min</sub> | L <sub>A90, 15 min</sub> | L <sub>Aeq, 1 hour</sub> | L <sub>A90, 1 hour</sub> | L <sub>Aeq, t</sub> | L <sub>A90, 16hours</sub> |
| 07:00 – 08:00 |                  |                         |                          |                          |                          | 52.9                | 44.0                      |
| 08:00 – 09:00 |                  |                         |                          |                          |                          |                     |                           |
| 09:00 – 10:00 |                  |                         |                          |                          |                          |                     |                           |
| 10:00 – 11:00 |                  |                         |                          |                          |                          |                     |                           |
| 11:00 – 12:00 | 87.8             | 53.8                    | 47.0                     | 62.0                     | 52.0                     |                     |                           |
| 12:00 – 13:00 | 75.1             | 49.4                    | 44.0                     | 52.2                     | 46.0                     |                     |                           |
| 13:00 – 14:00 | 83.2             | 51.2                    | 45.0                     | 53.3                     | 46.0                     |                     |                           |
| 14:00 – 15:00 | 76.2             | 51.6                    | 45.0                     | 53.0                     | 46.0                     |                     |                           |
| 15:00 – 16:00 | 71.3             | 50.6                    | 45.0                     | 52.7                     | 46.0                     |                     |                           |
| 16:00 – 17:00 | 71.3             | 50.0                    | 43.0                     | 51.9                     | 44.0                     |                     |                           |
| 17:00 – 18:00 | 77.5             | 48.8                    | 42.0                     | 52.7                     | 43.0                     |                     |                           |
| 18:00 – 19:00 | 70.6             | 48.5                    | 42.0                     | 51.1                     | 43.0                     |                     |                           |
| 19:00 – 20:00 | 70.6             | 45.1                    | 36.0                     | 49.6                     | 39.0                     |                     |                           |
| 20:00 – 21:00 | 68.2             | 44.3                    | 36.0                     | 46.3                     | 38.0                     |                     |                           |
| 21:00 – 22:00 | 71.6             | 44.0                    | 36.0                     | 47.3                     | 39.0                     |                     |                           |
| 22:00 – 23:00 | 71.8             | 42.7                    | 35.0                     | 51.2                     | 36.0                     | 53.6                | 49.0                      |
| 23:00 – 00:00 | 66.0             | 44.3                    | 38.0                     | 46.7                     | 41.0                     |                     |                           |
| 00:00 – 01:00 | 82.4             | 37.5                    | 33.0                     | 47.2                     | 39.0                     |                     |                           |
| 01:00 – 02:00 | 72.5             | 45.3                    | 34.0                     | 47.9                     | 39.0                     |                     |                           |
| 02:00 – 03:00 | 66.7             | 38.9                    | 36.0                     | 43.7                     | 38.0                     |                     |                           |
| 03:00 – 04:00 | 72.8             | 43.9                    | 39.0                     | 48.9                     | 43.0                     |                     |                           |
| 04:00 – 05:00 | 65.5             | 47.4                    | 44.0                     | 49.1                     | 45.0                     |                     |                           |
| 05:00 – 06:00 | 75.4             | 53.1                    | 49.0                     | 53.7                     | 49.0                     |                     |                           |
| 06:00 – 07:00 | 89.0             | 57.4                    | 54.0                     | 51.2                     | 36.0                     |                     |                           |



Sound Pressure Levels, dB. Reference level of  $2 \times 10^{-5} \text{ Nm}^{-2}$

## 9.2 23<sup>rd</sup> – 24<sup>th</sup> August 2024

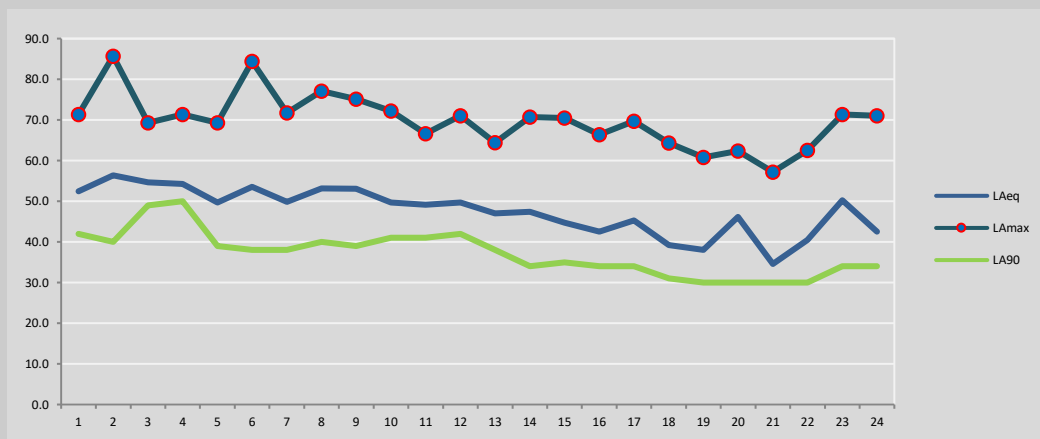
| Time          | L <sub>Max</sub> | Minimum 15 minute       |                          | 1 Hour                   |                          | Day and Night       |                           |
|---------------|------------------|-------------------------|--------------------------|--------------------------|--------------------------|---------------------|---------------------------|
| Period        |                  | L <sub>Aeq,15 min</sub> | L <sub>A90, 15 min</sub> | L <sub>Aeq, 1 hour</sub> | L <sub>A90, 1 hour</sub> | L <sub>Aeq, t</sub> | L <sub>A90, 16hours</sub> |
| 07:00 – 08:00 | 81.9             | 57.2                    | 50.0                     | 58.4                     | 51.0                     | 57.2                | 47.0                      |
| 08:00 – 09:00 | 79.6             | 57.1                    | 48.0                     | 58.7                     | 50.0                     |                     |                           |
| 09:00 – 10:00 | 81.1             | 56.4                    | 49.0                     | 57.4                     | 50.0                     |                     |                           |
| 10:00 – 11:00 | 90.4             | 57.4                    | 51.0                     | 66.3                     | 52.0                     |                     |                           |
| 11:00 – 12:00 | 80.5             | 53.8                    | 45.0                     | 54.8                     | 47.0                     |                     |                           |
| 12:00 – 13:00 | 76.8             | 51.3                    | 46.0                     | 52.9                     | 47.0                     |                     |                           |
| 13:00 – 14:00 | 76.0             | 50.1                    | 45.0                     | 53.5                     | 47.0                     |                     |                           |
| 14:00 – 15:00 | 76.2             | 52.2                    | 44.0                     | 53.2                     | 45.0                     |                     |                           |
| 15:00 – 16:00 | 81.0             | 52.4                    | 43.0                     | 56.7                     | 44.0                     |                     |                           |
| 16:00 – 17:00 | 72.2             | 50.4                    | 43.0                     | 52.1                     | 43.0                     |                     |                           |
| 17:00 – 18:00 | 85.8             | 50.4                    | 40.0                     | 52.4                     | 43.0                     |                     |                           |
| 18:00 – 19:00 | 68.6             | 46.6                    | 40.0                     | 49.1                     | 41.0                     |                     |                           |
| 19:00 – 20:00 | 74.2             | 46.2                    | 38.0                     | 49.3                     | 41.0                     |                     |                           |
| 20:00 – 21:00 | 72.4             | 45.5                    | 36.0                     | 46.3                     | 37.0                     |                     |                           |
| 21:00 – 22:00 | 64.6             | 42.3                    | 32.0                     | 44.2                     | 34.0                     |                     |                           |
| 22:00 – 23:00 | 66.5             | 41.2                    | 31.0                     | 45.8                     | 33.0                     | 47.4                | 35.0                      |
| 23:00 – 00:00 | 67.6             | 40.8                    | 33.0                     | 44.1                     | 34.0                     |                     |                           |
| 00:00 – 01:00 | 66.4             | 33.5                    | 30.0                     | 43.5                     | 32.0                     |                     |                           |
| 01:00 – 02:00 | 72.7             | 33.4                    | 29.0                     | 49.5                     | 29.0                     |                     |                           |
| 02:00 – 03:00 | 60.9             | 39.2                    | 31.0                     | 42.7                     | 37.0                     |                     |                           |
| 03:00 – 04:00 | 70.9             | 33.7                    | 30.0                     | 46.3                     | 38.0                     |                     |                           |
| 04:00 – 05:00 | 63.2             | 34.4                    | 30.0                     | 37.6                     | 31.0                     |                     |                           |
| 05:00 – 06:00 | 69.2             | 41.5                    | 31.0                     | 46.9                     | 32.0                     |                     |                           |
| 06:00 – 07:00 | 73.0             | 42.3                    | 34.0                     | 45.8                     | 33.0                     |                     |                           |



Sound Pressure Levels, dB. Reference level of  $2 \times 10^{-5} \text{ Nm}^{-2}$

### 9.3 24<sup>th</sup> – 25<sup>th</sup> August 2024

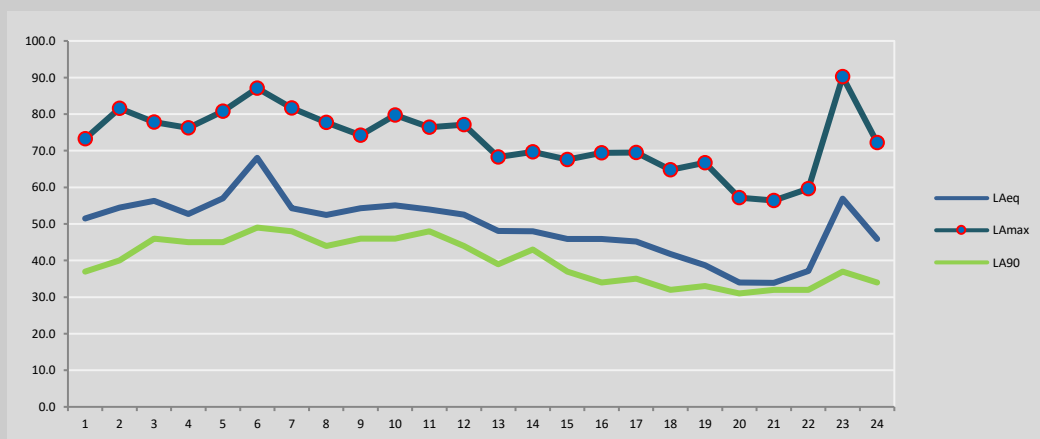
| Time          | L <sub>Max</sub> | Minimum 15 minute       |                          | 1 Hour                   |                          | Day and Night       |                           |
|---------------|------------------|-------------------------|--------------------------|--------------------------|--------------------------|---------------------|---------------------------|
| Period        |                  | L <sub>Aeq,15 min</sub> | L <sub>A90, 15 min</sub> | L <sub>Aeq, 1 hour</sub> | L <sub>A90, 1 hour</sub> | L <sub>Aeq, t</sub> | L <sub>A90, 16hours</sub> |
| 07:00 – 08:00 | 71.3             | 50.1                    | 39.0                     | 52.4                     | 42.0                     | 51.8                | 43.0                      |
| 08:00 – 09:00 | 85.7             | 51.2                    | 37.0                     | 56.4                     | 40.0                     |                     |                           |
| 09:00 – 10:00 | 69.3             | 52.1                    | 48.0                     | 54.6                     | 49.0                     |                     |                           |
| 10:00 – 11:00 | 71.3             | 50.1                    | 43.0                     | 54.2                     | 50.0                     |                     |                           |
| 11:00 – 12:00 | 69.3             | 47.3                    | 37.0                     | 49.7                     | 39.0                     |                     |                           |
| 12:00 – 13:00 | 84.4             | 48.6                    | 38.0                     | 53.5                     | 38.0                     |                     |                           |
| 13:00 – 14:00 | 71.7             | 48.0                    | 37.0                     | 49.8                     | 38.0                     |                     |                           |
| 14:00 – 15:00 | 77.1             | 50.2                    | 38.0                     | 53.1                     | 40.0                     |                     |                           |
| 15:00 – 16:00 | 75.1             | 48.5                    | 38.0                     | 53.1                     | 39.0                     |                     |                           |
| 16:00 – 17:00 | 72.2             | 48.4                    | 40.0                     | 49.7                     | 41.0                     |                     |                           |
| 17:00 – 18:00 | 66.6             | 47.6                    | 40.0                     | 49.1                     | 41.0                     |                     |                           |
| 18:00 – 19:00 | 71.0             | 47.0                    | 39.0                     | 49.7                     | 42.0                     |                     |                           |
| 19:00 – 20:00 | 64.4             | 45.1                    | 36.0                     | 47.0                     | 38.0                     |                     |                           |
| 20:00 – 21:00 | 70.7             | 44.0                    | 34.0                     | 47.4                     | 34.0                     |                     |                           |
| 21:00 – 22:00 | 70.5             | 43.5                    | 33.0                     | 44.7                     | 35.0                     |                     |                           |
| 22:00 – 23:00 | 66.4             | 41.4                    | 33.0                     | 42.5                     | 34.0                     | 46.3                | 32.0                      |
| 23:00 – 00:00 | 69.7             | 40.4                    | 33.0                     | 45.3                     | 34.0                     |                     |                           |
| 00:00 – 01:00 | 64.3             | 31.0                    | 30.0                     | 39.2                     | 31.0                     |                     |                           |
| 01:00 – 02:00 | 60.8             | 31.3                    | 30.0                     | 38.0                     | 30.0                     |                     |                           |
| 02:00 – 03:00 | 62.4             | 32.1                    | 30.0                     | 46.1                     | 30.0                     |                     |                           |
| 03:00 – 04:00 | 57.2             | 32.2                    | 30.0                     | 34.6                     | 30.0                     |                     |                           |
| 04:00 – 05:00 | 62.5             | 31.4                    | 30.0                     | 40.4                     | 30.0                     |                     |                           |
| 05:00 – 06:00 | 71.3             | 41.5                    | 31.0                     | 50.2                     | 34.0                     |                     |                           |
| 06:00 – 07:00 | 71.0             | 46.5                    | 34.0                     | 42.5                     | 34.0                     |                     |                           |



Sound Pressure Levels, dB. Reference level of  $2 \times 10^{-5} \text{ Nm}^{-2}$

## 9.4 25<sup>th</sup> – 26<sup>th</sup> August 2024

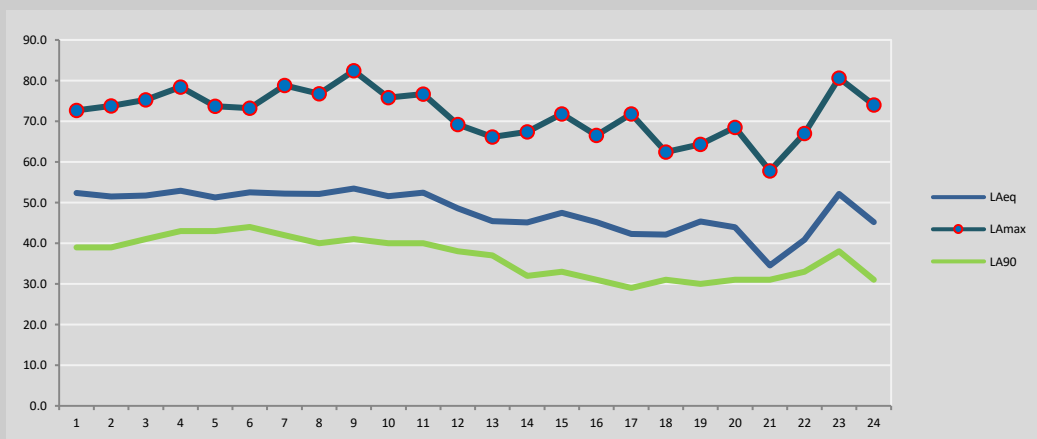
| Time          | L <sub>Max</sub> | Minimum 15 minute       |                          | 1 Hour                   |                          | Day and Night       |                           |
|---------------|------------------|-------------------------|--------------------------|--------------------------|--------------------------|---------------------|---------------------------|
| Period        |                  | L <sub>Aeq,15 min</sub> | L <sub>A90, 15 min</sub> | L <sub>Aeq, 1 hour</sub> | L <sub>A90, 1 hour</sub> | L <sub>Aeq, t</sub> | L <sub>A90, 16hours</sub> |
| 07:00 – 08:00 | 73.3             | 49.5                    | 36.0                     | 51.5                     | 37.0                     | 57.8                | 45.0                      |
| 08:00 – 09:00 | 81.6             | 50.4                    | 39.0                     | 54.5                     | 40.0                     |                     |                           |
| 09:00 – 10:00 | 77.8             | 53.4                    | 45.0                     | 56.3                     | 46.0                     |                     |                           |
| 10:00 – 11:00 | 76.2             | 51.8                    | 44.0                     | 52.7                     | 45.0                     |                     |                           |
| 11:00 – 12:00 | 80.8             | 50.6                    | 44.0                     | 57.0                     | 45.0                     |                     |                           |
| 12:00 – 13:00 | 87.1             | 56.4                    | 47.0                     | 68.1                     | 49.0                     |                     |                           |
| 13:00 – 14:00 | 81.7             | 52.0                    | 47.0                     | 54.3                     | 48.0                     |                     |                           |
| 14:00 – 15:00 | 77.7             | 49.9                    | 42.0                     | 52.4                     | 44.0                     |                     |                           |
| 15:00 – 16:00 | 74.2             | 51.0                    | 45.0                     | 54.3                     | 46.0                     |                     |                           |
| 16:00 – 17:00 | 79.7             | 51.7                    | 45.0                     | 55.1                     | 46.0                     |                     |                           |
| 17:00 – 18:00 | 76.4             | 52.9                    | 45.0                     | 53.9                     | 48.0                     |                     |                           |
| 18:00 – 19:00 | 77.1             | 51.6                    | 39.0                     | 52.5                     | 44.0                     |                     |                           |
| 19:00 – 20:00 | 68.3             | 45.4                    | 39.0                     | 48.1                     | 39.0                     |                     |                           |
| 20:00 – 21:00 | 69.7             | 47.3                    | 41.0                     | 48.0                     | 43.0                     |                     |                           |
| 21:00 – 22:00 | 67.6             | 42.7                    | 36.0                     | 45.9                     | 37.0                     |                     |                           |
| 22:00 – 23:00 | 69.4             | 42.5                    | 33.0                     | 45.8                     | 34.0                     | 49.5                | 34.0                      |
| 23:00 – 00:00 | 69.5             | 38.3                    | 32.0                     | 45.2                     | 35.0                     |                     |                           |
| 00:00 – 01:00 | 64.8             | 36.3                    | 30.0                     | 41.8                     | 32.0                     |                     |                           |
| 01:00 – 02:00 | 66.7             | 37.2                    | 31.0                     | 38.7                     | 33.0                     |                     |                           |
| 02:00 – 03:00 | 57.2             | 32.3                    | 31.0                     | 34.0                     | 31.0                     |                     |                           |
| 03:00 – 04:00 | 56.4             | 32.9                    | 31.0                     | 33.9                     | 32.0                     |                     |                           |
| 04:00 – 05:00 | 59.6             | 33.8                    | 32.0                     | 37.1                     | 32.0                     |                     |                           |
| 05:00 – 06:00 | 90.2             | 41.6                    | 34.0                     | 56.9                     | 37.0                     |                     |                           |
| 06:00 – 07:00 | 72.2             | 45.6                    | 36.0                     | 45.8                     | 34.0                     |                     |                           |



Sound Pressure Levels, dB. Reference level of  $2 \times 10^{-5} \text{ Nm}^{-2}$

## 9.5 26<sup>th</sup> – 27<sup>th</sup> August 2024

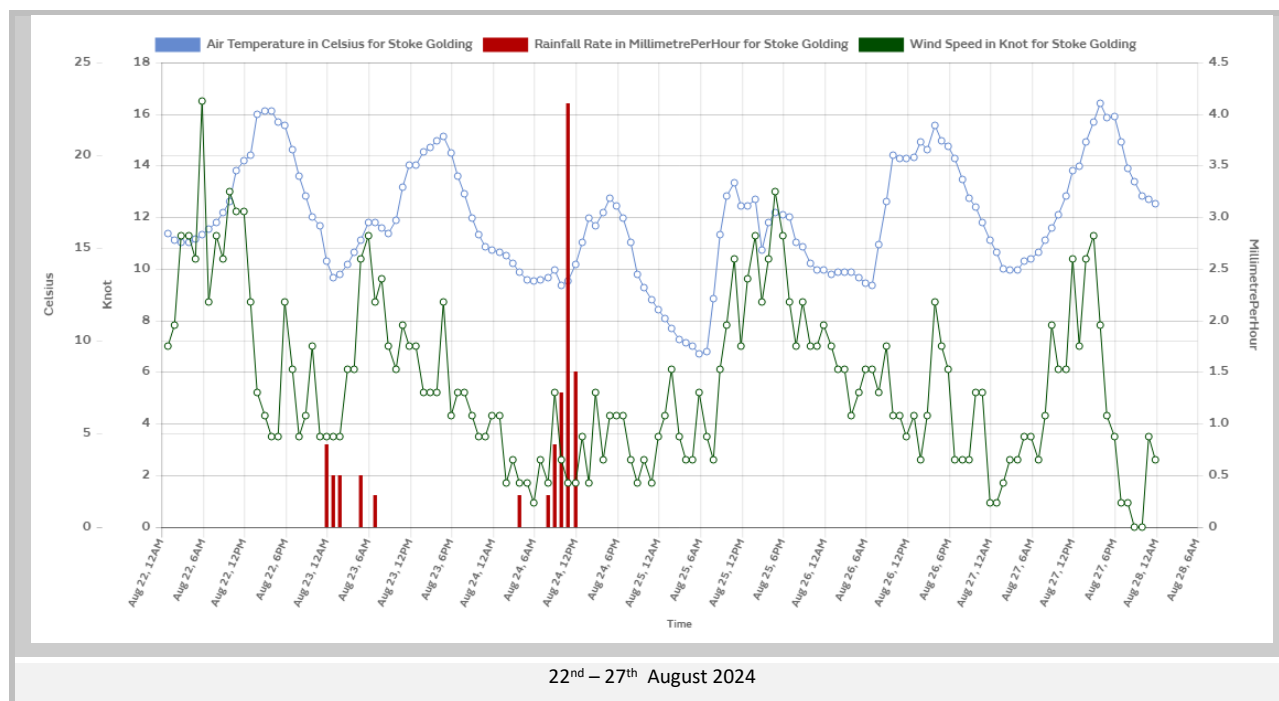
| Time          | L <sub>Max</sub> | Minimum 15 minute       |                          | 1 Hour                   |                          | Day and Night       |                           |
|---------------|------------------|-------------------------|--------------------------|--------------------------|--------------------------|---------------------|---------------------------|
| Period        |                  | L <sub>Aeq,15 min</sub> | L <sub>A90, 15 min</sub> | L <sub>Aeq, 1 hour</sub> | L <sub>A90, 1 hour</sub> | L <sub>Aeq, t</sub> | L <sub>A90, 16hours</sub> |
| 07:00 – 08:00 | 72.7             | 49.2                    | 38.0                     | 52.4                     | 39.0                     | 51.1                | 40.0                      |
| 08:00 – 09:00 | 73.8             | 47.2                    | 39.0                     | 51.5                     | 39.0                     |                     |                           |
| 09:00 – 10:00 | 75.3             | 48.4                    | 41.0                     | 51.7                     | 41.0                     |                     |                           |
| 10:00 – 11:00 | 78.4             | 48.6                    | 41.0                     | 52.9                     | 43.0                     |                     |                           |
| 11:00 – 12:00 | 73.7             | 49.4                    | 42.0                     | 51.3                     | 43.0                     |                     |                           |
| 12:00 – 13:00 | 73.2             | 50.9                    | 42.0                     | 52.5                     | 44.0                     |                     |                           |
| 13:00 – 14:00 | 78.8             | 50.1                    | 41.0                     | 52.2                     | 42.0                     |                     |                           |
| 14:00 – 15:00 | 76.8             | 49.1                    | 39.0                     | 52.1                     | 40.0                     |                     |                           |
| 15:00 – 16:00 | 82.4             | 52.7                    | 40.0                     | 53.4                     | 41.0                     |                     |                           |
| 16:00 – 17:00 | 75.8             | 49.1                    | 40.0                     | 51.5                     | 40.0                     |                     |                           |
| 17:00 – 18:00 | 76.7             | 49.9                    | 38.0                     | 52.4                     | 40.0                     |                     |                           |
| 18:00 – 19:00 | 69.2             | 46.5                    | 36.0                     | 48.6                     | 38.0                     |                     |                           |
| 19:00 – 20:00 | 66.1             | 43.6                    | 34.0                     | 45.5                     | 37.0                     |                     |                           |
| 20:00 – 21:00 | 67.4             | 42.0                    | 32.0                     | 45.1                     | 32.0                     |                     |                           |
| 21:00 – 22:00 | 71.8             | 39.1                    | 32.0                     | 47.5                     | 33.0                     |                     |                           |
| 22:00 – 23:00 | 66.5             | 41.4                    | 30.0                     | 45.2                     | 31.0                     | 47.8                | 35.0                      |
| 23:00 – 00:00 | 71.8             | 32.2                    | 29.0                     | 42.3                     | 29.0                     |                     |                           |
| 00:00 – 01:00 | 62.4             | 35.1                    | 30.0                     | 42.1                     | 31.0                     |                     |                           |
| 01:00 – 02:00 | 64.3             | 34.3                    | 30.0                     | 45.4                     | 30.0                     |                     |                           |
| 02:00 – 03:00 | 68.5             | 32.8                    | 30.0                     | 43.9                     | 31.0                     |                     |                           |
| 03:00 – 04:00 | 57.8             | 32.1                    | 30.0                     | 34.5                     | 31.0                     |                     |                           |
| 04:00 – 05:00 | 67.0             | 37.4                    | 32.0                     | 40.9                     | 33.0                     |                     |                           |
| 05:00 – 06:00 | 80.6             | 46.6                    | 36.0                     | 52.1                     | 38.0                     |                     |                           |
| 06:00 – 07:00 | 74.0             | 52.6                    | 39.0                     | 45.2                     | 31.0                     |                     |                           |



Sound Pressure Levels, dB. Reference level of  $2 \times 10^{-5} \text{ Nm}^{-2}$

## 10 APPENDIX B – WEATHER CONDITIONS

### 10.1 22<sup>nd</sup> – 27<sup>th</sup> August 2024



# END OF REPORT #