Noise Impact Assessment

Dunsbury Park - Plot 100

Stantec

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Glossary

Term	Definition
dB (decibel)	The scale on which sound pressure level is expressed. Sound pressure level is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2x10-5Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' - weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
$L_{Aeq,T}$	LAeq is defined as the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A - weighted fluctuating sound measured over that period.
L_{Amax}	LAmax is the maximum A - weighted sound pressure level recorded over the period stated. LAmax is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall Leq noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
L_{10} and L_{90}	If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L10 is the level exceeded for 10% of the time, and the L90 is the level exceeded for 90% of the time.
Free-field Level	A sound field determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces. Generally, as measured outside and at least 3m from buildings.
Future year	The 15th year after opening

1 Introduction

Stantec has been appointed by Portsmouth City Council to undertake a noise impact assessment in support of the outline planning application for the development of industrial/ logistics use at Plot 100 Dunsbury Park, Fitzwygram Cres, Havant PO9 4EE, hereinafter referred to as **"**The Site".

The proposal comprises the erection of flexible employment floorspace, including carparking spaces and cycle parking space. The intention is to provide areas with use Planning Use Class E(g)(ii) [Research and Development], E(g)(iii) [Light Industrial], B2 [General Industrial], and B8 [Storage and Distribution].

This report is broken down into the following sections:

- **Section 2: Site Description:** This section outlines the location of The Site, surrounding environment, the site proposals and the nearby Noise Sensitive Receptors (NSRs).
- **Section 3: Assessment Methodology**: This section provides and overview of the standards and policy which are relevant, as well as summarising the assessment criteria.
- **Section 4: Environmental Noise Survey:** This section provides a summary of the noise survey methodology, results, and observations of the local noise environment.
- **Section 5: Construction Phase Noise Impacts:** This section evaluates the potential noise and vibration impacts arising from the construction phase, against relevant guidance criteria.
- **Section 6: Operation Phase Noise Impacts**: This section assessed the potential operation impacts. The section discussed the following noise impacts:
    - Development Generated Road Traffic Noise at existing NSRs - Assesses predicted road traffic noise from the development at existing NSRs.
    - Noise impacts at the proposed NSRs - Evaluates noise levels affecting NSRs within the development.
    - Industrial Noise Impacts - Assesses the potential industrial noise sources, and the impacts on both the existing sensitive receptors and proposed NSRs within the development.
- **Section 7: Mitigation Measures:** This section presents mitigation measures to control noise and vibration impacts during both construction and operation.
- **Section 8: Conclusion**

This report is technical in nature; therefore, a glossary of acoustic terminology is provided at the start of this report to assist in understanding its contents.

Limitations

Where modelling and prediction methods are used it should be noted that these are not a definitive indicator of the actual acoustic performance. Acoustic modelling and predictions should not therefore be relied upon as the sole means of assuming actual performance in operation. The advice herein is based on a combination of modelling, standard predictive calculation techniques, test data and Stantec's previous experience of similar constructions.

This report is based on information provided to Stantec by other parties. The report is provided strictly on the basis that the information that has been provided is accurate, complete and adequate. If the reader should become aware of any inaccuracy in or change to any of the facts, findings or assumptions, this should be raised accordingly.

2 Site Description

The Site is located at Dunsbury Park (Business park), Fitzwygram Cres, Havant PO9 4EE. The site is to the east of Junction 3 of the A3(M) and south of Fitzwygram Way. The plot is currently vacant and consists of greenfield areas.

The Site is surrounded by industrial development to the north, northeast, and east, with woodland and agricultural fields to the south. The nearest residential areas are approximately 305m to the west, across the A3, in Waterlooville, and around 340m to the east along Calshot Road. The site location is presented in Figure 1.

Figure 1 Site Location

The development proposal comprises an outline planning application for ca. 3,000sqm flexible employment floorspace. The proposed uses fall under Use Classes E(g)(ii), E(g)(iii), B2, and B8, and will include the construction of a single warehouse building with ancillary offices. The proposal also incorporates associated infrastructure, including a substation, car parking areas, and a dedicated service yard. The indicative site layout is illustrated in Figure 2.

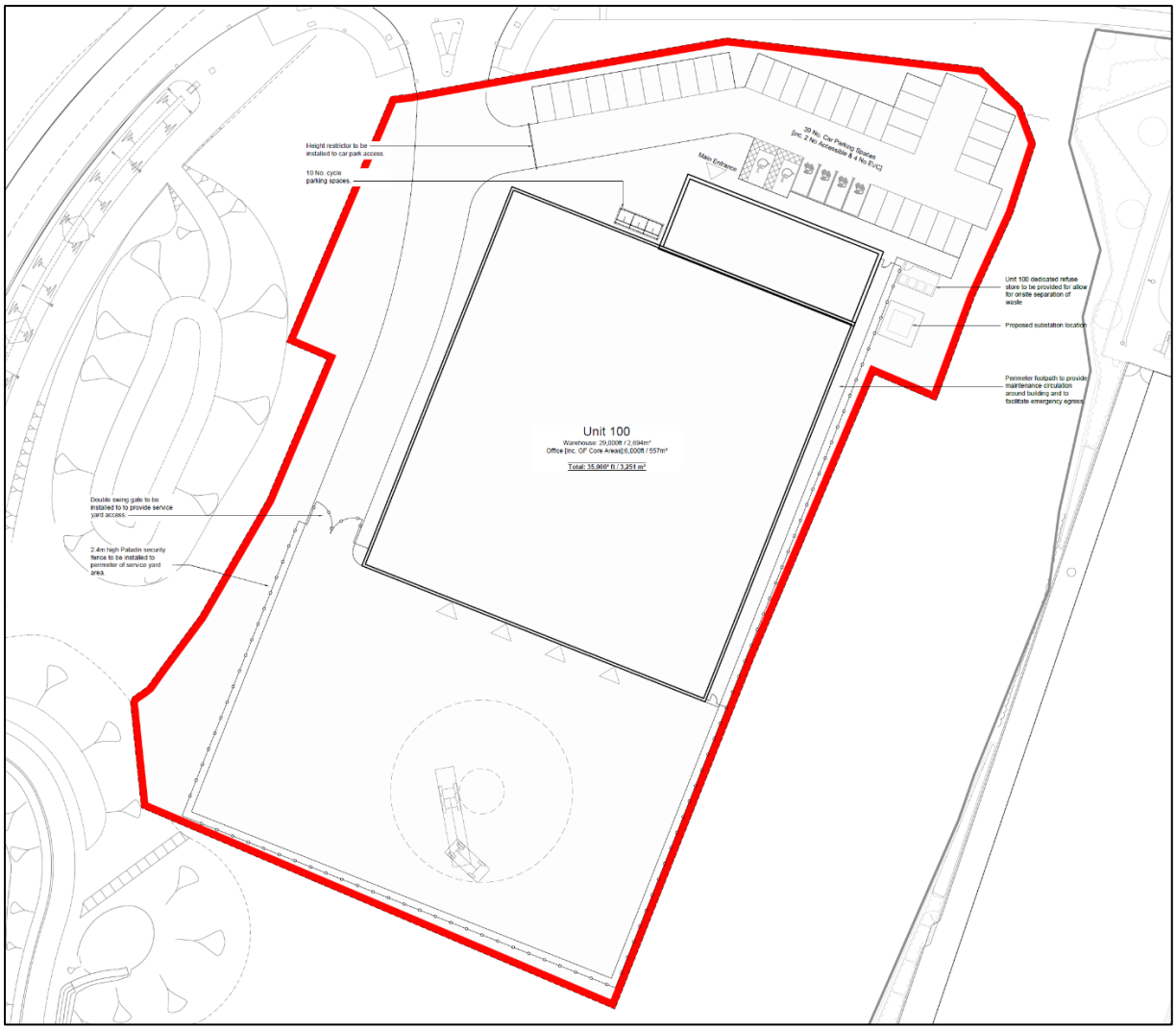


Figure 2 Indicative Site Layout

It is further understood that plots 400, 600 and 601 are also under planning process for equivalent use categories.

Related provided assessment are presented below for reference:

- 333701960-STN-XX-XX-RP-AC-00004-S2-P01 Outline planning Plot 400
- 333701960-STN-XX-XX-RP-AC-00002-S2-P02 Outline planning Plot 600&601

2.1 Identified Noise Sensitive Receptors

The nearest Noise Sensitive Receptors(NSRs) have been identified as:

- NSR1: Residential properties opposite to A3 Motorway to the west, approximately 305 m from The Site.
- NSR2: Residential properties along Calshot Road to the east, approximately 340 m from The Site.

The nearest Noise Sensitive Receptor locations are presented in Figure 3 below.

Figure 3 Noise Sensitive Receptors

3 Assessment Methodology

3.1 Policy and Guidance

The assessment methodology is based on the following policy and guidance documents:

- National Planning Policy Framework, 2024 (NPPF);
- Noise Policy Statement for England, 2010 (NPSE);
- Planning Practice Guidance – Noise, 2014 (PPG);
- Local Planning Policy: Havant Borough Council
- British Standard 8233 – Guidance on Sound Insulation and Noise Reduction for Buildings, 2014 (BS8233);
- The World Health Organisation's Guideline for Community Noise, 1999 (WHO);
- BS 4142:2014 + A1 2019 – "Methods for rating and assessing commercial and industrial sound" (BS4142);
- British Standards 5228-1: 2009 + A1:2014 Code of practice for noise and vibration control on construction and open sites (BS5228);
- Design Manual for Road and Bridges - LA111 Noise and Vibration, 2020 (DMRB).
- Department for Transport's technical memorandum - Calculation of Road Traffic Noise, 1988 (CRTN);

A summary of the relevant planning policy and acoustics guidance is provided in Appendix A. The primary documents used are discussed below.

3.1.1 Local Planning Policy: Havant Borough Council

The adopted Local Plan is made up of the Core Strategy (2011) and the Site Allocations Plan (2014).

The local plan policy states the below in regard to noise:

> *DM10 Pollution*
>
> *Development that may cause pollution of water, air or soil or pollution through noise, smell, smoke, fumes, gases, steam, dust, vibration, light, heat, electromagnetic radiation and other pollutants will only be permitted where all of the following relevant criteria can be met:*
>
> *1. The health and safety of existing and future users of the site, or nearby occupiers and residents is not put at risk.*

The draft Building a Better Future Plan, currently going consultation, relevant policies have been considered in this report.

> *Policy 43: Amenity and Pollution*
>
> *Development will be permitted where:*

> *a) Projected levels of noise, odour, vibration, light, water or air pollution from the development do not have a likely significant negative effect on the amenity of existing and future users of the site, nearby occupiers or the wider environment; or*
>
> *b) Measures are provided which are suitable for the purposes intended and will ensure that any likely significant negative effect of pollution on receptors is mitigated to an acceptable level.*
>
> *How the policy will be implemented*
>
> *4.430 Developers will need to submit sufficient information to establish whether a significant negative effect is likely to result from the development. The latest body of authoritative guidance (particularly planning practice guidance) will inform what amounts to a 'significant effect' or an 'acceptable level' in each case, and the definitions may refer to specific emissions or exposure standards, or to change relative to pre-development conditions. The level of information required will vary depending on the scale and nature of the development proposed. Where appropriate, the assessment should include the likely cumulative impact of development. Any significant negative effect should be mitigated to an acceptable level, having regard to the advice of relevant subject matter specialists regarding the proposed development.*

Pre-application consultation was carried with the Environmental Health team in October 2025. The below comments were received:

> *Due to the proximity of residential dwellings to the proposed development site, a noise impact assessment would be expected to accompany any full application received, to determine predicted noise levels of deliveries and loading / unloading activities, and any plant or equipment to be used on site.*
>
> *The acoustic report should be compiled by a person suitably qualified in acoustics and have full regard to all relevant guidance, including but not limited to, BS4142:2014+A1:2019 and BS8233:2014.*

4 Environmental Noise Survey

4.1 Overview

Unattended environmental noise monitoring was previously carried out in 2023 to establish baseline sound levels at the nearby planning application for Plot 500 (APP/21/01267 – granted 23/12/2022). Results from the 2023 survey are provided as reference in Appendix B.

A new noise survey was undertaken in September 2025 to assess any changes in noise environment in the area.

4.2 Survey Methodology and Equipment

One unattended long-term measurement was undertaken between 4th and 8th of September 2025 to establish the existing noise environment at the nearest noise sensitive receptor. Three short term attended measurements were carried out on the 4th of September 2025.

The survey locations are presented in Figure 4, indicated as “LT” and “ST” for long and short term, respectively.

Figure 4 Environmental Noise Survey Locations

Noise measurements were made using Class 1 integrating sound level meters. Microphones were positioned vertically on a tripod at least 1.2m above the ground and at least 3.5m from any other reflecting surfaces. The sound level meters were calibrated to a reference level of 94 dB at 1kHz both prior to and on completion of the noise survey. No significant drift in calibration was noted during the survey (≤ 0.5 dB).

Monitoring was carried out by an Associate Member of the Institute of Acoustics (AMIOA). All measurement equipment has been laboratory calibrated within the appropriate calibration interval, biennially for sound level meters and annually for acoustic calibrators.

Full details of the equipment used is provided in Table 1.

Table 1 Monitoring Equipment Details

Location	Manufacturer	Instrument	Type	Serial No./Version	Laboratory Calibration Due
LT1	01dB	Sound Level Meter	Fusion	12242	27 Jun 2026
		Pre-Amplifier	Pre22	1915123	
	G.R.A.S	Microphone	40CD	367053	
ST1 / ST2 / ST3	NTi	Sound Level Meter	XL2-TA	A2A-20385-E0	28 July 2026
		Pre-Amplifier	MA220	10704	
		Microphone	MC230A	A22997	

4.3 Summary of Baseline Noise Levels

4.3.1 Long Term Measurement Results

Measured noise levels at the long-term location(s) are presented in Table 2 for daytime (0700 to 2300 hours), night-time (2300 to 0700 hours) periods in terms of the following parameters:

- Equivalent Continuous Level (L_{Aeq}): the time averaged sound pressure level, defined as the equivalent steady level with the same total energy as the actual fluctuating sound level over the same time period. The equivalent continuous level is used for measurement of the ambient sound level in BS4142:2014.
- Background Sound Level (L_{A90}):- the sound level excluding the loudest 90% of the measurement time interval, i.e. excluding short-term events. The background sound level is used to represent the underlying steady noise level, which provides effective masking of intrusive sounds. Therefore, it is useful for the assessment of the noise impact from commercial, industrial and mechanical plant noise at existing residential receptors and is required for assessments based on the methodology described in BS4142:2014.

The equivalent continuous sound level (L_{Aeq}) in Table 2 has been calculated from a logarithmic average of the measurement results over the stated period. The representative background sound level (L_{A90}) has been determined from a statistical analysis of the 15-minute measurements over the period, in line with the approach recommended in BS4142:2014. The 10th percentile of the 15-minute background sound levels is, in most circumstances, considered a reasonable basis for a worst-case BS4142 assessment, as this level is exceeded most of the time. This is supplemented by observations of the distribution plots of the background sound levels.

Time histories of the long-term measurement are provided in Appendix B, and summary of the measured levels presented in Table 2.

Table 2 Long-term unattended Ambient and Background Sound Levels

Measurement Location	Time Period (hours)	Equivalent Continuous Sound Level $L_{Aeq,15min}$ dB(A)	Representative Background Sound Level $L_{A90,\ 15\ min}$ dB(A)
LT1	0700 – 2300	53	50
	2300 - 0700	46	42

Site observations were undertaken during the set up and collection of the monitoring equipment. During the site visits it was noted that the main noise source in the area was steady traffic noise from the A3 Motorway to the west, occasional local traffic noise from the nearby commercial site (i.e. Biopure Technology), and intermittent aircraft noise.

4.3.2 Short-Term Measurement Results

Measured noise levels at ST1, ST2 and ST3, along with the corresponding level at LT1 and their differences are shown in Table 3. These measurements are used to establish noise variation along the site, as well as a transfer function between the longer-term unattended measurement and the shorter terms attended measurements to quantify this variation.

Table 3 Short-term Attended Measurement Results

Measurement Location	Synchronous Measurement Period	Duration (minutes)	Background Noise Levels measured at the nearest Long-term monitoring ($L_{A90,\ 15min}$ dB)	Simultaneous short-term measurement ($L_{A90,\ 15min}$)	Difference (dB)
ST1	12:30-13:00	30	53 (LT1)	59	+6
ST2	13:15-13-45	30	53 (LT1)	49	-3
ST3	14:00-14-30	30	53 (LT1)	56	+3

Site observations during the short-term measurement periods:

- ST1: The primary source of noise at the site is traffic from the A3 Motorway to the west, with minor additional noise from the roundabout along Fitzwygram Way.
- ST2: Distant traffic noise from the A3 Motorway to the west, with occasional traffic noise from Calshoton Road.
- ST3: The primary noise source is traffic from the A3 Motorway to the east, with some background birdsong.

Both surveys indicate broadly similar noise conditions. The latest 2025 survey results show slightly lower ambient noise levels with a reduction of 6 dB and 5dB during daytime and night-time period respectively. Accordingly, this assessment is based on the latest survey data, also showing a robust assessment.

5 Construction Phase Noise and Vibration Impacts

5.1 Overview

Construction works have the potential to cause noise and vibration impacts beyond the Site boundary. At this stage, detailed information pertaining to site specific earthworks and construction activities are not known. Activities at the Site which could give rise to potential noise impacts typically include (but are not limited to):

- Site preparation e.g. ground excavation, levelling of ground, trenching, trench filling, unloading, levelling of hardcore and compact filling; and,
- Construction of the Proposed Development including piling, construction of access roads, fabrication processes e.g. planning, sanding, routing, cutting, drilling and laying foundations.

5.2 Noise from Construction

The contractor undertaking the Site preparation and construction works has not yet been appointed. However, it is considered that the enabling and construction works are likely to be restricted to standard daytime working hours, i.e. between 0800 and 1700 Monday to Friday, 0900 to 1200 on a Saturday, with no work on Sundays or Bank Holidays.

The appropriate noise impact threshold category value has been determined for all existing noise sensitive receptors, based on measured daytime ambient noise levels, in accordance with 'The ABC Method' provided in BS5228-1 as detailed in Table 4 below.

Table 4 BS5228-1 Threshold Category Values

Time Period	Category Threshold Value, dB(A)		
	Category A *1	**Category B** *2	**Category C** *3
Weekday Daytime (07:00 to 19:00) and Saturdays (07:00 to 10:00)	<65	70	>75

*1 Category A: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are less than this value.
*2 Category B: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are the same as category A values.
*3 Category C: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are more than this value.

Table 5 below identifies the appropriate category value in order to determine whether there is potential for significant noise impact to occur during the earthworks and construction phase.

Table 5 Appropriate Category Value for existing Noise Sensitive Receptors

Existing Noise Sensitive Receptors (NSRs)	Representative Monitoring Location	Daytime Ambient Noise Level, dB $L_{Aeq, T}$	Rounded Level to the Nearest 5 dB	Appropriate Category Value, according to BS5228-1	Significant Noise Impact Threshold, dB $L_{Aeq, T}$
NSR1	ST2	50	50	A	65
NSR2	ST3	56	55	A	65

Based on the transferred daytime ambient noise levels, the appropriate category for the NSRs in the vicinity of this Site has been determined as Category A. Therefore, the noise level above which activities from the construction phase might cause an impact is 65dB(A).

The construction noise levels at the NSRs closest to the Proposed Development will vary over the course of the construction period, depending on the sound power levels of equipment used, the distance to the properties, the presence of screening or reflective surfaces and the ability of the intervening ground to absorb propagating noise.

The distance between the NSRs and the site boundary is more than 300m. Noise from construction phase activities is likely to be attenuated over distance to an appropriate level, where the Category A threshold value is unlikely to be exceeded.

Although the threshold category is not likely to be exceeded, distant construction noise has the potential to be audible during short-term increases in noise levels. Best practice mitigation measures are recommended to minimise the potential for any noise impacts where practical. The recommendations should be secured via a suitably worded Construction Environmental Management Plan (CEMP). Further details on mitigation measures are provided in the Section 7.1 of this report.

5.3 Vibration from Demolition and Construction Activities

Structural damage to buildings associated with groundborne vibration is uncommon, and although vibration may be noticeable, there is little evidence to suggest that even cosmetic damage can occur, such as a crack in plaster, unless the magnitude of the vibration is high. The most likely impact where elevated levels of vibration do occur, during the demolition and construction phases, is associated with perceptibility i.e., potential annoyance.

Where groundborne vibration is of a relatively continuous nature, there is a greater likelihood of structural damage occurring, compared to transient vibration. The only current national guidance document which provides a methodology for predicting levels of vibration from construction activities is BS5228- 2. The prediction method provided relates specifically to percussive, or vibratory, rolling and piling only.

Vibration impacts during site activities other than piling, are uncommon. As such, to control the impact of vibration during site preparation and construction a development, limits relating to perceptibility of vibration are typically set.

As stated in BS5228-2 and as generally accepted, the threshold of vibration perception for humans is typically in the Peak Particle Velocity (PPV) range of 0.14 mms^{-1} to 0.3mms^{-1}, which forms the basis of the recommend maximum permitted vibration levels of 1 mms^{-1} PPV within occupied residential dwellings. It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents.

Table 6 below sets out the distances (based on historical field measurements) at which certain activities could give rise to a just perceptible level of vibration.

Table 6 Distance at which vibration may be just perceptible

Construction Activity	Distance from Activity at which Vibration may be Just Perceptible, metres
Excavation	30
Heavy Vehicles (e.g., Dump Trucks)	20
Notes: Vibration source data has been taken from DM Hiller and GI Crabb ' Groundborne vibration caused by mechanised construction works' and extrapolated to provide distance bounds. It should be noted that vibration is significantly variable and therefore these should be used as a guide only	

The nearest existing NSRs to the proposed construction work, would vary depending upon the part of the Proposed Development under construction. As a worst-case scenario, demolition and construction works may potentially take place at a distance of approximately 305m from existing residential receptors to the north-western boundary of The Site.

At 305m, it is not likely that vibration due to heavy vehicles and the operation of construction machinery would be perceptible. Notwithstanding, methods of best practice should be implemented with regards to minimising potential vibration levels generated during the demolition and construction period.

Any required mitigation measures for the control of construction work noise and vibration should be implemented via a suitably worded Construction Environmental Management Plan (CEMP). Further guidance is provided in Section 7.

6 Operational Phase Noise Impacts

6.1 Development Generated Road Traffic Noise

The proposed development is anticipated to generate additional vehicle movements as a result of its potential employment and logistics use. An assessment has been undertaken to evaluate the potential impact of development generated road traffic noise on the noise sensitive receptors.

The assessment has been carried out in accordance with LA111 – DMRB. Predicted traffic flows for both the Do-Minimum (without development) and Do-Something (with development) scenarios have been used to assess noise impacts in both the short term (baseline year) and long term (future assessment year).

The Basic Noise Level (BNL) have been calculated using the methodology set out in the Department for Transport's technical memorandum - Calculation of Road Traffic Noise, 1988 (DMRB). The assessment criteria are detailed in Appendix A.

6.1.1 Traffic Data

Traffic data for the assessment has been provided by the project transport consultants Paul Basham Associates. The full traffic forecasts data is reproduced in Appendix D.

It is understood that traffic generated by the proposed development will travel along Fitzwygram Way, connecting directly to the A3 motorway to the east. Given the high existing traffic volumes on the A3, the additional traffic from the development is unlikely to have a noticeable impact on the motorway overall noise levels. Traffic on local links, such as Fitzwygram Way are more likely to be affected by the new development and therefore the below assessment covers this road section.

While the DMRB Assessment aims to evaluate noise change resulting from project-induced traffic over both short-term and long-term periods, the noise changes in the basic noise level of Fitzwygram Way are considered to adhere the same principle even without factoring in road characteristic and propagation corrections.

The following data sets have been considered within the CRTN calculation:

Short-term impact:

- Do-Minimum in the opening year (2027)
- Do-Something in the opening year (2027)

Long-term impact:

- Do-Minimum in the opening year (2027)

- Do-Something in the future assessment year (2040[1])

6.1.2 Assessment Result

The predicted changes in road traffic noise levels for daytime and night-time periods are presented in Table 7 and Table 8 respectively.

Table 7 Predicted Noise Change in Traffic Noise Level on Fitzwygram Way – Daytime Period (06:00-24:00)

Short-term	Predicted BNL - 2027 (w/o Dev.)	Predicted BNL - 2027 (w/ Dev.)	**Noise Change**	**Level of Magnitude**
	$L_{A10\ 18hr}$, dB	$L_{A10\ 18hr}$, dB	dB	
	57.3	57.7	0.4	Negligible
Long-term	Predicted BNL - 2027 (w/o Dev.)	Predicted BNL - 2040[1] (w/ Dev.)	**Noise Change**	**Level of Magnitude**
	$L_{A10\ 18hr}$, dB	$L_{A10\ 18hr}$, dB	dB	
	57.3	58.1	0.8	Negligible

Table 8 Predicted Noise Change in Traffic Noise Level on Fitzwygram Way – Night-time Period (23:00-07:00)

Short-term	Predicted BNL - 2027 (w/o Dev.)	Predicted BNL - 2027 (w/ Dev.)	**Noise Change**	**Level of Magnitude**
	$L_{night,8hr}$ dB	$L_{night,\ 8hr}$ dB	dB	
	45.6	46.1	0.4	Negligible
Long-term	Predicted BNL - 2027 (w/o Dev.)	Predicted BNL - 2040[1] (w/ Dev.)	**Noise Change**	**Level of Magnitude**
	$L_{night,\ 8hr}$ dB	$L_{night,\ 8hr}$ dB	dB	
	45.6	46.4	0.8	Negligible

The results indicate that the predicted change in traffic noise level is 0.4 dB in the short term and 0.8 dB in the long term, during both daytime and night-time periods. As these changes are below the 1dB and 3dB thresholds defined in DMRB, the level of magnitude is classified as Negligible, resulting in an insignificant impact. Accordingly, no noise mitigation measures are considered necessary.

[1] The future assessment year is identified as 2042; however, traffic forecasts are based on 2040 data. This is because the TEMPro database, which is used for background traffic growth projections, currently only provides data up to 2040.

6.2 Noise Impact on Proposed Offices

The Proposed Development will include ancillary office accommodation falling under Use Class E(g)(ii) and E(g)(iii). The potential noise impacts on future office spaces should be considered and suitable sound insulation measures provided to ensure internal ambient noise levels are adequate.

According to BS8233, internal noise levels in office environment should typically fall between 35 and 50dB $L_{Aeq,30mins}$, depending on the type and sensitivity of the room. A conservative design target of 35 dB $L_{Aeq,30mins}$ has been adopted to provide a robust assessment in the absence of available layouts.

Daytime ambient noise levels at the proposed development site have been measured to be 59 dB $L_{Aeq,16hrs}$.

An open window typically provides 13–15 dB noise reduction when partially open. Where façade levels exceed 50 dB(A), alternative means of ventilation may be required to achieve suitable internal levels.

It is understood that MVHR will be provided to supply background ventilation, enabling windows to remain closed to mitigate noise impacts.

A glazing specification has been identified to secure appropriate internal noise levels, as recommended by BS8233, with background ventilation provided via MVHR. The required mitigation scheme is presented in Section 7.

6.3 Industrial Noise Impacts

The development proposals include the provision of a flexible unit which could lawfully be used for Class E(g)(ii) and/or E(g)(iii) and/or B2 and/or B8 employment uses. These uses have the potential to generate noise and impact the nearby existing noise sensitive receptors during operation.

At the time of writing the exact use of the unit is not known, and the exact use may not be determined until practical completion, and a tenancy agreement has been signed by the occupying business(es).

To determine potential noise impacts and mitigation requirements at this stage, an assessment has been carried out based on proposed class use, 24hrs operation, and Stantec's experience of similar schemes, in accordance with BS4142.

The assessment is based on noise prediction modelling of the Proposed Development using a 3D noise model of the site created with SoundPLAN software based on the methodology described within CRTN and ISO 9613. Details of the model and assumptions are set out in Appendix E.

6.3.1 Sound Sources and Associated Noise Levels

In addition to noise break-out from within the warehouse, consideration has been given to external operational activities, including HGV movement, loading and unloading operations, idling engines, car parking, substation and any ancillary plant associated with the office.

As detailed information on specific sound sources is not yet available at this stage of the design, the assessment has been based on representative noise data from Stantec's project archive, referencing similar development schemes. Internal and façade noise levels for manufacturing machinery are derived from back-calculations based on overall industrial noise activities. A summary of the adopted sound source data is provided in Table 9.

Table 9 Summary of Specific Sound Sources and Levels

Planning Use Class	Potential Activities	Typical Noise Sources	Specific Sound Level, dB(A)
Class E(g)(ii) Research and Development, Class E(g)(iii) Light Industrial	Offices; associated car parking	HVAC(1)	70dB L_w
		Car parking(2)	87dB L_w
Class B2 General Industrial, Class B8 Storage and Distribution	Warehouse	Substation, façade noise level(3)	70dB L_w/m^2
		Manufacturing machinery, internal noise (4)	108 $L_{pr,ev}$
		Manufacturing machinery, façade noise level (5)	62 L_w/m^2
		HGV Movement Noise	93dB L_w
		HGV Idling Engine Noise	85dB L_w
		Unload/loading Event (covered loading dock)	87dB L_w

(1) 4 units assumed and 70dB sound power level assumed
(2) Carpark noise is predicted in SoundPLAN based on the number of allocated spaces in accordance with Parking Area Noise published by Bavarian State Office for the Environment in 2007
(3) Assumed 70dB façade noise sound power level
(4) Reverberant Sound Pressure Level
(5) Based on the internal sound pressure level and the break-out with a typical cladding system (i.e. Kingspan KS1000LS 100/140mm R_w 25dB).

6.3.2 On-time Corrections

In accordance with BS4142, the specific sound level should be corrected to reflect the on-time duration over the respective reference assessment period (Tr), 1-hour daytime (0700-2300) and 15 minute (2300-0700) night-time i.e. where noise occurs for less time than the duration of the reference assessment period the noise level should be adjusted.

24-Hour Continuous Operations

The following sources are assumed to operate continuously throughout the assessment period:

- Internal operations / Building breakout
- HVAC plant
- Substation
- HGV activities (movements, loading/unloading and idling)
- Car parking activity

By assuming full-period operation for all relevant sources, the assessment represents a worst-case and highly robust scenario. As a result, no on corrections have been applied to any operational noise elements associated with the Proposed Development.

6.3.3 Background Noise Levels at the NSRs

The background noise levels at the existing Noise Sensitive Receptors (NSRs) have been established based on the long-term unattended measurements at LT1, in conjunction with the transfer differences identified during the short-term attended measurements, as outlined in Section 4.3.2.

Table 10 summarises the transferred Background Noise Levels for the daytime and night-time periods at each existing NSR.

Table 10 Background Sound Levels at the existing Noise Sensitive Receptors

Existing Noise Sensitive Receptors	Corresponding Measurement Location	Time Period (hours)	Transferred Background Noise Level L_{A90} dB(A)
NSR1	ST2	0700 – 2300	47
		2300 - 0700	39
NSR2	ST3	0700 – 2300	53
		2300 - 0700	45

6.3.4 BS4142 Noise Assessment

The potential industrial noise level has been predicted at the nearest NSRs and are summarised in Table 11 and Table 12.

Table 11 BS4142:2014 Assessment of operational noise level at the NSRs - Daytime

Description	Existing Noise Sensitive Receptors		Notes
	NSR1	NSR2	
Specific Sound Level (L_{Aeq},dB)	38	41	Sound level at NSRs, predicted by SoundPLAN with the potential noise sources identified in Section 6.3.1.
Acoustic Character Correction	0	0	No acoustic correction has been applied.
Noise Rating Level ($L_{Ar,Tr}$ dB)	38	41	-
Background Sound Level ($L_{A90,T}$)	47	53	Identified Background Noise Level at NSR (See Section (1))
Margin below representative background Sound Level (dB)	9	12	-
Exceedance: Margin Below Limiting Noise Level (dB)	-9	-12	No exceedance

Table 12 BS4142:2014 Assessment of operational noise level at the NSRs – Night-time

Description	Existing Noise Sensitive Receptors		Existing Noise Sensitive Receptors
	NSR1	NSR2	
Specific Sound Level (L_{Aeq},dB)	38	41	Sound level at NSRs, predicted by SoundPLAN with the potential noise sources identified in Section 6.3.1.
Acoustic Character Correction	0	0	No acoustic correction has been applied
Noise Rating Level ($L_{Ar,Tr}$ dB)	38	41	
Background Sound Level ($L_{A90,T}$)	39	45	Identified Background Noise Level at NSR (See Section (1))
Margin below representative background Sound Level (dB)	1	4	-
Exceedance: Margin Below Limiting Noise Level (dB)	-1	-4	No exceedance

The predicted noise levels do not exceed the background sound levels at any identified NSR during both daytime and night-time periods. Accordingly, the potential operational noise impacts are considered not significant, and no mitigation measures are required.

6.3.5 Noise Impacts on Proposed Noise Sensitive Receptors

The potential impact of industrial noise from the Proposed Development has been assessed for noise-sensitive ancillary office areas within the development during daytime periods.

In order to predict the noise levels at the facades of the Proposed Development, the same propagation model principles applied in the above assessment was used.

In assessing the impact of industrial noise at office uses, the noise impacts should be considered internally, as there are no sensitive external locations. BS4142 highlights that the standard is not intended to be applied to the assessment of indoor sound levels but recognises that the sensitivity of a receptor can be reduced and acceptable internal acoustic conditions achieved via the implementation of design measures, including façade insulation treatment, and ventilation strategies.

Furthermore, BS4142 states:

> *"Where a new noise-sensitive receptor is introduced and there is extant industrial and/or commercial sound, it should be recognised that the industrial and/or commercial sound forms a component of the acoustic environment. In such circumstances other guidance and criteria in addition to or alternative to this standard can also inform the appropriateness of both introducing a new noise-sensitive receptor and the extent of required noise mitigation."*

It is understood that the offices will be mechanically ventilated. According to BS8233, the lowest internal ambient noise level for office use, including staff meeting and training rooms, is 35 dB $L_{Aeq,30min}$. The façade and wall construction, in combination with mechanical ventilation, is expected to provide approximately 30 dB $D_{nT,w}$ of noise reduction. Therefore, the façade noise level at office windows should not exceed 75 dB $L_{Aeq,T}$.

The predicted façade noise levels are below 70dB $L_{Aeq,T}$, demonstrating compliance with this criterion. The corresponding glazing and ventilation specifications are provided in the section below.

7 Mitigation Measures

7.1 Noise & Vibration from Earthworks and Construction

7.1.1 Noise

To reduce the potential for noise impact from the earthworks and construction phase of the Proposed Development at NSRs in the immediate vicinity of the Site, mitigation measures are recommended, as previously discussed in section 5.

Best working practice should be implemented during each phase of the earthworks and construction works at the Site, which would include the following measures, in accordance with the guidelines in BS5228-1 and in BRE Controlling particles, vapour and noise pollution from construction Sites, Parts 1 to 5, 2003:

- When works are taking place within close proximity to those sensitive receptors identified, screening of noise sources by temporary screen may be employed;
- All plant and machinery should be regularly maintained to control noise emissions, with particular emphasis on lubrication of bearings and the integrity of silencers;
- Site staff should be aware that they are working adjacent to a residential area and avoid all unnecessary noise due to misuse of tools and equipment, unnecessary shouting and radios;
- A further measure to reduce noise levels at the sensitive receptors would include, as far as possible, the avoidance of two noisy operations occurring simultaneously in close proximity to the same sensitive receptor;
- Specification of working hours during the week and at weekends;
- Ensure engines are turned off when possible;
- Should earthworks/earthworks and construction activities need to be carried out during nighttime hours, the local authority could include a planning condition which requests advance notice and details of any night working to provided; and,
- A clear Site notice board should be accessible to residents with a point of contact on Site responsible for ensuring and complaints are addressed expediently.

The above methods of best practice should be implemented via a suitably worded CEMP, to be provided by the contractor, together with the required noise impact threshold, 65dB L_{Aeq} (Category A).

7.1.2 Vibration

BS5228-2 indicates that mitigation could include the use of alternative methods i.e. substitution, removal of obstructions, provision of cut-off trenches, reduction of energy input per blow, reduction of resistance to penetration, where necessary.

As the programme and methodologies become more defined, demolition and construction vibration should be reviewed by a suitably qualified acoustician and a detailed strategy for control devised and implemented via the CEMP, where appropriate.

7.2 Façade Noise Insulation Requirements

Suitable façade noise insulation for the offices at The Site is required in the form of glazing and alternative ventilation to achieve suitable internal noise conditions in accordance with BS8233 and BS4142, as discussed in above section 6.2.

In order to determine the requirements for façade insulation, noise break in calculations have been carried out in accordance with the methods outlined in BS8233 using the level of noise and spectrum at proposed facades.

When carrying out internal noise level calculations, the following assumptions have been made:

- Windows are closed,
- A reverberation time of 0.5 seconds in office rooms;
- The composite wall system, i.e. Kingspan cladding with internal dry lining, will provide a sound reduction performance ($R_w + C_{tr}$) that is at least 5dB better than the specified glazing.
- Any curtain walling system should also provide a performance 5dB better than the specifications of the glazing;
- Atmospheric side terminations of MVHR units (and ventilators if adopted) should have nominalised weighted element difference ($D_{n,e,w}$) 5dB higher than the specified ($R_w + C_{tr}$) of the glazing; and,
- Self-generated MVHR noise, if adopted, will be suitably attenuated.

Glazing and ventilation performance requirements are summarised in Table 13 and example configurations have been provided.

Table 13 Preliminary Acoustic Specification for the Development

Preliminary minimum sound reduction performance (dB)		**Example configuration**
Glazing (R_w)	**Ventilation Performance ($D_{n,e,w}$)**	
31	36	• 4mm glazing/120mm airgap/4mm glazing • Mechanical ventilation with Heat Recovery

It is understood that the development will implement MVHR, allowing windows to remain shut to mitigate noise whilst maintaining appropriate background ventilation rates. However, a review of the MVHR system should be carried out at the technical design stage to ensure that system generated noise is suitable attenuated, as well as ensuring the insulation performance of the façade is not compromised by the normalised weighted element difference ($D_{n,e,w}$) of the atmospheric side terminations.

Where there are no noise sensitive rooms on facades then there would be no specific requirements for façade insulation. The requirements for façade insulation are subject to the final façade build-ups. The guidance contained herein is therefore subject to development during detailed design and should not be used for tender purposes.

7.3 External Plant Requirements

In the industrial noise impact assessment Section 6.3.1, it is assumed that the development will include four HVAC units, each with a sound power level of 70 dB L_w, and a substation, shown on the site plan, is assumed to have a sound power level of 70 dB L_{w/m^2} at the façade.

These values are assumptions for the assessment only, as the final plant selections have not yet been confirmed at this stage of design.

Once detailed plant specifications are available during the technical design stage, a BS4142 assessment should be carried out to evaluate the cumulative noise from all fixed plant at existing noise sensitive receptors to ensure significant effects are avoided. This assessment should consider whether the plant noise is intermittent, tonal, impulsive, or otherwise distinctive, and apply any appropriate feature corrections in line with the standard.

In the meantime, it is recommended that consideration should be given to the location of external and/or externally terminating fixed plant, utilising inherent building screening and the mitigation measures proposed herein to minimise the need for additional mitigation. Provisions should also be made for the selection of low-noise equipment, silencers, localised screens, and other attenuation measures where necessary.

A review of plant noise emissions should be undertaken by a suitably qualified acoustician once final plant specifications are available.

8 Conclusion

Stantec has been appointed to carried out a noise assessment to accompany a outline application for Plot 100 at Dunsbury Park, Fitzwygram Cres, Havant PO9 4EE.

Assessments have been carried out to consider the potential for impacts in accordance with relevant Planning Policies and British Standards, and with reference to the development layout.

A summary of the key noise considerations for the assessment are as follows:

- Construction Phase:
    - Construction noise and vibration impacts on existing Noise Sensitive Receptors (NSRs);
- Operational phase:
    - Development generated road traffic noise at existing NSRs;
    - Noise impact on proposed NSRs;
    - Industrial noise on existing NSRs; and,
    - Industrial noise on proposed NSRs.

An updated noise survey has been carried out at and around the proposed development site. The results of which have been used to support the assessments together with the use of noise modelling software SoundPLAN V9.1.

Based on the results of the survey, the existing NSRs in the vicinity of the Site are classified as 'Category A' in accordance with BS5228-1. Therefore, level above which construction phase noise may cause significant impact at is 65 dB(A) $L_{Aeq,T}$.

Methods to reduce the potential construction noise and vibration impacts have been outlined in Section 7 of this report. The recommendations should be included within a Construction Environmental Management Plan (CEMP), to be provided by the contractor.

The predicted increase in road traffic noise arising from the proposed development is assessed to be negligible at the identified nearby noise sensitive receptors. Therefore, no significant impacts are anticipated.

The assessment of existing noise affecting proposed sensitive receptors indicates that internal noise levels can be maintained within acceptable limits through the application of standard façade treatments.

Predicted operational noise levels indicate no significant impact at existing NSRs. For proposed NSRs, within the proposed development, industrial noise levels are predicted to remain below the guideline internal noise criteria set out in BS8233:2014, assuming the use of standard thermal double glazing and alternative ventilation on the most exposed facades.

An example glazing and ventilation scheme has been provided in Section 7, to mitigate existing ambient and future industrial noise associate with the Proposed Development, at internal noise sensitive office uses. These recommendations should be reviewed during detailed design.

Appendix A Policy and Guidance

National Planning Policy Framework (NPPF)

Published in December 2024, this document sets out the Government's planning policies for England and supersedes the previous version of the NPPF published in 2023. It makes the following reference to noise in the section entitled Conserving and enhancing the natural environment:

> *"187. Planning policies and decisions should contribute to and enhance the natural and local environment by:*
>
> *[…]*
>
> *e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans."*

It also makes the following references to noise in the Section entitled Ground conditions and pollution:

> *"198. 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[72];*
>
> *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.*
>
> *72 See Explanatory Note to the Noise Policy Statement for England (Department for Environment, Food & Rural Affairs, 2010)."*

And

> *"200. 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."*

Noise Policy Statement for England (NPSE)

Published in March 2010, the Noise Policy Statement for England (NPSE) sets out the long-term vision of Government noise policy as follows:

> *"Promote good health and good quality of life through the effective management of noise within the context of Government policy on sustainable development."*

The NPSE identifies three observed effect levels, names "No Observed Effect Level" (NOEL), "Lowest Observed Adverse Effect Level" (LOAEL) and "Significant Observed Adverse Effect Level" (SOAEL).

The NPSE contains little detail on assessment methodologies and specific parameters at which the varying observed effect levels would occur in the context of a residential development.

Planning Practice Guidance (PPG)

The table below provides a summary of the noise exposure hierarchy, as described within Planning Practice Guidance (PPG).

Response	Examples of outcomes	Increasing effect level	Action
	No Observed Effect Level		
Not present	No Effect	No Observed Effect	No specific measures required
	No Observed Adverse Effect Level		
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life	No Observed Adverse Effect	No specific measures required
	Lowest Observed Adverse Effect Level		
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life	Observed Adverse Effect	Mitigate and reduce to a minimum
	Significant Observed Adverse Effect Level		
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

BS 8233:2014 - Guidance on sound insulation and noise reduction for buildings

As discussed above, there is no specific guidance contained within the Planning Condition and the NPSE. In lieu of this, the approach that is generally adopted when assessing environmental noise sources on residential developments is to undertake an assessment in accordance with BS 8233: 2014.

BS 8233 provides guidance for the control of noise in and around buildings. The guidance provided within the document is applicable to the design of new buildings, or refurbished buildings undergoing a change of use, but does not provide guidance on assessing the effects of changes in the external noise levels to occupants of an existing building. The guidance provided includes appropriate internal and external noise level criteria which are applicable to dwellings for steady external noise sources. It is stated that it is desirable that the internal ambient noise level does not exceed the following criteria set out in the table below:

Activity	Location	Period	
		Daytime (07:00 to 23:00 hrs)	Night-time (23:00 to 07:00 hrs)
Resting	Living room	$L_{Aeq,16hrs}$ 35 dB	-
Dining	Dining room/area	$L_{Aeq,16hrs}$ 40 dB	-
Sleeping (daytime resting)	Bedroom	$L_{Aeq,16hrs}$ 35 dB	$L_{Aeq,8hrs}$ 30 dB

Whilst BS 8233:2014 recognises that a guideline value may be set in terms of SEL or L_{AFmax} for the assessment of regular individual noise events that can cause sleep disturbance during the night-time, a specific criterion is not stipulated. Accordingly, reference has been made in this assessment to the World Health Organisation (WHO) 1999: Guidelines for Community Noise below.

World Health Organisation (WHO) 1999: Guidelines for Community Noise

As with the ‘good’ and ‘reasonable’ criteria in BS 8233, the L_{AFmax} criterion in BS8233 is largely concordant with the World Health Organisation (WHO) guidance 1999: Guidelines for community noise. This document draws upon guidance from Vallet and Vernay, which states:

> *“For good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dB L_{AFmax} more than 10-15 times per night”*

BS 4142:2014 - Methods for rating and assessing commercial and industrial sound

BS 4142 describes methods for rating and assessing sound from industrial and manufacturing processes, fixed installations which comprise mechanical and electrical plant and equipment, the loading and unloading of goods and materials at industrial and/or commercial premises and mobile plant and vehicles that are an intrinsic part of the overall sound emanating from premises or processes.

The methods use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.

If appropriate, the specific sound level of the source ($L_{Aeq,T}$) is corrected, by the application of one or more corrections for acoustic features to give a 'rating' level ($L_{Ar,Tr}$). The Standard effectively compares and rates the difference between the rating level of the sound and the prevailing

background sound level ($L_{A90,T}$). Comparing the rating level with the background sound level, BS 4142 states:

> *"Typically, the greater this difference, the greater the magnitude of 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."*

British Standard 5228: 2014 - Code of Practice for noise and vibration control on construction and open sites

Noise from Construction Plant and Vehicles

Guidance on the assessment of noise from development sites is given in British Standard 5228-1:2009+A1:2014 “Code of Practice for noise and vibration control on construction and open Sites – Part 1: Noise” (BS5228-1), and BRE Controlling particles, vapour and noise pollution from construction Sites, Parts 1 to 5, 2003.

In addition to the guidance from the local authority, the Control of Pollution Act 1974 (COPA 1974) gives the local authority power to serve a notice under Section 60 imposing requirements as to the way in which works are to be carried out. This could specify times of operation, maximum levels of noise which may be emitted and the type of plant which should or should not be used.

However, it might be preferable for the chosen contractor to obtain prior consent under Section 61 of COPA 1974. Section 61 enables anyone who intends to carry out works to apply to the local authority for consent.

Under Section 61 the local authorities and those responsible for construction work, have an opportunity to settle any problems, relating to the potential noise, before work starts.

The threshold of potential significant effect at a nearby noise sensitive receptor in accordance with BS5228-1, Annex E, is set out in the table below. The level is based on the ambient noise level at the site, when rounded to the nearest 5dB. The limit value is then compared to the site noise level to determine the potential for effect.

Example threshold of potential significant effect at dwellings

Assessment Category and Threshold Value Period ($LA_{eq,T}$)	Threshold Value, in decibels (dB)		
	Category A [A]	Category B [B]	Category C [C]
Night-time (23:00- 07:00)	45	50	55
Evening and weekends [D]	55	60	65
Daytime (07:00 - 19:00) and Saturdays (07:00 - 13:00)	65	70	75

Note 1: A potential significant effect is indicated if the $L_{Aeq,T}$ noise level arising from the site exceeds the threshold level for the category appropriate to the ambient noise levels.

Example threshold of potential significant effect at dwellings
Note 2: if the ambient noise level exceeds the Category C threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a potential significant effect is indicated if the total $L_{Aeq,T}$ noise level for the period increases by more than 3dB due to site noise. Note 3: Applied to residential receptors only.
A) Category A: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are less than this value. B) Category B: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are the same as category A values. C) Category C: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are more than this value. D) 19:00 – 23:00 weekdays, 13:00-23:00 Saturdays and 07:00 – 23:00 Sundays.

LA111 Noise and Vibration – Design Manual for Roads and Bridges, 2020 (DMRB)

The Design Manual for Roads and Bridges (DMRB), published by National Highways, is a suite of documents which contains requirements and advice relating to works on motorway and all-purpose trunk roads for which one of the Overseeing Organisations is highway or road authority.

Although the DMRB strictly applies to new road schemes, where this project does not include, the principles of the approach contained within the document can also be applied to the assessment of noise from road traffic in general.

DMRB provides guidance on evaluating the magnitude of short-term and long-term impact associated with development generated road traffic during operational phases of a development, based on any predicted change in 18hour noise level $L_{A10,\ 18hour}$ (06:00 and 24:00).

Magnitude of impact at the existing noise sensitive receptors (NSRs) associated with noise from operation road traffic should be determined in accordance with the criteria recommended by DMRB guidance (Table 3.54a, Table 3.54b and Table 3.58 of DMRB), as shown in the table below.

Magnitude of change – Short-term and Long-term

Level of Magnitude	Short term noise change (dB $L_{A10,18hr}$ or L_{night})	Long term noise change (dB $L_{A10,18hr}$ or L_{night})	Significance
Major	≥ 5.0	≥ 10.0	Significant
Moderate	3.0 - 4.9	5.0 - 9.9	
Minor	1.0 - 2.9	3.0 - 4.9	Potentially Significant (Long-term) Not significant(short-term)
Negligible	0.1 - 0.9	0.1 - 2.9	Not significant
No Change	0	0	

The short-term and long-term impact shall be determined following the scenario below:

- Short-term: Do-Minimum opening year (DMOY) (without the proposed development) against Do-Something opening year (DSOY) (with the proposed development)
- Long-term: Do-Minimum scenario opening year (DMOY) (without the proposed development) against Do-Something future year1 (DSFY) (with the proposed development)

Where there is permanent change in magnitude of 1 dB $L_{A10,18h}$ in the short-term scenario or 3 dB LA10,18h in the long-term scenario, a recommendation on the scope of further assessment is required.

Calculation of Road Traffic Noise (CRTN), 1988

This document outlines standard procedures for calculating noise levels from road traffic. The calculation methods use a number of input variables, including traffic flow volume, average vehicle speed, percentage of heavy goods vehicles, type of road surface, site geometry and the presence of noise barriers or acoustically absorbent ground. CRTN predicts the L10 (18hour) dB(A) or L10 (1hour) dB(A) noise level for any receptor point at a given distance, up to 300 m, from the road.

The calculation in this report specifically focus on factors such as traffic flow (Q), speed(V) and heavy vehicle percentages(p), excluding the road characteristic and propagation corrections. The following equations are applied when predicting the basic noise level.

- Basic noise level:

$$L_{10(18-hour)} = 29.1 + 10Log_{10}Q\ dB(A)$$

- Correction for mean traffic speed and percentage of heavy vehicles:

$$Correction = 33Log_{10}\left(V + 40 + \frac{500}{V}\right) + 10Log_{10}\left(1 + \frac{5p}{V}\right) - 68.8\ dB(A)$$

Appendix B 2023 Noise Survey Summary

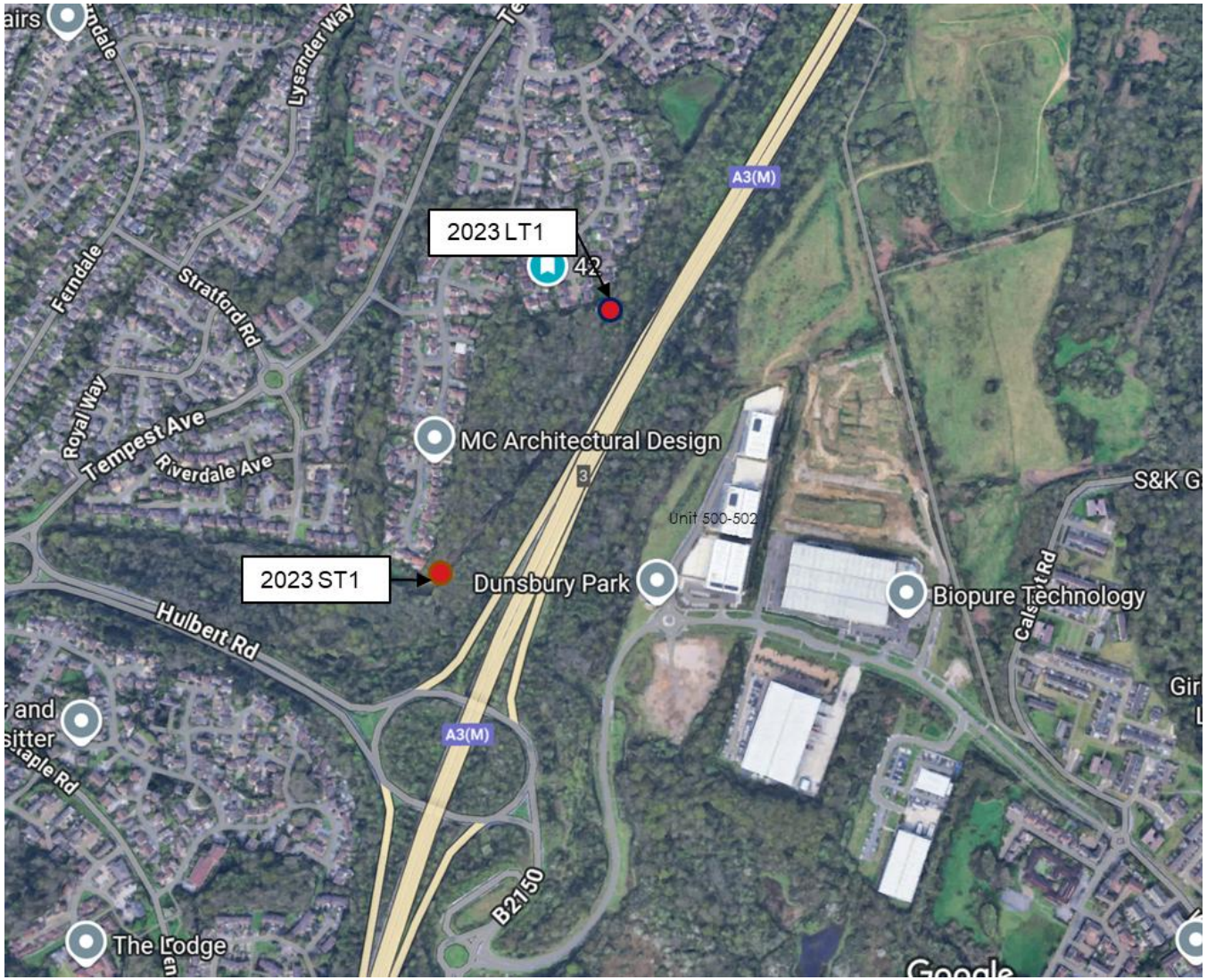
Long-term unattended Ambient and Background Sound Levels

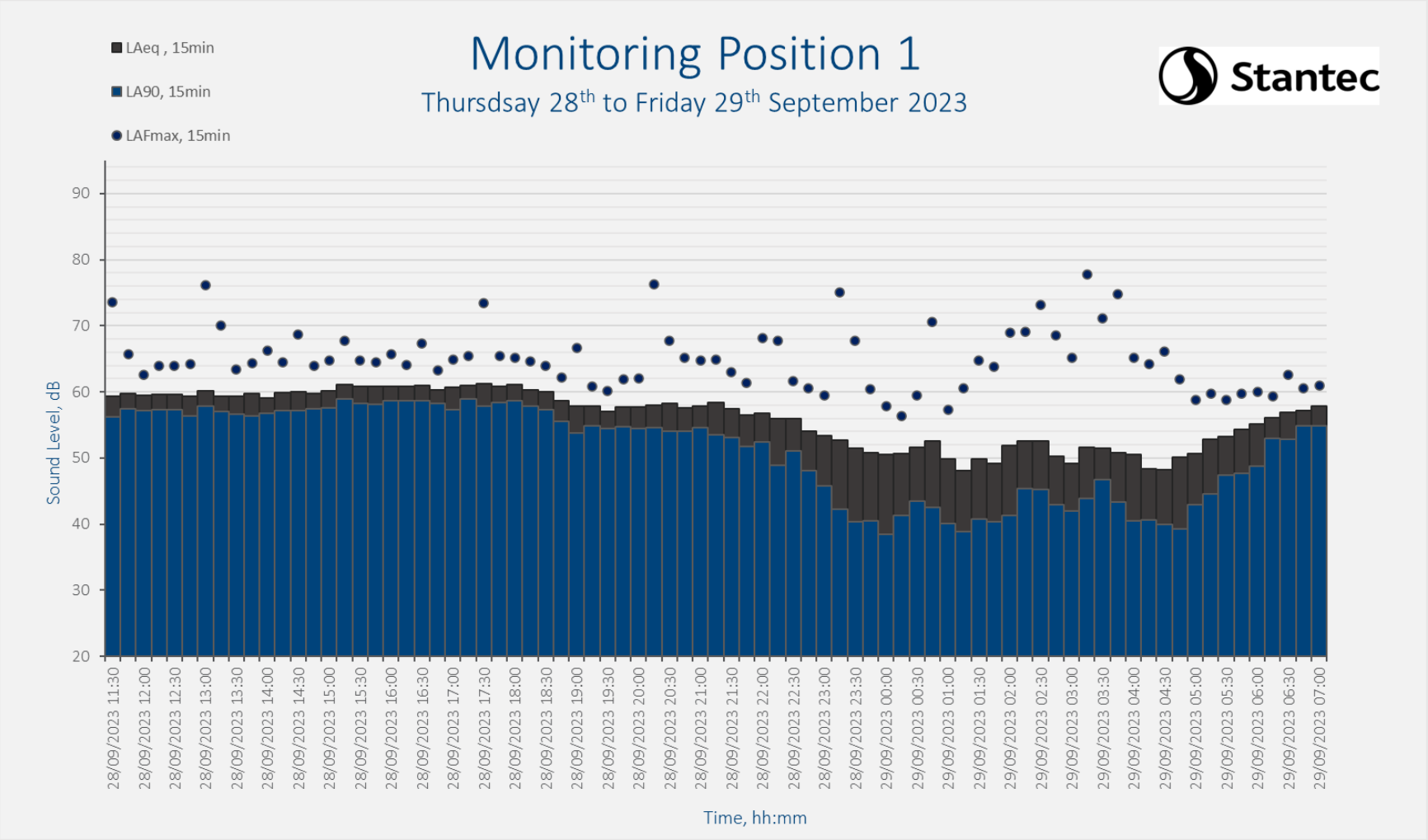
Measurement Location	Time Period (hours)	Equivalent Continuous Sound Level $L_{Aeq,15min}$ dB(A)	Representative Background Sound Level $L_{A90,\ 15\ min}$ dB(A)
LT1	0700 – 2300	59	58
	2300 - 0700	51	50

Short-Term Measurement Results

Measurement Location	Synchronous Measurement Period	Duration (minutes)	Background Noise Levels measured at the nearest Long-term monitoring ($L_{A90,\ 15min}$ dB)	Simultaneous short-term measurement ($L_{A90,\ 15min}$)	Difference (dB)
ST1	28 Sep 2023 12:30-13:00	30	60 (LT1)	53	-7

Measurement Locations




LAeq , 15min
LA90, 15min
LAFmax, 15min
Monitoring Position 1
Thursdsay 28th to Friday 29th September 2023
Stantec
Sound Level, dB
90
80
70
60
50
40
30
20
28/09/2023 11:30
28/09/2023 12:00
28/09/2023 12:30
28/09/2023 13:00
28/09/2023 13:30
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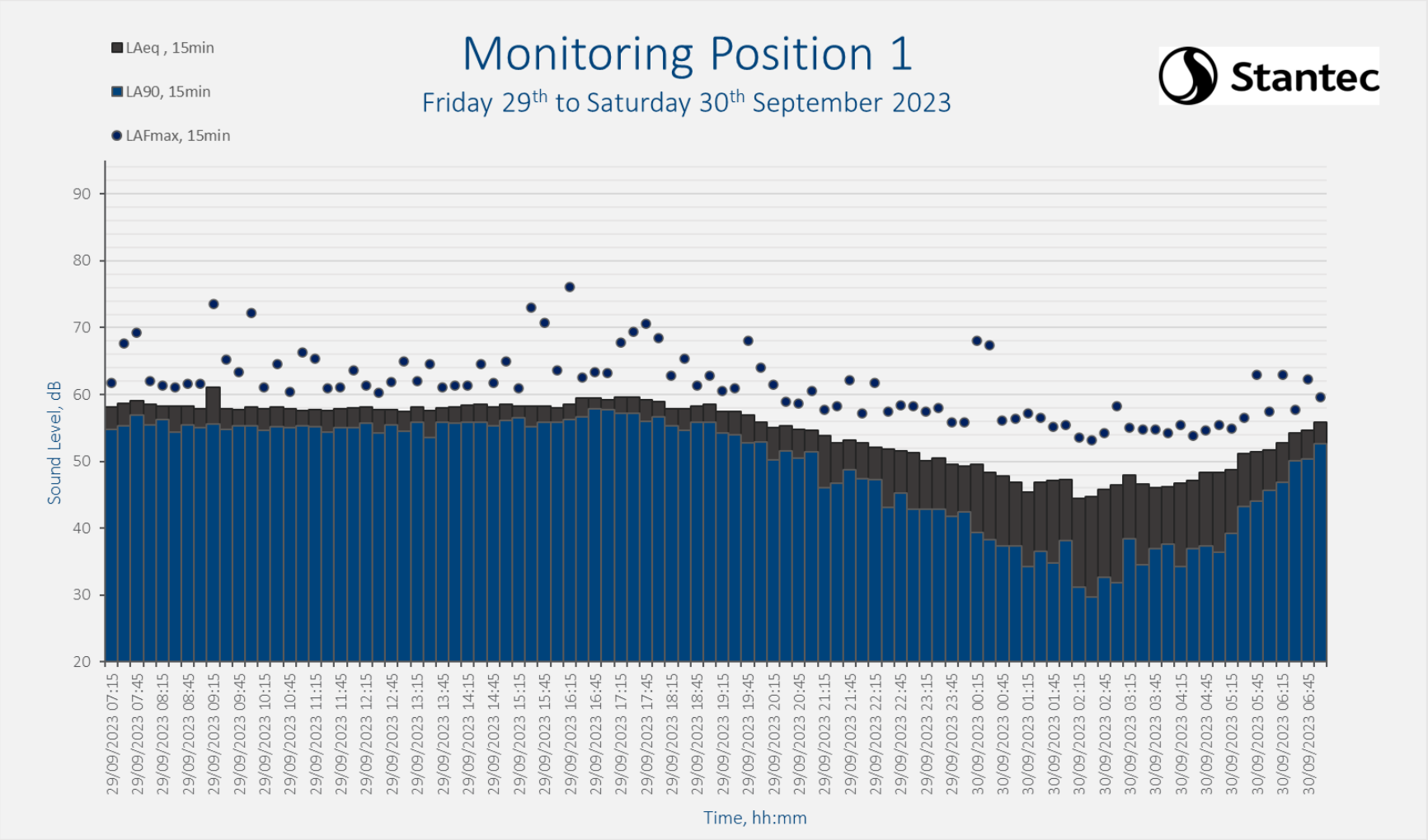
Time, hh:mm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LA90, 15min
LAFmax, 15min
Monitoring Position 1
Friday 29th to Saturday 30th September 2023
Stantec
Sound Level, dB
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80
70
60
50
40
30
20
29/09/2023 07:15
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29/09/2023 08:15
29/09/2023 08:45
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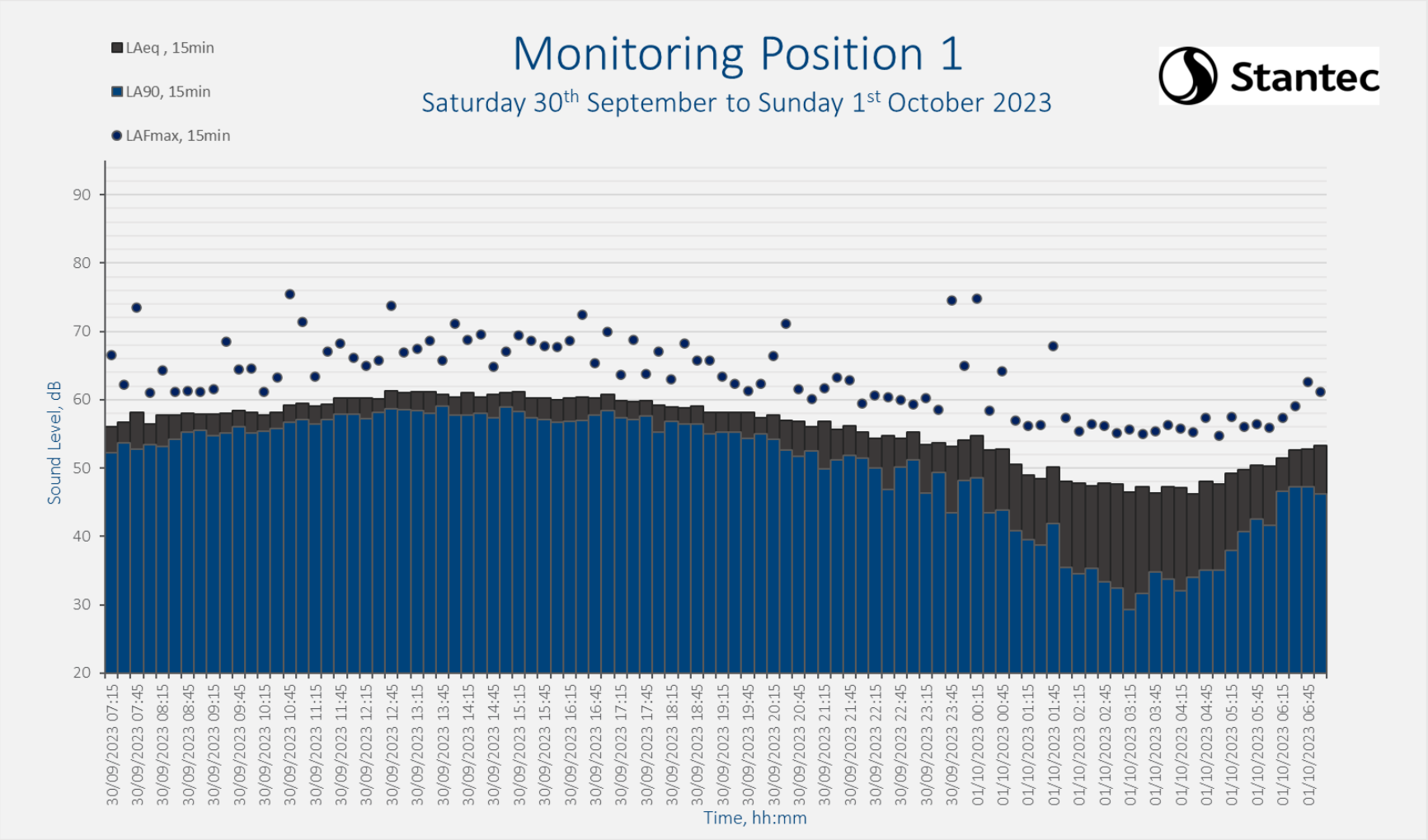
Time, hh:mm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LA90, 15min
LAFmax, 15min
Monitoring Position 1
Saturday 30th September to Sunday 1st October 2023
Stantec
Sound Level, dB
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80
70
60
50
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30
20
30/09/2023 07:15
30/09/2023 07:45
30/09/2023 08:15
30/09/2023 08:45
30/09/2023 09:15
30/09/2023 09:45
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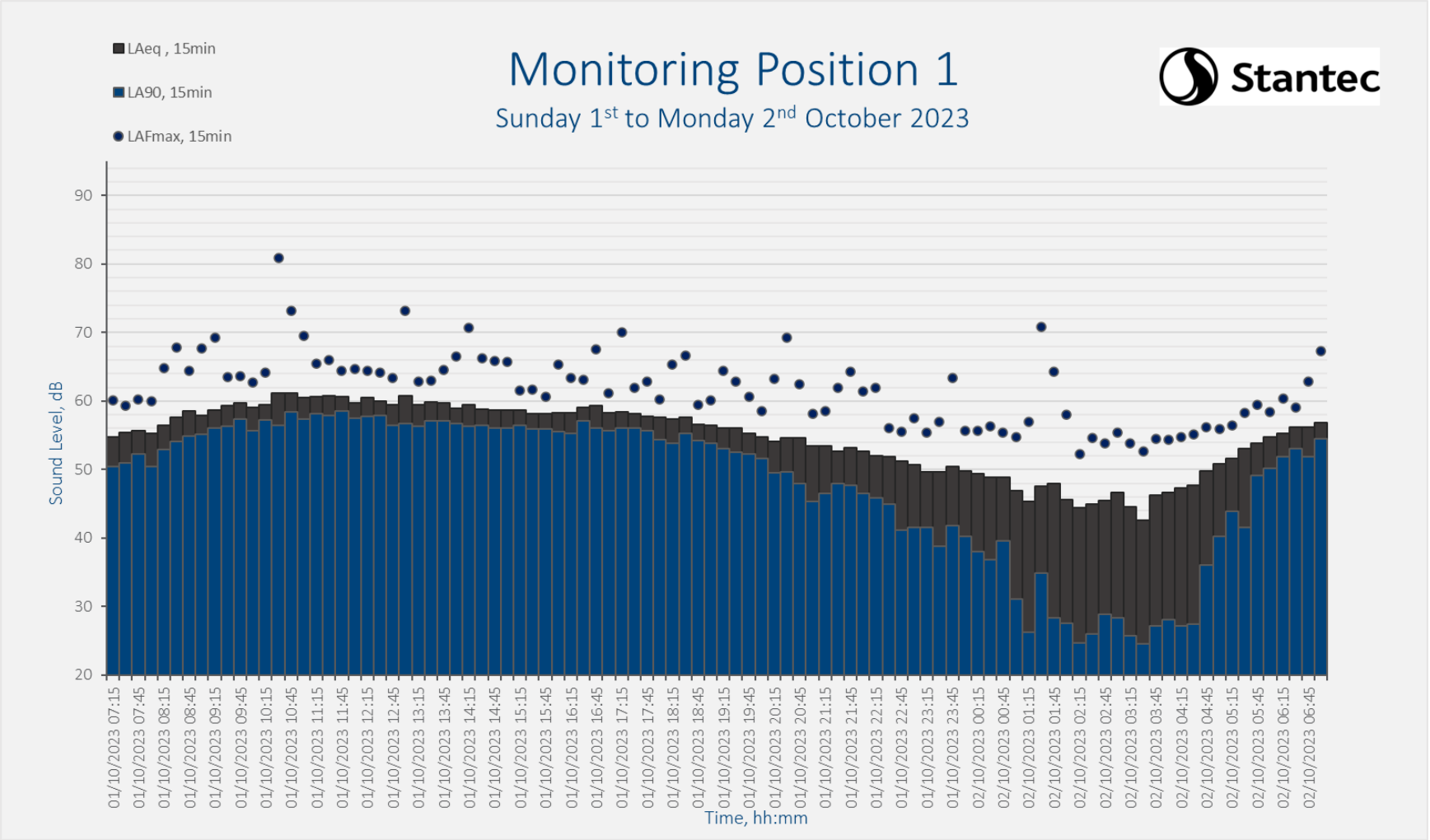
Time, hh:mm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LA90, 15min
LAFmax, 15min
Monitoring Position 1
Sunday 1st to Monday 2nd October 2023
Stantec
Sound Level, dB
90
80
70
60
50
40
30
20
01/10/2023 07:15
01/10/2023 07:45
01/10/2023 08:15
01/10/2023 08:45
01/10/2023 09:15
01/10/2023 09:45
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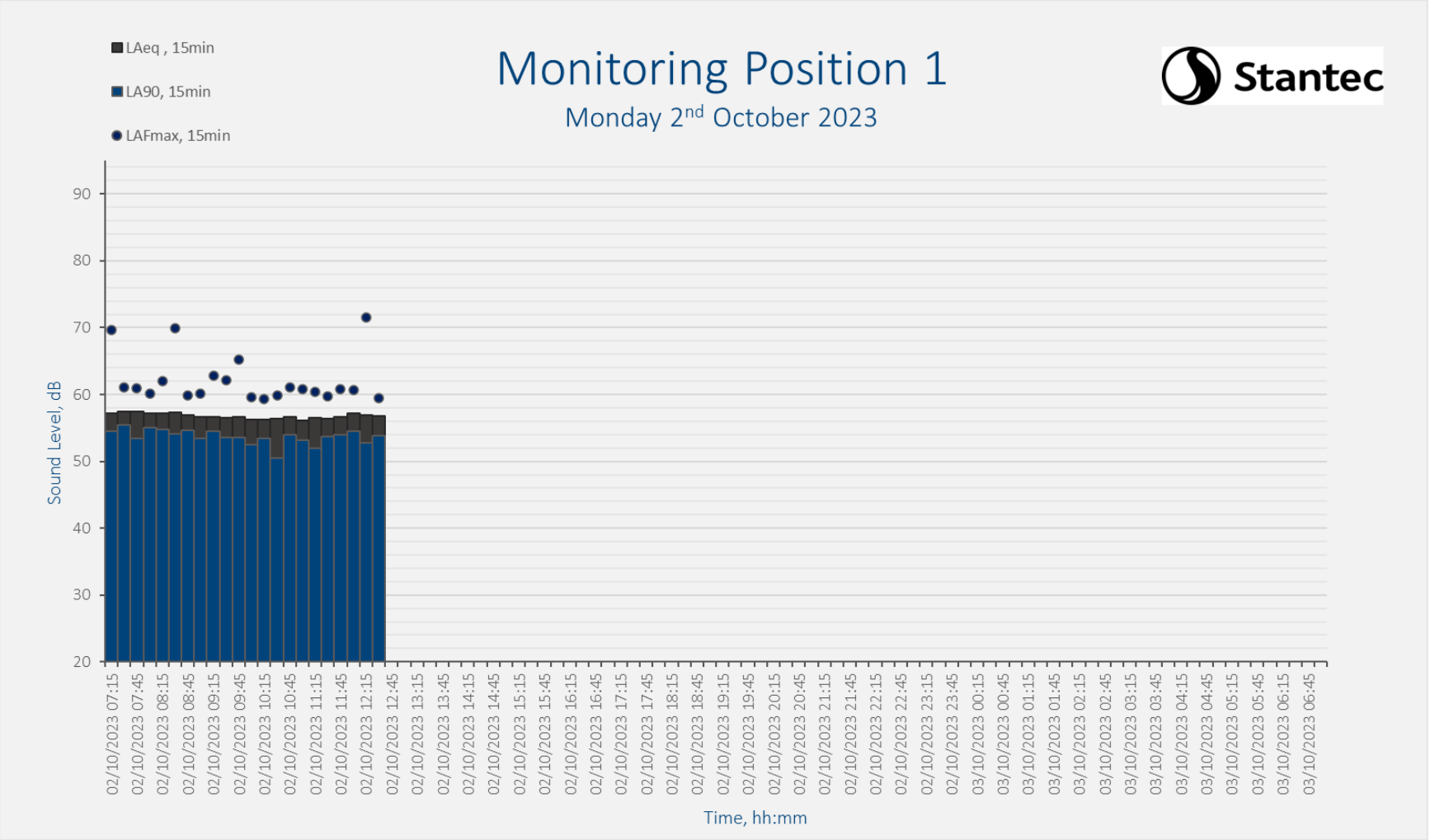
Time, hh:mm


LAeq , 15min
LA90, 15min
LAFmax, 15min
Monitoring Position 1
Monday 2nd October 2023
Stantec
Sound Level, dB
90
80
70
60
50
40
30
20
02/10/2023 07:15
02/10/2023 07:45
02/10/2023 08:15
02/10/2023 08:45
02/10/2023 09:15
02/10/2023 09:45
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02/10/2023 10:45
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02/10/2023 11:45
02/10/2023 12:15
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02/10/2023 14:45
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02/10/2023 15:45
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03/10/2023 00:15
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03/10/2023 01:45
03/10/2023 02:15
03/10/2023 02:45
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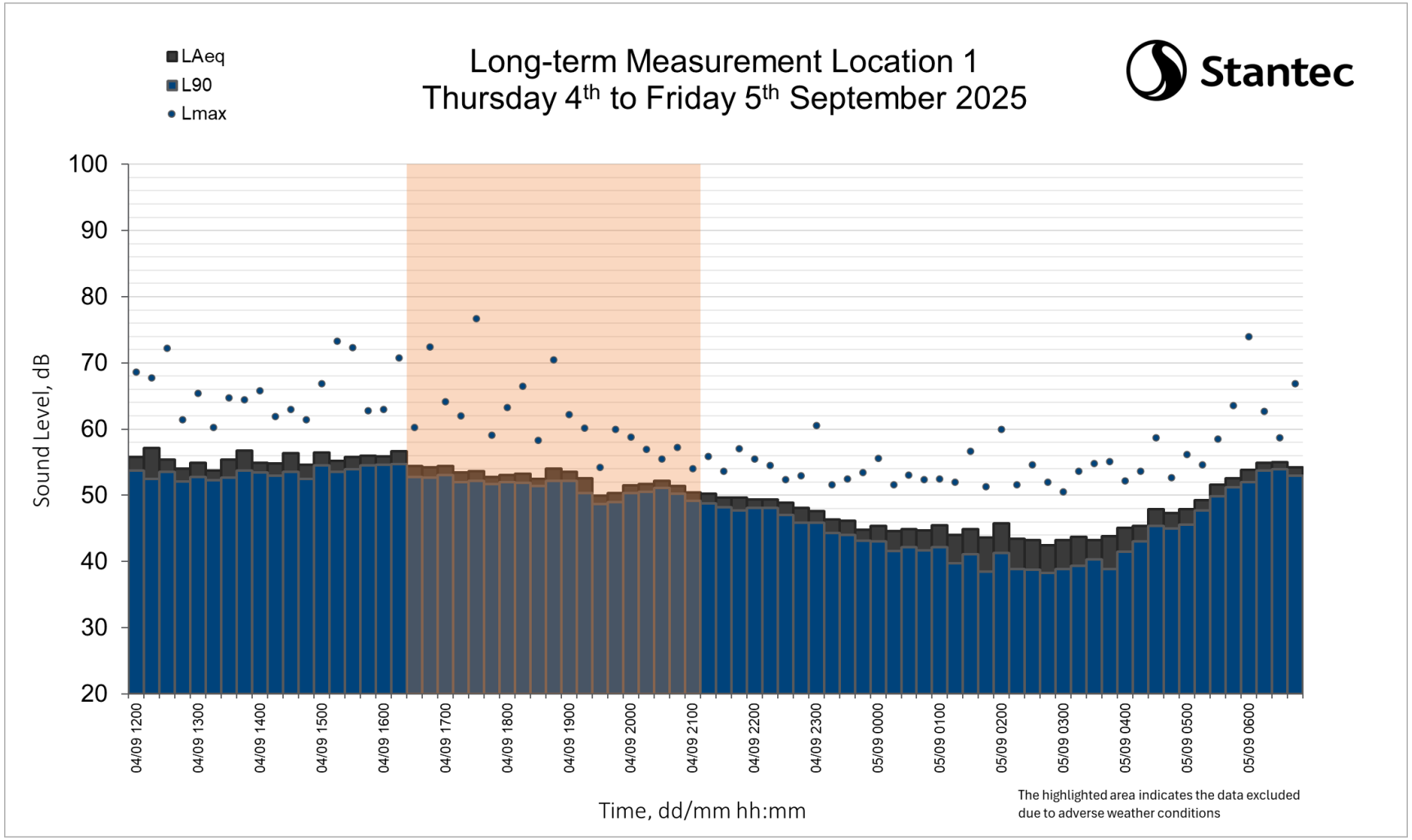
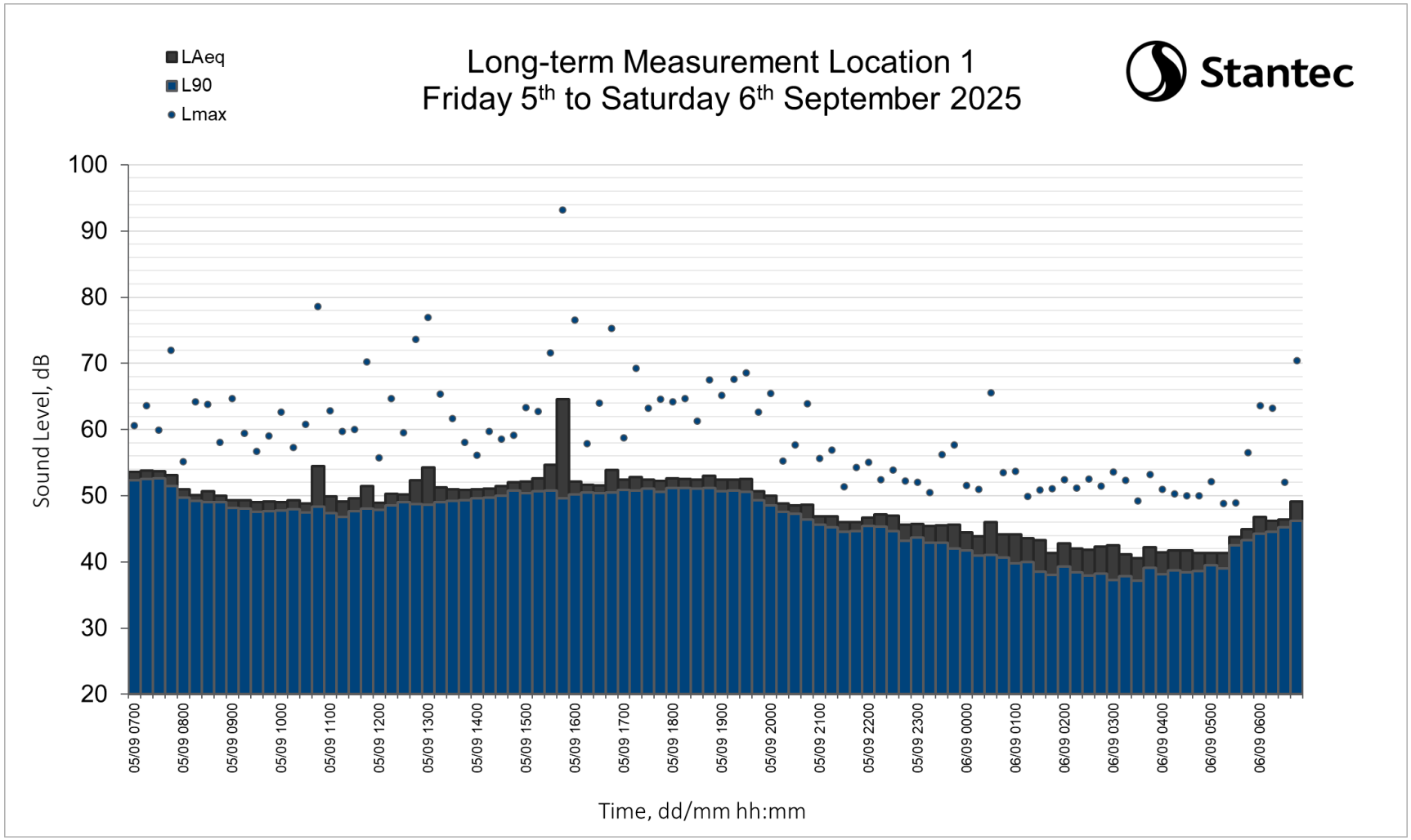
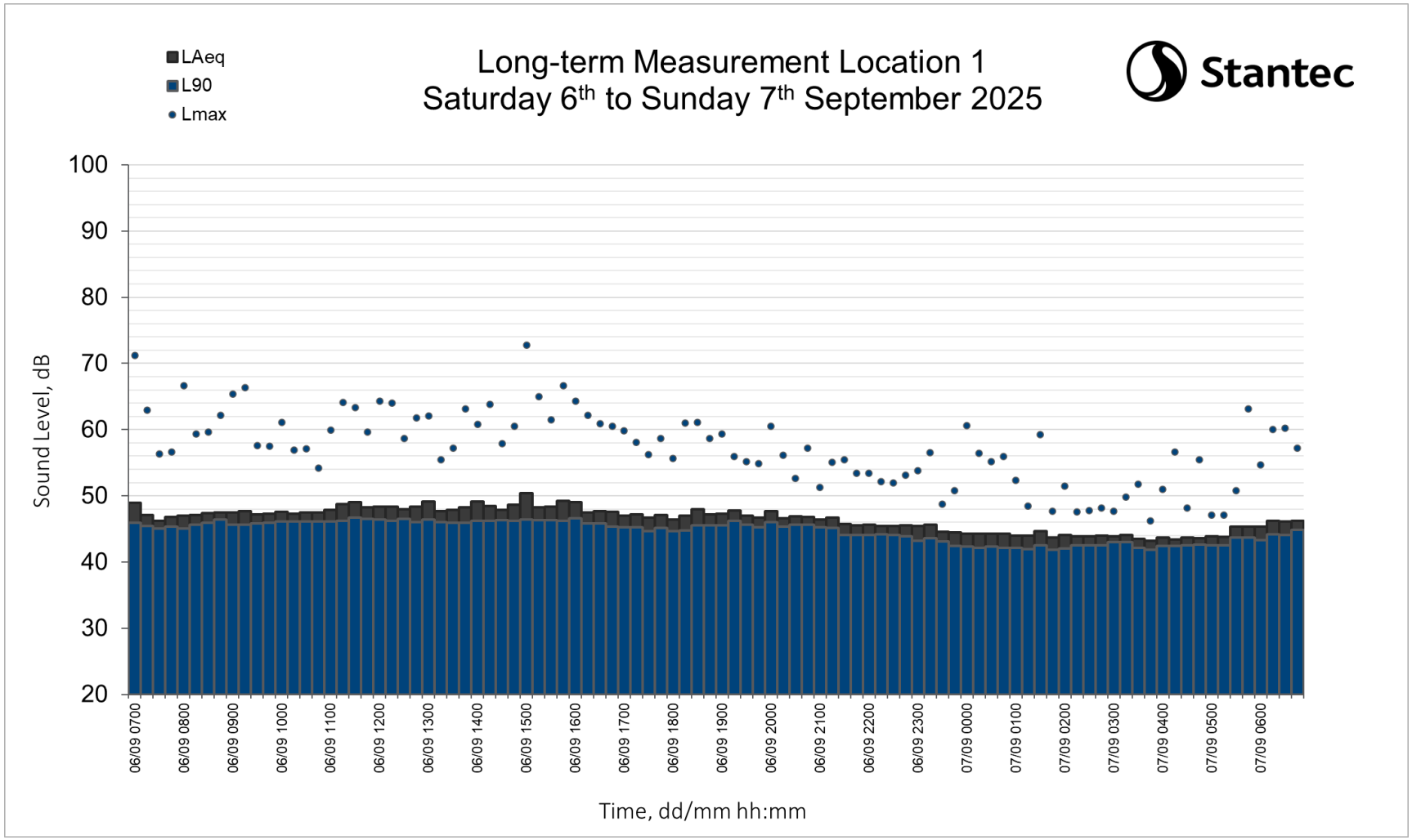
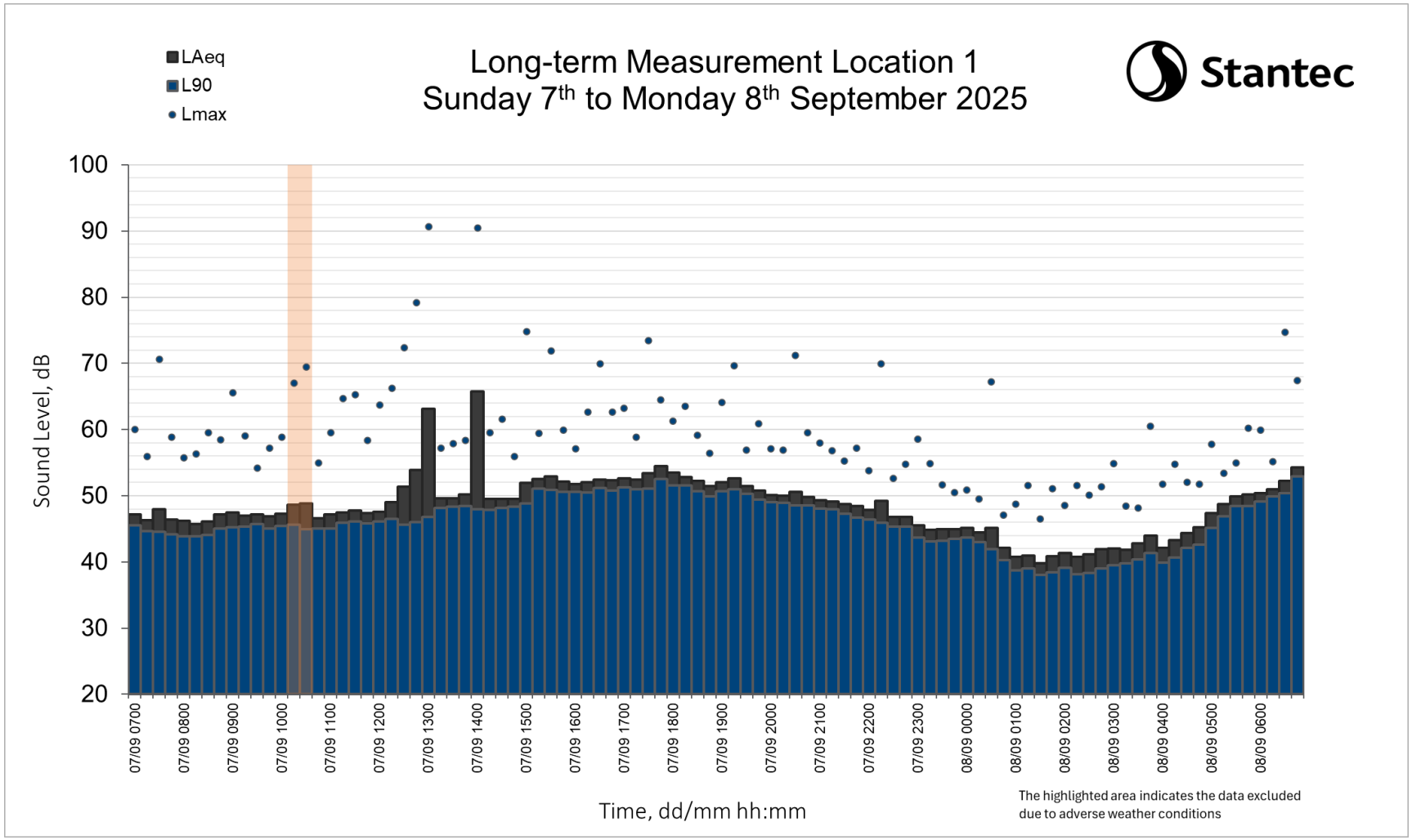
03/10/2023 04:45
03/10/2023 05:15
03/10/2023 05:45
03/10/2023 06:15
03/10/2023 06:45
Time, hh:mm

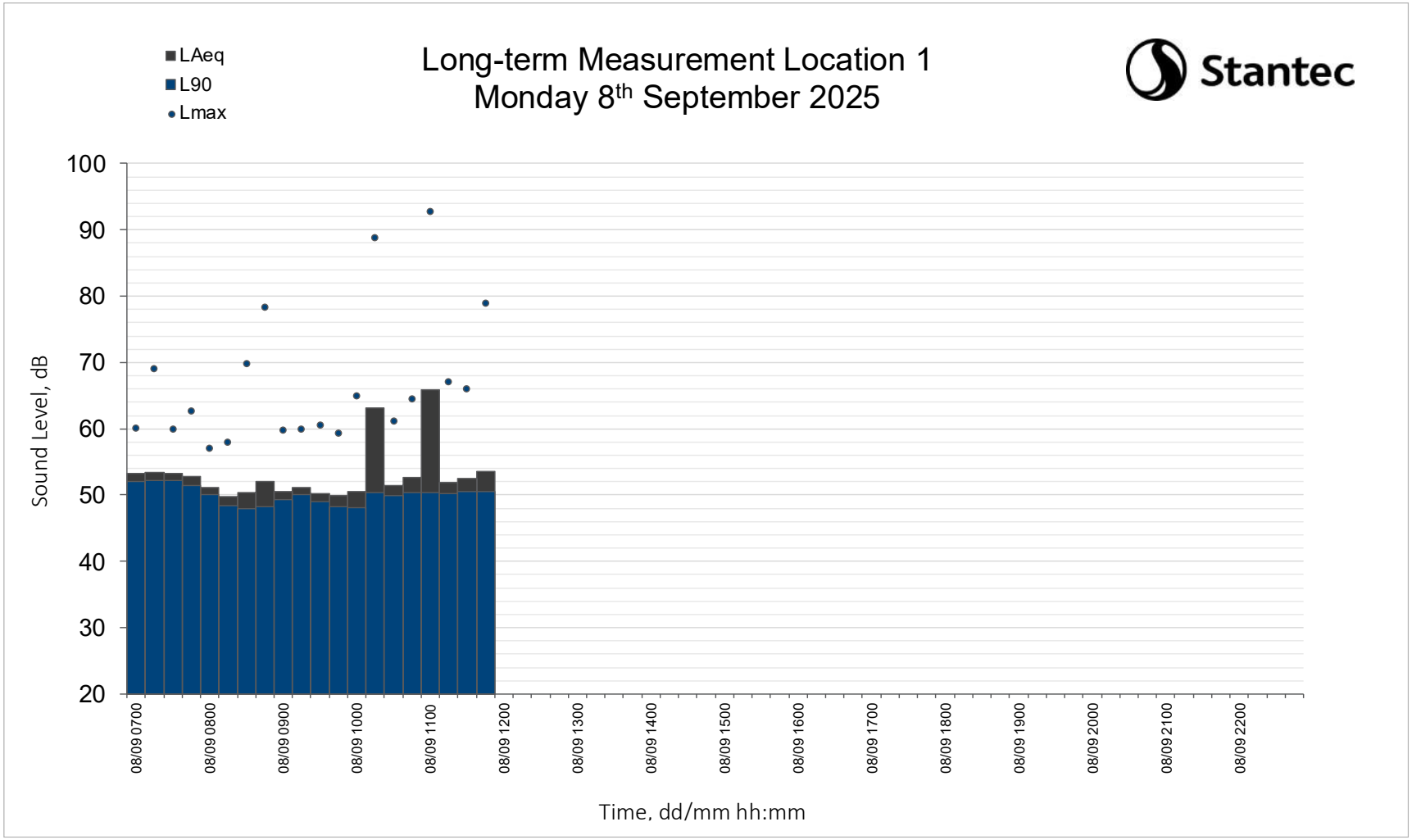
Appendix C 2025 Noise Survey Data




LAeq
L90
Lmax
Long-term Measurement Location 1
Friday 5th to Saturday 6th September 2025
Stantec
Sound Level, dB
100
90
80
70
60
50
40
30
20
05/09 0700
05/09 0800
05/09 0900
05/09 1000
05/09 1100
05/09 1200
05/09 1300
05/09 1400
05/09 1500
05/09 1600
05/09 1700
05/09 1800
05/09 1900
05/09 2000
05/09 2100
05/09 2200
05/09 2300
06/09 0000
06/09 0100
06/09 0200
06/09 0300
06/09 0400
06/09 0500
06/09 0600
Time, dd/mm hh:mm


LAeq
L90
Lmax
Long-term Measurement Location 1
Saturday 6th to Sunday 7th September 2025
Stantec
Sound Level, dB
100
90
80
70
60
50
40
30
20
06/09 0700
06/09 0800
06/09 0900
06/09 1000
06/09 1100
06/09 1200
06/09 1300
06/09 1400
06/09 1500
06/09 1600
06/09 1700
06/09 1800
06/09 1900
06/09 2000
06/09 2100
06/09 2200
06/09 2300
07/09 0000
07/09 0100
07/09 0200
07/09 0300
07/09 0400
07/09 0500
07/09 0600
Time, dd/mm hh:mm


LAeq
L90
Lmax
Long-term Measurement Location 1
Sunday 7th to Monday 8th September 2025
Stantec
Sound Level, dB
100
90
80
70
60
50
40
30
20
07/09 0700
07/09 0800
07/09 0900
07/09 1000
07/09 1100
07/09 1200
07/09 1300
07/09 1400
07/09 1500
07/09 1600
07/09 1700
07/09 1800
07/09 1900
07/09 2000
07/09 2100
07/09 2200
07/09 2300
08/09 0000
08/09 0100
08/09 0200
08/09 0300
08/09 0400
08/09 0500
08/09 0600
Time, dd/mm hh:mm
The highlighted area indicates the data excluded due to adverse weather conditions


LAeq
L90
Lmax
Long-term Measurement Location 1
Monday 8th September 2025
Stantec
Sound Level, dB
100
90
80
70
60
50
40
30
20
08/09 0700
08/09 0800
08/09 0900
08/09 1000
08/09 1100
08/09 1200
08/09 1300
08/09 1400
08/09 1500
08/09 1600
08/09 1700
08/09 1800
08/09 1900
08/09 2000
08/09 2100
08/09 2200
Time, dd/mm hh:mm

Appendix D Traffic Data (Provided by Paul Basham Associates)

Plot 100

Road name	Scenario	Total Vehicles		HGV%	
		18-hour AAWT (06:00-24:00)	8-hour (AAWT) 23:00-07:00	18-hour AAWT (06:00-24:00)	8-hour (AAWT) 23:00-07:00
Fitzwygram Way	2027 Opening year (without development)	1257	88	37.1%	18.9%
	2027 Opening year (with development)	1379	97	36.6%	18.9%
	2040[2] Future year (15 years after opening) (without development)	1370	96	37.1%	18.9%
	2040[2] Future year (15 years after opening) (with development)	1511	106	36.6%	18.9%

Assumptions:

1. Development traffic is assumed to route to/from the SRN via the A3(M).
2. Overnight trips (7% of 18-hour AAWT) are based on Fitzwygram Way survey results.
3. HGV proportion assumed as 18.85% in line with the Fitzwygram Way survey.
4. B8 Warehousing (Commercial) land use adopted for assessment.
5. Assessment based on the outline application floor area for Unit 400.
6. Traffic growth projected to 2040 (15 years from 2027), as TEMPro data currently extend to 2040.
7. Background HGV traffic assumed to grow at the same rate as total vehicle traffic.

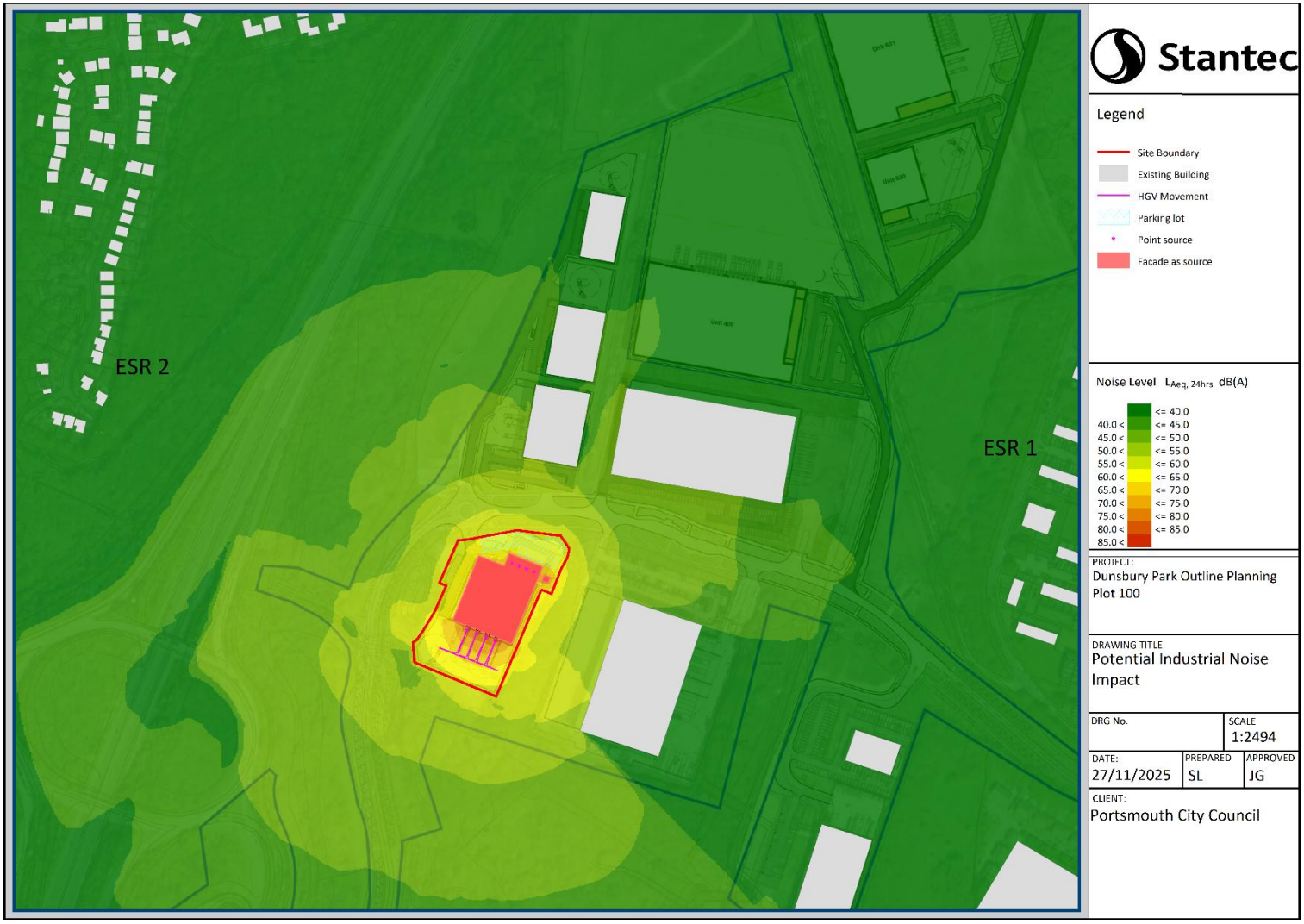
[2] The future assessment year is identified as 2042; however, traffic forecasts are based on 2040 data. This is because the TEMPro database, which is used for background traffic growth projections, currently only provides data up to 2040.

Appendix E Modelling Assumptions

The following general calculation methodologies and assumptions were adopted and implemented into the acoustic model:

- Mapping of the site and the surrounding area was imported into the noise model based on information provided by the design team and known Ordinance Survey grid reference points;
- The site terrain and heights of existing buildings have been imported using commercially available Digital Terrain Models (DTMs) and Digital Surfaces Models (DSMs) respectively. The terrain points were filtered to create ground contours and modified to the finished level of the site.
- Existing buildings, and committed developments, are incorporated within the acoustic model, to allow prediction of screening effects across the site. Buildings are assumed to have fully acoustically reflective facades;
- Noise propagation is predicted in accordance with ISO 9613-2:2024-01 ‘Acoustics – Attenuation of sound during propagation outdoors – Part 2: General Method of calculation’ (ISO9613);
- To reflect the local ground cover, ground absorption was set to G = 0.2 for majority hard ground; and G= 0.8 for soft ground.
- 3rd order reflections included in calculation model to accurately analyse reflected characteristics of cooling plant.

Appendix F Potential Industrial Impacts



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