SYNTEGRA CONSULTING

Unit 7, Langstone Technology Park, Havant, Hampshire, PO9 1SA

# Plant Noise Assessment

June 2026

Ref: 26-16285 PNA Rev C

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# 1. Executive Summary

A plant noise assessment has been carried out for the proposed installation at **Unit 7, Langstone Technology Park, Langstone Road, Havant, Hampshire, PO9 1SA**.

The proposed site is located in an industrial area of Havant, with the surrounding units filled with a multitude of businesses. The nearest office has been determined using Google Maps as Ocean Scientific International Ltd and calculated as 30 m from the proposed flume stacks. There is also a residential NSR, 11 Brookmead Way, approximately 100 m to the east of the proposed flume stacks. The current ambient noise sources in the area include the use of the existing industrial park and road traffic movements on the A27 (Havant Bypass).

The proposal (Planning Application Reference: APP/25/01040) is for the fitout of an industrial unit, which will include 3 exhaust fans. Additionally, seven air con units will be located externally to the building at ground floor level. All plant will operate between 0900 hours and 1700 hours, Monday to Friday.

The results of the assessment have identified:

- The plant without mitigation would achieve an initial rating of an adverse impact.
- Mitigation measures have been selected to reduce the risk to low impact and to achieve the requirements of the Local Authority:
    - Acoustic Silencer – The client has selected an acoustic silencer to be used to improve the acoustic performance of the extract system. Calculations show that using the acoustic silencer selected on the exhaust fans reduces the combined noise rating levels to meet the LA criteria.
- The plant with mitigation would achieve a rating of low impact, depending on context.
- Taking into account the context of the surrounding area, the proposed plant combined rating level with migration applied is 4 dB below the existing ambient noise level. Therefore, the new units will not increase or be observed above the existing ambient noise level.
- **The units with mitigation applied would achieve the requirements of the Local Authority.**

**Achievement of the target noise criteria will ensure compliance with the aims of the NPPF and the PPG in that it will avoid noise from giving rise to significant adverse impacts on health or quality of life on nearby noise sensitive receptors.**

## 2. Introduction

This report has been prepared to assess the impact of plant noise from **Unit 7, Langstone Technology Park, Langstone Road, Havant, Hampshire, PO9 1SA,** due to the proposed plant installation.

The proposal (Planning Application Reference: APP/25/01040) is for the fitout of an industrial unit, which will include 3 exhaust fans. Additionally, seven air con units will be located externally to the building at ground floor level. All plant will operate between 0900 hours and 1700 hours, Monday to Friday.

The report assesses, through on-site noise measurements, the impact of the proposed plant on the surrounding noise-sensitive receptors.

A glossary of acoustic terminology is provided in **Appendix 1**.

The proposed site is located in an industrial area of Havant, with the surrounding units filled with a multitude of businesses. The nearest office has been determined using Google Maps as Ocean Scientific International Ltd and calculated as 30 m from the proposed flume stacks. There is also a residential NSR, 11 Brookmead Way, approximately 100 m to the east of the proposed flume stacks. The current ambient noise sources in the area include the use of the existing industrial park and road traffic movements on the A27 (Havant Bypass).

The location of the proposed development site is provided in **Figure 2.1**.

*Figure 2.1: Site Location*

# 3. Planning Policy

## 3.1. EHO Comments (Planning Application Reference: APP/25/01040)

**The local environment health office, Craig Milligan, said the following:**

> *The JB Architect's Noise Assessment has been reviewed. While some indicative noise information has been provided (e.g., extraction systems listed as having a sound level of <80 dB), and the report notes that the plant will be located within an industrial area, the submission lacks sufficient detail to determine the cumulative noise impact from the proposed three exhaust vents and the potential effect on nearby sensitive receptors, including the offices within neighbouring units.*
>
> *Further information is therefore required to include a noise impact assessment compiled by a suitably qualified acoustician. The report must identify sensitive receptors in the vicinity and demonstrate that the cumulative noise level from the proposed plant shall not cause adverse impact to occupiers of nearby buildings. The assessment must consider all relevant guidance including BS4142:2014+A1:2019 and BS8233:2014 and include noise mitigation measures where appropriate.*

## 3.2. National Planning Policy Framework

The National Planning Policy Framework (NPPF) was released in March 2012 and last updated in December 2024. The purpose of the planning system is to contribute to the achievement of sustainable development and to encourage good design. There are three dimensions to sustainable development: economic, social and environmental.

Central to the NPPF, paragraph 10 states: *'At the heart of the National Planning Policy Framework is a* ***presumption in favour of*** **[permitting]** ***sustainable development***'. This is expanded upon in paragraph 11, where it is stated:

*'…For* ***decision-taking*** *this means:*

- *approving development proposals that accord with an up-to-date development plan without delay; or*
- *where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date, granting permission unless:*
  - *i. the application of policies in this Framework that protect areas or assets of particular importance provides a clear reason for refusing the development proposed; or*
  - *ii. any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole, having particular regard to key policies for directing development to sustainable locations, making effective use of land, securing well-designed places and providing affordable homes, individually or in combination.*

Paragraph 187 states 'Planning policies and decisions should contribute to and enhance the natural and local environment by… preventing new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by, unacceptable levels of… noise pollution…'.

Paragraph 198 states: '*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:*

- *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 (see Explanatory Note to the Noise Policy Statement for England (DEFRA)).*
- *identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; …'*

### 3.3. **Noise Policy Statement for England**

The Noise Policy Statement for England (NPSE) aims to '*through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:*

- *avoid significant adverse impacts on health and quality of life;*
- *mitigate and minimise adverse impacts on health and quality of life; and*
- *where possible, contribute to the improvement of health and quality of life'.*

# 4. Guidance Documents

## 4.1. Planning Practice Guidance for Noise

The Planning Practice Guidance for Noise (PPG-Noise) was published in March 2014 and last updated in July 2019. The PPG provides advice on how to determine the noise impact on development:

*'Plan-making and decision making need to take account of the acoustic environment and in doing so consider:*

- *whether or not a significant adverse effect is occurring or likely to occur;*
- *whether or not an adverse effect is occurring or likely to occur; and*
- *whether or not a good standard of amenity can be achieved.*

*In line with the Explanatory Note of the Noise Policy Statement for England, this would include identifying whether the overall effect of the noise exposure (including the impact during the construction phase wherever applicable) is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation. As noise is a complex technical issue, it may be appropriate to seek experienced specialist assistance when applying this policy.'*

The document goes on to provide a definition for the levels of noise exposure at which an effect may occur:

*'**Significant observed adverse effect level:** this is the level of noise exposure above which significant adverse effects on health and quality of life occur.*

***Lowest observed adverse effect level:** this is the level of noise exposure above which adverse effects on health and quality of life can be detected.*

***No observed effect level:** this is the level of noise exposure below which no effect at all on health and quality of life can be detected.'*

It is important to understand that as the PPG-Noise does not provide any advice with respect to specific noise levels/ limits for different sources of noise, it is appropriate to consider other sources of advice and guidance documents when considering whether new developments would be sensitive to the prevailing acoustic environment.

## 4.2. British Standard 4142:2014

British Standard 4142:2014 "*Methods for rating and assessing industrial and commercial sound*" provides a method for the measurement and rating of industrial type noise sources and background noise levels outside dwellings. The rating level (defined in the BS) is used to rate the noise source outside residential dwellings (this is defined as the "specific sound level").

The rating level is determined by assessing the character of the noise and applying an acoustic feature correction if appropriate. Corrections are applied for the tonality and intermittency of the noise source which can both make noise more noticeable.

The initial assessment described in BS 4142 to determine whether an adverse impact is likely is based on establishing the difference between the rating level and the background noise level outside the

residential property of interest. The British Standard states that the following points should be considered:

- *'Typically, the greater this difference, the greater the magnitude of the impact.*
- *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.*
- *A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.*
- *The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.'*

Where it is considered that the initial assessment of the impact needs to be modified due to the context in which the noise is occurring, BS 4142 suggests that all pertinent factors are taken into consideration, including:

1) *'The absolute level of sound. For a given difference between the rating level and the background sound level, the magnitude of the overall impact might be greater for an acoustic environment where the residual sound level is high than for an acoustic environment where the residual sound level is low.*

   *Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.*

   *Where residual sound [1]levels are very high, the residual sound might itself result in adverse impacts or significant adverse impacts, and the margin by which the rating level exceeds the background might simply be an indication of the extent to which the specific sound source is likely to make those impacts worse.*

2) *The character and level of the residual sound compared to the character and level of the specific sound. Consider whether it would be beneficial to compare the frequency spectrum and temporal variation of the specific sound with that of the ambient or residual sound, to assess the degree to which the specific sound source is likely to be distinguishable and will represent an incongruous sound by comparison to the acoustic environment that would occur in the absence of the specific sound. Any sound parameters, sampling periods and averaging time periods used to undertake character comparisons should reflect the way in which sound of an industrial and/or commercial nature is likely to be perceived and how people react to it.*

3) *The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions, such as:*

[1] The residual sound is defined as the ambient sound level at the assessment location in the absence of the specific sound source.

*i) facade insulation treatment;*

*ii) ventilation and/or cooling that will reduce the need to have windows open so as to provide rapid or purge ventilation; and*

*ii) acoustic screening.'*

There is also a requirement within BS 4142:2014 to consider the uncertainty in the measurement and assessment procedure and it is stated that '*The level of uncertainty associated with a measurement of sound level depends upon a number of factors, including:*

*a) the complexity of the sound source and the level of variability in sound emission from the source;*
*b) the complexity and level of variability of the residual acoustic environment;*
*c) the level of residual sound in the presence of the specific sound at the measurement location;*
*d) the location(s) selected for taking the measurements;*
*e) the distance between sources of sound and the measurement location and intervening ground conditions;*
*f) the number of measurements taken;*
*g) the measurement time intervals;*
*h) the range of times when the measurements have been taken;*
*i) the range of suitable weather conditions during which measurements have been taken;*
*j) the measurement method and variability between different practitioners in the way the method is applied;*
*k) the level of rounding of each measurement recorded; and*
*l) the instrumentation used.'*

The most important factor to consider when addressing uncertainty is the extent to which it would influence the overall conclusions of the assessment.

## 5. Baseline Noise Levels

In order to determine the baseline noise levels in the vicinity of the proposed plant, measurements have been carried out in order to characterise the existing noise climate during the most sensitive times of operation over a 4-day period between 0945 hrs on Friday, 27th February 2026 and 0905 hrs on Monday, 2nd March 2026.

The current ambient noise sources in the area include the use of the existing industrial park and road traffic movements on the A27 (Havant Bypass).

The noise measurements utilised a Svantek 307a Type 1 Precision Sound Level Meter with a current certificate of calibration; the full list of equipment is detailed in **Appendix 3**. Before and after the measurement period, the equipment was calibrated in order to ensure that the equipment had remained within reasonable calibration limits (+/- 0.5 dB). Noise Measurements were carried out in consecutive 5-minute periods with a 1-second resolution.

During the noise measurement survey, the temperature reached a high of 12°C during the day, dropping to a low of approximately 6°C overnight. Wind speeds were generally low throughout the survey (up to 3 m/s). Wind direction was predominantly southern. Cloud cover was noted to be 80% at the start and 25% at the finish. Rain occurred during the afternoon of Friday, 27th February, the morning of Saturday, 28th February and the morning of Sunday, 1st March 2026. Data affected by metrological conditions have been removed from the data set.

Noise measurements were carried out over a four-day period at Measurement Position 1 (MP1), in a location classed as a free field measurement position. The SLM was attached to a publicly accessible lamppost directly opposite the NSRs at 1st floor height. This location was selected as being representative of the background noise levels of both neighbouring NSRs. It should be noted that the road was currently blocked, therefore further reducing the background noise level.

The noise monitoring position is shown in **Figure 5.1**.

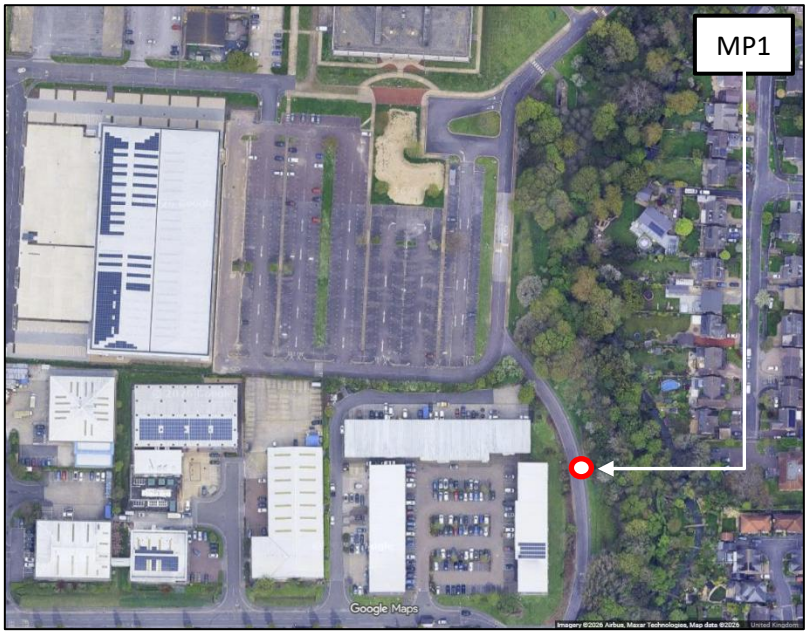



*Figure 5.1: Noise Monitoring Location*

**Table 5.1** below displays a summary of the measured noise levels and detailed measurement results are presented in **Appendix 4**.

| Measurement Position | Period (hours) | $L_{Aeq,T}$ (dB) | Typical $L_{A90}$ (dB) |
|---|---|---|---|
| MP1 | Daytime (0700-2300) | 52 | 48 |
| | Night-time (2300-0700) | 49 | 38 |

*Table 5.1: Summary of Free Field Semi-Permanent Noise Levels*

**Note: The average noise levels stated are logarithmic for $L_{Aeq}$. The typical $L_{A90}$ is the most commonly measured $L_{A90,5min}$ during the assessment time period (a detailed assessment is provided in Appendix 3).**

# 6. Plant Noise Levels

## 6.1. Plant Noise Levels – Manufacturers Data

The plant noise levels have been obtained from manufacturers data obtained supplied by the client. There are 3 units in total:

- 1 x AL-550 (exhaust fan)
- 2 x AL-750 (exhaust fan)
- 1 x U-10ME2E8
- 1 x U-14ME2E8
- 2 x U-16ME2E8
- 2 x U-250ZH4E8
- 1 x TZ35-ZKE

A summary of the manufacturers' noise levels are presented in **Table 6.1.**

| Plant Reference | Quoted Sound Power Level $L_{wA}$ (dB) | Calculated Sound Presure Level @ 1m $L_{Aeq}$ (dB) |
|---|---|---|
| AL-750 (exhaust fan) | 84 | 76 |
| AL-550 (exhaust fan) | 81 | 73 |
| U-10ME2E8 | 79 | 71 |
| U-14ME2E8 | 83 | 75 |
| U-16ME2E8 | 84 | 76 |
| U-250ZH4E8 | 82 | 74 |
| TZ35-ZKE | 72 | 64 |

*Table 6.1: Plant Noise Levels*

### 6.1.1. Plant Noise Levels – Penalties

The plant noise levels and operating conditions have been assessed by Syntegra in line with the advice provided within BS 4142:2014 and the following penalties will be added:

- Tonality: 0 dB
- Impulsivity: + 3 dB to account for their sporadic use.
- Noticeable feature (e.g. hum, whine, hiss): +3 dB for an audible hum due to the low frequency content of the noise.

**The total penalty for the plant noise level features will therefore be +6 dB.**

## 6.2. Receptor Noise Levels

The future plant noise levels at the nearest noise-sensitive receptors have been predicted using standard acoustic formulae based on the measured noise levels and are detailed in **Table 6.2**.

| | Noise Sensitive Receptors | |
|---|---|---|
| | **NSR 1 Ocean Scientific International Ltd** | **NSR 2 11 Brookmead Way** |
| **AL-750** | | |
| Sound Pressure Level at 1m from the end of duct ($L_{Aeq}$ dB) | 76 | |
| Correction for additional unit (dB) | + 3 | |
| Distance to Nearest Habitable Room Window (approx.) | 30 m | 100 m |
| Distance Correction (dB) | - 30 | - 40 |
| Predicted Noise Level at Receptor ($L_{Aeq}$ dB) | 49 | 39 |
| **AL-550** | | |
| Sound Pressure Level at 1m from the end of duct ($L_{Aeq}$ dB) | 73 | |
| Distance to Nearest Habitable Room Window (approx.) | 30 m | 100 m |
| Distance Correction (dB) | - 30 | - 40 |
| Predicted Noise Level at Receptor ($L_{Aeq}$ dB) | 43 | 33 |
| **U-10ME2E8** | | |
| Sound Pressure Level at 1m from unit ($L_{Aeq}$ dB) | 71 | |
| Distance to Nearest Habitable Room Window (approx.) | 123 m | 106 m |
| Distance Correction (dB) | - 42 | - 41 |
| Predicted Noise Level at Receptor ($L_{Aeq}$ dB) | 29 | 30 |
| **U-14ME2E8** | | |
| Sound Pressure Level at 1m from unit ($L_{Aeq}$ dB) | 75 | |
| Distance to Nearest Habitable Room Window (approx.) | 123 m | 106 m |
| Distance Correction (dB) | - 42 | - 41 |
| Predicted Noise Level at Receptor ($L_{Aeq}$ dB) | 33 | 34 |
| **U-16ME2E8** | | |
| Sound Pressure Level at 1m from unit ($L_{Aeq}$ dB) | 76 | |
| Correction for additional unit (dB) | + 3 | |
| Distance to Nearest Habitable Room Window (approx.) | 123 m | 106 m |
| Distance Correction (dB) | - 42 | - 41 |
| Predicted Noise Level at Receptor ($L_{Aeq}$ dB) | 37 | 38 |
| **U-250ZH4E8** | | |
| Sound Pressure Level at 1m from unit ($L_{Aeq}$ dB) | 74 | |
| Correction for additional unit (dB) | + 3 | |
| Distance to Nearest Habitable Room Window (approx.) | 123 m | 106 m |
| Distance Correction (dB) | - 42 | - 41 |
| Predicted Noise Level at Receptor ($L_{Aeq}$ dB) | 35 | 36 |

| | Noise Sensitive Receptors | |
|---|---|---|
| | **NSR 1 Ocean Scientific International Ltd** | **NSR 2 11 Brookmead Way** |
| **TZ35-ZKE** | | |
| Sound Pressure Level at 1m from unit ($L_{Aeq}$ dB) | 64 | |
| Distance to Nearest Habitable Room Window (approx.) | 123 m | 106 m |
| Distance Correction (dB) | - 42 | - 41 |
| Predicted Noise Level at Receptor ($L_{Aeq}$ dB) | 22 | 23 |
| **Combined Total Noise Level** | | |
| **Predicted Total Noise Level at Receptor ($L_{Aeq}$ dB)** | **51** | **44** |

*Table 6.2: Predicted Non-Mitigated Plant Noise Levels*

## 7. Plant Noise Assessment – Full Assessment

The background noise level and plant noise data presented in **Sections 5** and **6** have been utilised to determine the noise impact at the nearest noise-sensitive receptor when assessed using the methodology in BS 4142:2014. The aim is to meet the requirements of the Local Authority, which is to be equal to the background noise level.

**Table 7.1** below summarises the BS 4142 assessment procedure carried out for the site.

| Results | Nearest Noise Sensitive Receptor (NSR1) | Nearest Noise Sensitive Receptor (NSR2) | Relevant Clauses of BS 4142:2014 | Commentary |
|---|---|---|---|---|
| Measured Ambient Sound Level | 52 | | 7.3.2 | Refer to **Table 5.1** |
| Residual Sound Level | 52 | | 7.3.3 | *The ambient noise level without the plant operating.* Refer to **Table 5.1** |
| Typical Background Sound Level $L_{A90}$ (dB) | 48 | | 8.1, 8.2 | Refer to **Table 5.1** |
| Specific Sound Level | 51 | 43 | 9.1, 9.2 | Refer to **Table 6.2** |
| Acoustic Feature Correction | + 6 | | 9.2 | Refer to **Section 6.1.1** |
| Rating Level $L_{Ar}$ (dB) | 57 | 49 | 9.1 | Specific Sound Level + Acoustic Feature Correction |
| Excess of Rating over Background Sound Level | + 9 | + 1 | 11 | |
| | Assessment indicates a likelihood of adverse impact | Assessment indicates a likelihood of low impact | 11 | |
| **Achievement of Local Authority Criteria** | **No** | **No** | n/a | Equal to $L_{A90}$ |

*Table 7.1: BS 4142 Assessment (without mitigation)*

**Table 7.1** indicates that an assessment in line with BS 4142 indicates that **the plant noise may cause a potential adverse impact upon the residents at the nearest noise-sensitive receptor, depending on context.**

The rating noise level is 9 dB above the LA criteria of being equal to the existing background noise level.

## 7.1. Context of the Noise Source (without mitigation)

BS 4142 advises that the "context" of the noise levels without mitigation needs to be considered to determine the results of the assessment.

The proposed plant combined rating level is 9 dB above the existing ambient noise level. Therefore, the new units will be observed above the existing ambient noise level.

**In consideration of the context of the noise source without mitigation applied, the plant would be expected to cause an adverse impact on the health or quality of life of the nearest noise sensitive receptors.**

## 7.2. Consideration of Uncertainty

The assessment has considered uncertainty by taking a cautious approach in terms of the likely noise levels from the activities and by taking conservative losses for the distance attenuation. The cautious approach means that the noise impact is more likely to be overstated, as opposed to understated, although it is not likely that the predicted noise levels would be significantly different from those stated within the report. Overall, it is unlikely that the conclusions of the assessment would be changed as a result of any uncertainty in the assessment process.

# 8. Mitigation

From the results of the BS 4142 assessment, a level of 9 dB sound attenuation is required in order to reduce the noise impact of the plant.

## 8.1. Silencer

The client has selected a mitigation strategy with the aim of reducing noise levels to meet existing background noise levels.

The client has selected a silencer with the following insertion loss, described as '*400mm dia and 500mm dia x 900mm long with 100mm insulation*'.

| Insertion Loss (dB) for Centre Frequency (HZ) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **65** | **125** | **250** | **500** | **1k** | **2k** | **4k** | **8k** |
| 3 | 7 | 12 | 20 | 35 | 34 | 27 | 20 |

*Table 8.1: Manufacturers Insertion Loss Values*

The manufacturer's insertion loss data indicate that the proposed duct silencer is capable of providing attenuation across the frequency spectrum, particularly within the mid and high frequency bands.

On the basis of the published performance data, the suggested silencer is expected to achieve a minimum attenuation of 14 dB(A) and a maximum of 28 dB(A), subject to the plant noise spectrum being representative of a typical mechanical services installation. For this assessment, we assumed a 14 dB(A) reduction as a worst case assessment.

## 8.2. Receptor Noise Levels (Mitigated)

The mitigated future plant noise levels at the nearest noise-sensitive receptors have been predicted using standard acoustic formulae based on the measured noise levels and are detailed in **Table 8.2**.

| | **Noise Sensitive Receptors** | |
|---|---|---|
| | **NSR 1 Ocean Scientific International Ltd** | **NSR 2 11 Brookmead Way** |
| **AL-750** | | |
| Sound Pressure Level at 1m from the end of duct ($L_{Aeq}$ dB) | 62 | |
| Correction for additional unit (dB) | + 3 | |
| Distance to Nearest Habitable Room Window (approx.) | 30 m | 100 m |
| Distance Correction (dB) | - 30 | - 40 |
| Predicted Noise Level at Receptor ($L_{Aeq}$ dB) | 35 | 22 |
| **AL-550** | | |
| Sound Pressure Level at 1m from the end of duct ($L_{Aeq}$ dB) | 59 | |
| Distance to Nearest Habitable Room Window (approx.) | 30 m | 100 m |
| Distance Correction (dB) | - 30 | - 40 |
| Predicted Noise Level at Receptor ($L_{Aeq}$ dB) | 29 | 19 |

| | Noise Sensitive Receptors | |
|---|---|---|
| | **NSR 1 Ocean Scientific International Ltd** | **NSR 2 11 Brookmead Way** |
| **U-10ME2E8** | | |
| Sound Pressure Level at 1m from unit ($L_{Aeq}$ dB) | 71 | |
| Distance to Nearest Habitable Room Window (approx.) | 123 m | 106 m |
| Distance Correction (dB) | - 42 | - 41 |
| Predicted Noise Level at Receptor ($L_{Aeq}$ dB) | 29 | 30 |
| **U-14ME2E8** | | |
| Sound Pressure Level at 1m from unit ($L_{Aeq}$ dB) | 75 | |
| Distance to Nearest Habitable Room Window (approx.) | 123 m | 106 m |
| Distance Correction (dB) | - 42 | - 41 |
| Predicted Noise Level at Receptor ($L_{Aeq}$ dB) | 33 | 34 |
| **U-16ME2E8** | | |
| Sound Pressure Level at 1m from unit ($L_{Aeq}$ dB) | 76 | |
| Correction for additional unit (dB) | + 3 | |
| Distance to Nearest Habitable Room Window (approx.) | 123 m | 106 m |
| Distance Correction (dB) | - 42 | - 41 |
| Predicted Noise Level at Receptor ($L_{Aeq}$ dB) | 37 | 38 |
| **U-250ZH4E8** | | |
| Sound Pressure Level at 1m from unit ($L_{Aeq}$ dB) | 74 | |
| Correction for additional unit (dB) | + 3 | |
| Distance to Nearest Habitable Room Window (approx.) | 123 m | 106 m |
| Distance Correction (dB) | - 42 | - 41 |
| Predicted Noise Level at Receptor ($L_{Aeq}$ dB) | 35 | 36 |
| **TZ35-ZKE** | | |
| Sound Pressure Level at 1m from unit ($L_{Aeq}$ dB) | 64 | |
| Distance to Nearest Habitable Room Window (approx.) | 123 m | 106 m |
| Distance Correction (dB) | - 42 | - 41 |
| Predicted Noise Level at Receptor ($L_{Aeq}$ dB) | 22 | 23 |
| **Combined Total Noise Level** | | |
| **Predicted Total Noise Level at Receptor ($L_{Aeq}$ dB)** | **42** | **42** |

*Table 8.1: Predicted Mitigated Plant Noise Levels*

**Table 8.2** below summarises the BS 4142 assessment procedure carried out for the site using the mitigated noise levels in **Table 8.1.**

| Results | Nearest Noise Sensitive Receptor (NSR1) | Nearest Noise Sensitive Receptor (NSR2) | Relevant Clauses of BS 4142:2014 | Commentary |
|---|---|---|---|---|
| Measured Ambient Sound Level | 52 | | 7.3.2 | Refer to **Table 5.1** |
| Residual Sound Level | 52 | | 7.3.3 | *The ambient noise level without the plant operating.* Refer to **Table 5.1** |
| Typical Background Sound Level $L_{A90}$ (dB) | 48 | | 8.1, 8.2 | Refer to **Table 5.1** |
| Mitigated Specific Sound Level | 42 | 42 | 9.1, 9.2 | Refer to **Table 8.2** |
| Acoustic Feature Correction | + 6 | | 9.2 | Refer to **Section 6.1.1** |
| Mitigated Rating Level $L_{Ar}$ (dB) | 48 | 48 | 9.1 | Specific Sound Level + Acoustic Feature Correction |
| Excess of Rating over Background Sound Level | 0 | 0 | 11 | |
| | Assessment indicates a likelihood of low impact | Assessment indicates a likelihood of low impact | 11 | |
| **Achievement of Local Authority Criteria** | **Yes** | **Yes** | n/a | Equal to $L_{A90}$ |

*Table 8.2: BS 4142 Assessment (with mitigation)*

**Table 8.2** indicates that an assessment in line with BS 4142 indicates that **the plant noise, once mitigated, may cause a potential low impact upon the residents at the nearest noise-sensitive receptor, depending on context.**

**The rating noise level meets LA criteria of being equal to the existing background noise level.**

## 8.3. Context of the Noise Source (with mitigation)

BS 4142 advises that the "context" of the noise levels with mitigation needs to be considered to determine the results of the assessment.

The proposed plant rating level is 4 dB below the existing ambient noise level. Therefore, the new units will not increase or be observed above the existing ambient noise level.

**In consideration of the context of the noise source with mitigation applied, the plant would not be expected to cause an adverse impact on the health or quality of life of the nearest noise sensitive receptors.**

## 9. Conclusion

A plant noise assessment has been carried out for the proposed installation at **Unit 7, Langstone Technology Park, Langstone Road, Havant, Hampshire, PO9 1SA**.

The proposal (Planning Application Reference: APP/25/01040) is for the fitout of an industrial unit, which will include 3 exhaust fans. Additionally, seven air con units will be located externally to the building at ground floor level. All plant will operate between 0900 hours and 1700 hours, Monday to Friday.

The results of the assessment have identified:

- The plant without mitigation would achieve an initial rating of an adverse impact.
- Mitigation measures have been selected to reduce the risk to low impact and to achieve the requirements of the Local Authority:
    - Acoustic Silencer – The client has selected an acoustic silencer to be used to improve the acoustic performance of the extract system. Calculations show that using the acoustic silencer selected on the exhaust fans reduces the combined noise rating levels to meet the LA criteria.
- The plant with mitigation would achieve a rating of low impact, depending on context.
- Taking into account the context of the surrounding area, the proposed plant combined rating level with migration applied is 4 dB below the existing ambient noise level. Therefore, the new units will not increase or be observed above the existing ambient noise level.
- **The units with mitigation applied would achieve the requirements of the Local Authority.**

**Achievement of the target noise criteria will ensure compliance with the aims of the NPPF and the PPG in that it will avoid noise from giving rise to significant adverse impacts on health or quality of life on nearby noise sensitive receptors.**

## 10. Appendix 1: Glossary of Acoustic Terminology

| Term | Description |
|---|---|
| ***'A'-Weighting*** | *This is the main way of adjusting measured sound pressure levels to take into account human hearing, and our uneven frequency response.* |
| ***Decibel (dB)*** | *This is a tenth (deci) of a bel. The decibel can be a measure of the magnitude of sound, changes in sound level and a measure of sound insulation. Decibels are not an absolute unit of measurement but are an expression of ratio between two quantities expressed in logarithmic form.* |
| $L_{Aeq,T}$ | *The equivalent steady sound level in dB containing the same acoustic energy as the actual fluctuating sound level over the given period, T. T may be as short as 1 second when used to describe a single event, or as long as 24 hours when used to describe the noise climate at a specified location.* $L_{Aeq,T}$ *can be measured directly with an integrating sound level meter.* |
| $L_{A10}$ | *The 'A'-weighted sound pressure level of the residual noise in decibels exceeded for 10 per cent of a given time and is the* $L_{A10T}$*. The* $L_{A10}$ *is used to describe the levels of road traffic noise at a particular location.* |
| $L_{A50}$ | *The 'A'-weighted sound pressure level of the residual noise in decibels exceeded for 50 per cent of a given time and is the* $L_{A50T}$*.* |
| $L_{A90}$ | *The 'A'-weighted sound pressure level of the residual noise in decibels exceeded for 90 per cent of a given time and is the* $L_{A90T}$*. The* $L_{A90}$ *is used to describe the background noise levels at a particular location.* |
| $L_{Amax}$ | *The 'A'-weighted maximum sound pressure level measured over a measurement period.* |

## 11. Appendix 2: Professional Statement

**Stephen Hale** BSc (Hons), MIOA

Stephen Hale is a respected full member of the Institute of Acoustics (MIOA) and holds a Bachelor of Science degree in Sound Engineering with honours, backed by a decade of experience in the field of acoustics.

Specialising in environmental noise measurement, Stephen excels in providing expert acoustic consultancy services for residential and mixed-use planning applications, managing plant noise for large-scale industrial projects, and contributing to the innovative design of music studios.

Additionally, Stephen offers valuable expertise in sound insulation testing and design advisory.

## 12. Appendix 3: List of Equipment

| Equipment Type | Manufacturer | Serial Number | Calibration Certification Number | Date of Last Calibration Check |
|---|---|---|---|---|
| SV307A Sound Level Meter | Svantek | 116136 | TCRT24/1724 | September 2024 |
| ST30A Microphone | Svantek | 114596 | TCRT24/1724 | September 2024 |

## 13. Appendix 4: Detailed Noise Measurement Results

Measured Noise levels – MP1 – Friday 27th Feb 2026

| Time | $L_{Aeq,T}$ (dB) | $L_{AF(max)}$ (dB) | $L_{A10}$ (dB) | $L_{A90}$ (dB) |
|---|---|---|---|---|
| 09:00-10:00 | 58 | 90 | 60 | 50 |
| 10:00-11:00 | 52 | 71 | 55 | 50 |
| 11:00-12:00 | 52 | 69 | 53 | 51 |
| 12:00-13:00 | 52 | 70 | 53 | 51 |
| 13:00-14:00 | 54 | 73 | 54 | 50 |
| 14:00-15:00 | 52 | 78 | 54 | 51 |
| 15:00-16:00 | 54 | 72 | 56 | 51 |
| 16:00-17:00 | 53 | 72 | 54 | 50 |
| 17:00-18:00 | 53 | 71 | 54 | 51 |
| 18:00-19:00 | 52 | 68 | 54 | 49 |
| 19:00-20:00 | 49 | 68 | 50 | 48 |
| 20:00-21:00 | 49 | 62 | 50 | 45 |
| 21:00-22:00 | 48 | 66 | 50 | 46 |
| 22:00-23:00 | 47 | 61 | 48 | 44 |
| 23:00-00:00 | 45 | 62 | 46 | 42 |
| **07:00-23:00** | **53** | **71** | **53** | **49** |
| **23:00-07:00** | **45** | **62** | **46** | **42** |

Measured Noise levels – MP1 – Saturday 28th Feb 2026

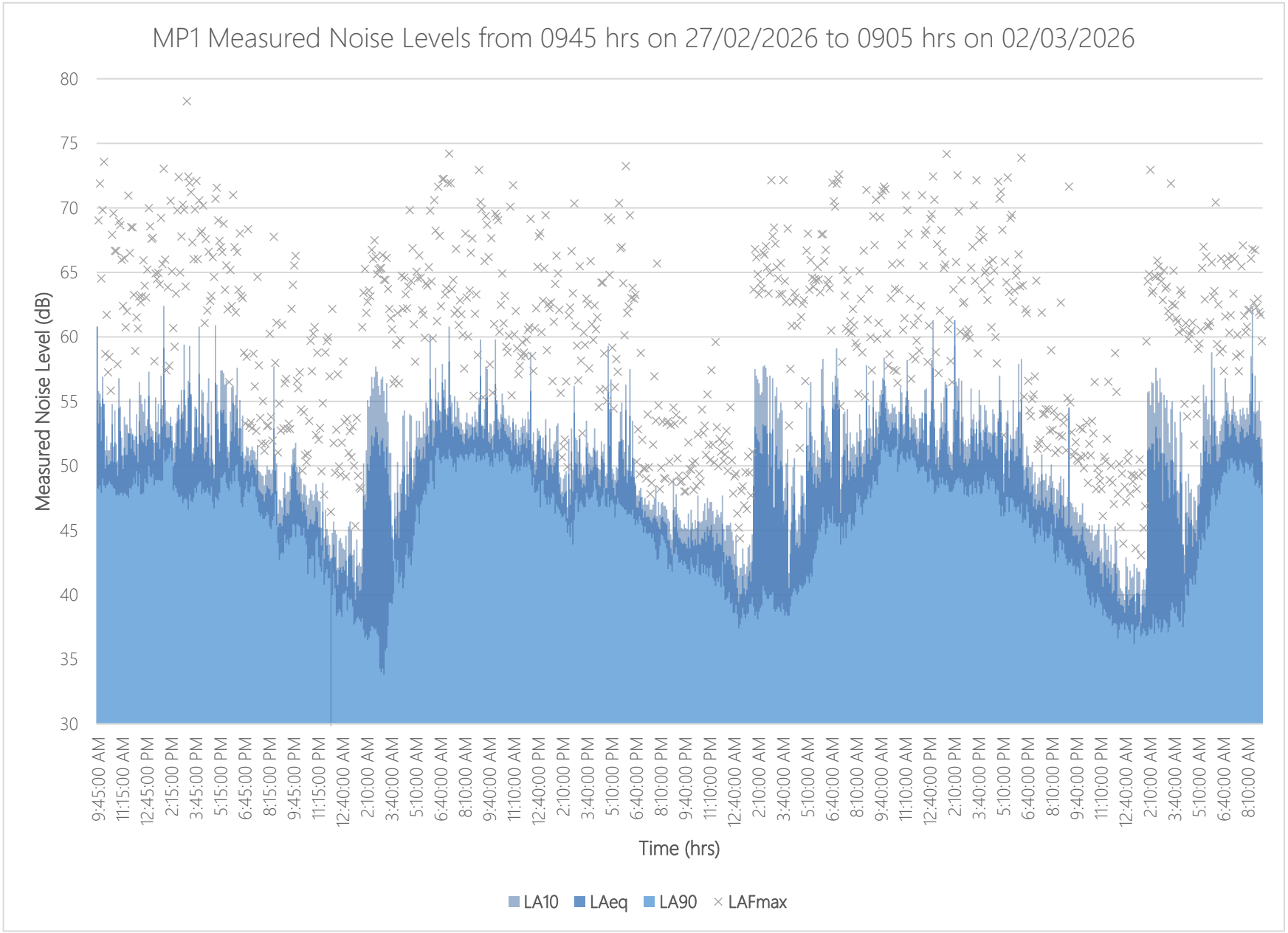
| Time | $L_{Aeq,T}$ (dB) | $L_{AF(max)}$ (dB) | $L_{A10}$ (dB) | $L_{A90}$ (dB) |
|---|---|---|---|---|
| 00:00-01:00 | 42 | 58 | 43 | 41 |
| 01:00-02:00 | 42 | 67 | 43 | 40 |
| 02:00-03:00 | 51 | 67 | 53 | 49 |
| 03:00-04:00 | 50 | 65 | 52 | 44 |
| 04:00-05:00 | 48 | 70 | 51 | 48 |
| 05:00-06:00 | 51 | 72 | 52 | 51 |
| 06:00-07:00 | 54 | 74 | 56 | 53 |
| 07:00-08:00 | 54 | 68 | 55 | 52 |
| 08:00-09:00 | 52 | 73 | 53 | 52 |
| 09:00-10:00 | 54 | 70 | 55 | 52 |
| 10:00-11:00 | 53 | 72 | 55 | 51 |
| 11:00-12:00 | 52 | 69 | 52 | 50 |
| 12:00-13:00 | 52 | 69 | 52 | 49 |
| 13:00-14:00 | 51 | 66 | 51 | 47 |
| 14:00-15:00 | 49 | 70 | 51 | 48 |
| 15:00-16:00 | 50 | 66 | 51 | 49 |
| 16:00-17:00 | 50 | 69 | 51 | 48 |
| 17:00-18:00 | 52 | 73 | 54 | 49 |
| 18:00-19:00 | 50 | 63 | 54 | 46 |
| 19:00-20:00 | 46 | 66 | 47 | 45 |
| 20:00-21:00 | 45 | 55 | 46 | 44 |
| 21:00-22:00 | 45 | 52 | 46 | 44 |
| 22:00-23:00 | 44 | 60 | 45 | 44 |
| 23:00-00:00 | 44 | 55 | 45 | 42 |
| **07:00-23:00** | **51** | **66** | **51** | **48** |
| **23:00-07:00** | **50** | **66** | **49** | **46** |

Measured Noise levels – MP1- Sunday 1st Mar 2026

| Time | $L_{Aeq,T}$ (dB) | $L_{AF(max)}$ (dB) | $L_{A10}$ (dB) | $L_{A90}$ (dB) |
|---|---|---|---|---|
| 00:00-01:00 | 43 | 51 | 43 | 40 |
| 01:00-02:00 | 42 | 67 | 43 | 42 |
| 02:00-03:00 | 52 | 72 | 53 | 49 |
| 03:00-04:00 | 50 | 72 | 51 | 43 |
| 04:00-05:00 | 46 | 68 | 48 | 44 |
| 05:00-06:00 | 50 | 68 | 51 | 49 |
| 06:00-07:00 | 52 | 73 | 55 | 49 |
| 07:00-08:00 | 52 | 65 | 55 | 49 |
| 08:00-09:00 | 51 | 71 | 52 | 50 |
| 09:00-10:00 | 54 | 72 | 55 | 53 |
| 10:00-11:00 | 53 | 71 | 54 | 52 |
| 11:00-12:00 | 53 | 71 | 55 | 51 |
| 12:00-13:00 | 54 | 72 | 55 | 50 |
| 13:00-14:00 | 52 | 81 | 53 | 50 |
| 14:00-15:00 | 54 | 72 | 55 | 50 |
| 15:00-16:00 | 52 | 68 | 53 | 51 |
| 16:00-17:00 | 52 | 72 | 53 | 49 |
| 17:00-18:00 | 52 | 74 | 54 | 49 |
| 18:00-19:00 | 51 | 64 | 54 | 47 |
| 19:00-20:00 | 47 | 59 | 48 | 46 |
| 20:00-21:00 | 47 | 72 | 48 | 45 |
| 21:00-22:00 | 47 | 53 | 45 | 43 |
| 22:00-23:00 | 43 | 57 | 45 | 41 |
| 23:00-00:00 | 42 | 59 | 43 | 39 |
| **07:00-23:00** | **52** | **68** | **52** | **48** |
| **23:00-07:00** | **49** | **66** | **48** | **44** |

Measured Noise levels – MP1 – Monday 2nd Mar 2026

| Time | $L_{Aeq,T}$ (dB) | $L_{AF(max)}$ (dB) | $L_{A10}$ (dB) | $L_{A90}$ (dB) |
|---|---|---|---|---|
| 00:00-01:00 | 40 | 51 | 42 | 39 |
| 01:00-02:00 | 39 | 73 | 40 | 39 |
| 02:00-03:00 | 51 | 72 | 52 | 48 |
| 03:00-04:00 | 49 | 65 | 50 | 44 |
| 04:00-05:00 | 46 | 67 | 48 | 44 |
| 05:00-06:00 | 50 | 70 | 52 | 50 |
| 06:00-07:00 | 52 | 66 | 54 | 52 |
| 07:00-08:00 | 53 | 67 | 53 | 52 |
| 08:00-09:00 | 53 | 67 | 55 | 51 |
| **07:00-23:00** | **53** | **67** | **54** | **52** |
| **23:00-07:00** | **49** | **66** | **48** | **45** |


MP1 Measured Noise Levels from 0945 hrs on 27/02/2026 to 0905 hrs on 02/03/2026
Measured Noise Level (dB)
80
75
70
65
60
55
50
45
40
35
30
9:45:00 AM
11:15:00 AM
12:45:00 PM
2:15:00 PM
3:45:00 PM
5:15:00 PM
6:45:00 PM
8:15:00 PM
9:45:00 PM
11:15:00 PM
12:40:00 AM
2:10:00 AM
3:40:00 AM
5:10:00 AM
6:40:00 AM
8:10:00 AM
9:40:00 AM
11:10:00 AM
12:40:00 PM
2:10:00 PM
3:40:00 PM
5:10:00 PM
6:40:00 PM
8:10:00 PM
9:40:00 PM
11:10:00 PM
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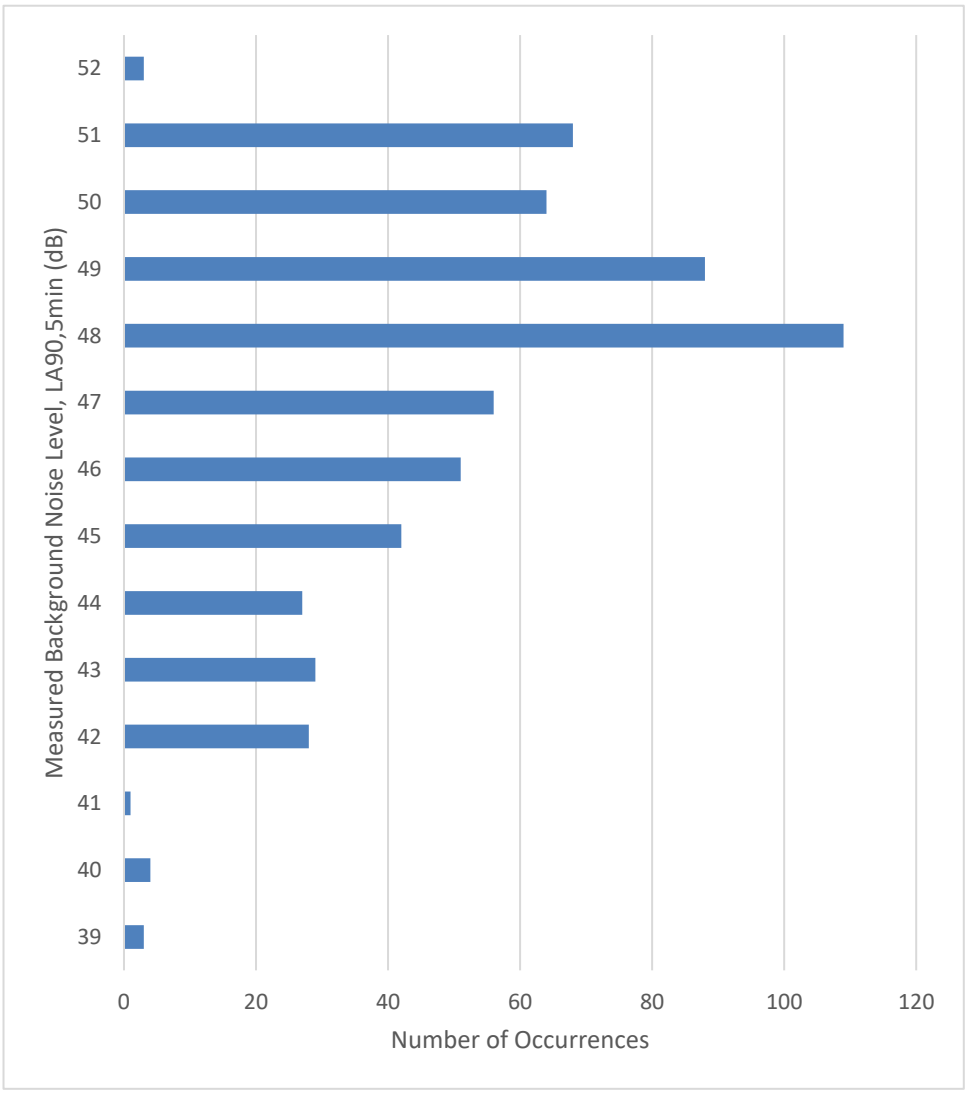
8:10:00 AM
9:40:00 AM
11:10:00 AM
12:40:00 PM
2:10:00 PM
3:40:00 PM
5:10:00 PM
6:40:00 PM
8:10:00 PM
9:40:00 PM
11:10:00 PM
12:40:00 AM
2:10:00 AM
3:40:00 AM
5:10:00 AM
6:40:00 AM
8:10:00 AM
Time (hrs)
LA10
LAeq
LA90
LAFmax

## 13.1. Typical Background Noise Level Analysis for BS 4142:2014 Assessment

**MP1 - Daytime (0700 hrs – 2300 hrs)**

| Measured $L_{A90,5min}$ (dB) | Number of Occurrences |
|---|---|
| 39 | 3 |
| 40 | 4 |
| 41 | 1 |
| 42 | 28 |
| 43 | 29 |
| 44 | 27 |
| 45 | 42 |
| 46 | 51 |
| 47 | 56 |
| **48** | **109** |
| 49 | 88 |
| 50 | 64 |
| 51 | 68 |
| 52 | 3 |




**Note: The row marked in bold is the chosen Typical $L_{A90}$ for the BS 4142 plant noise assessment.**