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WÄRTSILÄ DEFENCE, HAVANT
PLANT NOISE ASSESSMENT

Technical Report: R11534-1 Rev 0

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For: Wärtsilä Defence Solutions Ltd.
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1.0 INTRODUCTION

- 1.1 24 Acoustics Ltd has been appointed by Wärtsilä Defence Solutions Ltd to undertake an assessment of noise from plant at their site in Havant. Retrospective planning consent is sought from Havant Borough Council, for the installation of an external dust extraction system.
- 1.2 This report presents the results of the assessment, following site visits and environmental noise measurements undertaken in February 2026.
- 1.3 An explanation of acoustical terms used in this report is provided in Appendix A. All sound pressure levels in this report are given in dB re: 20μPa.

2.0 SITE DESCRIPTION

- 2.1 The development site is situated in an industrial estate on Marples Way in Havant. The main building (approximately 60x45m in footprint) of the premises houses offices and manufacturing facilities, with further workshops, warehouses and plant units located in a yard on the north-western corner of the building.
- 2.2 The site has been operating for a number of years, with existing consented external plant running to facilitate operations. An enclosure on the northern boundary of the yard houses compressors that run 24 hours daily, and form part of the existing noise climate.
- 2.3 Retrospective planning permission is being sought for the installation of an external dust extraction system, known as the 'Donaldson', which is installed in the corner joining the main building and the western workshops and warehouses. The unit operates from 06:00 to 22:30 hours, and comprises motors at ground level, with ductwork and dust filtration and collection systems terminating at a higher level.
- 2.4 The area to the north of site is residential on Abrams Way, and is acoustically screened from the Donaldson plant by a solid fence (approximately 4m in height above ground level), and by the facades of the main building, workshops and warehouses. It is relevant to note that Wärtsilä Defence has not received any complaints from these properties regarding the Donaldson plant.
- 2.5 The A27 Havant Bypass runs to the south of the site, approximately 120m from the building's boundary. The A27 features heavy traffic flows which contribute significantly to the noise climate in the surrounding area, increasing in the morning from as early as 04:00, and decreasing steadily throughout the evening.

2.6 A site overview is provided in Figure 1.

3.0 NOISE CRITERIA

National Planning Policy Framework & Noise Policy Statement for England

3.1 The National Planning Policy Framework (NPPF) [Reference 1] states that planning policies and decisions should aim to:

- 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 quality of life.
- Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

3.2 The NPPF also refers to the Noise Policy Statement for England (NPSE) [Reference 2] which is intended to apply to all forms of noise, including environmental noise, neighbour noise and neighbourhood noise. The NPSE sets out the Government's long-term vision to 'promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development' which is supported by the following aims.

- Avoid significant adverse impacts on health and quality of life;
- Mitigate and minimise adverse impacts on health and quality of life.

3.3 The NPSE defines the concept of a 'significant observed adverse effect level' (SOAEL) as 'the level above which significant adverse effects on health and quality of life occur'. The following guidance is provided within the NPSE:

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

- 3.4 The Planning Practice Guidance (PPG) [Reference 3] is written to support the NPPF with more specific planning guidance. The PPG reflects the NPSE and states that noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. It also states that opportunities should be taken, where practicable, to achieve improvements to the acoustic environment. The NPPG states that noise can over-ride other planning concerns but should not be considered in isolation from the other economic, social and environmental dimensions of the proposed development.
- 3.5 The PPG expands upon the concept of SOAEL (together with Lowest Observable Adverse Effect Level, LOAEL and No Observed Effect Level, NOEL) as introduced in the NPSE and provides a table of noise exposure hierarchy for use in noise impact assessments in the planning system.

Local Planning Authority

- 3.6 The following plant noise criterion has been provided by Laurence Evans, Environmental Health Officer at Havant:

"Noise emitted from any fixed building services plant and equipment shall be controlled to achieve a rating level at least 5 dB(A) below the representative existing background sound level ($L_{A90,T}$), when assessed in accordance with BS 4142:2014+A1:2019 at 1 metre outside any habitable window of any noise-sensitive premises..."

BS 4142: 2014+A1:2019 - Methods for Rating Industrial and Commercial Sound

- 3.7 BS 4142: 2014+A1:2019 [Reference 4] provides a method for rating the effects of industrial and commercial sound on residential areas. The standard advocates a comparison between the measured L_{A90} background noise level and L_{Aeq} noise level from the source being considered.
- 3.8 The standard states that, depending on the context, a difference between the rating level and the background level of around +10 dBA is an indication of a significant adverse impact, and a difference of around +5 dBA is likely to be an indication of an adverse impact. Where the rating level does not exceed the background noise level, this is an indication of the specific sound source having a low impact, depending upon the context.

4.0 NOISE MEASUREMENT EQUIPMENT AND METHODOLOGY

- 4.1 Environmental noise measurements were undertaken between the 23rd and 26th February 2026, to determine the existing ambient and background noise levels at the site.
- 4.2 Long-term noise measurements were undertaken on the boundary of the adjacent field to the west of site with the microphone situated 1m above ground level. The measurement location was chosen to be representative of the nearest properties on Abrams Way, and is shown in Figure 1.
- 4.3 The following instrumentation was used:
- Rion NL31 class 1 accuracy sound level meter;
 - Brüel and Kjær Type 4231 Class 1 accuracy acoustic calibrator.
- 4.4 Noise measurements were undertaken in 5-minute samples, in terms of free-field A weighted L_{eq} , L_{90} and $L_{max,f}$ parameters. Measurements were made in accordance with BS 7445:1991 "Description and measurement of environmental noise Part 2 - Acquisition of data pertinent to land use" [Reference 5].
- 4.5 The instrumentation's calibration was verified before and after the survey in accordance with the manufacturer's instructions. No significant drift in calibration was recorded. The microphone was fitted with an environmental weather shield during the measurement periods.
- 4.6 Weather conditions during the surveying period were mostly dry, with wind speeds below 5m/s. Where weather conditions were unsuitable for noise measurements, these samples have been omitted prior to analysis.
- 4.7 The noise climate at the long-term measurement location is controlled by road traffic using the A27, which varies according to traffic flows and wind direction, with contributions also from plant on site.
- 4.8 To provide a robust and conservative assessment, background noise levels have been analysed during late evening periods (22:30 to 23:30) when traffic flows are lower and noise from the Donaldson unit is excluded. The representative background noise level is 50 dB L_{A90} .

Short-term Plant Measurements

- 4.9 Short-term plant noise measurements were undertaken at the site on 17th February 2026, to quantify noise from the Donaldson extraction unit at varying distances. Measurements were undertaken in 1-minute samples, in terms of free-field A-weighted and linear 1/3 octave band L_{eq} and L_{90} parameters, with the extraction unit operating.
- 4.10 The measured noise levels from the Donaldson, are summarised in terms of the short-term L_{Aeq} in Table 1 and Figure 2.

Measured Noise Level from Donaldson Plant, dB $L_{Aeq, 1m}$		
Horizontal distance from Donaldson	Height above ground level	
	1.5m	4.5m
1.5m	78	77
5m	74	73

Table 1 - Measured noise levels from Donaldson Plant

- 4.11 The motor at ground level is the primary contributor of noise from the Donaldson, with further contributions radiating from the connected ductwork and dust filtration systems.
- 4.12 The Donaldson unit operates at a consistent noise level throughout its operating period and does not exhibit intermittent or impulsive characteristics.
- 4.13 When measuring adjacent to the Donaldson, the noise generated is moderately tonal in the 100 and 160 Hz 1/3rd octave frequency bands. The tonal characteristic of the sound diminishes with increasing distance from the unit, and the tonality is not perceptible at the nearest residential property.

Observations at 5 Abrams Way

- 4.14 The nearest property to the Donaldson plant is situated at 5 Abrams Way. The property is acoustically screened from the plant by the boundary fence, and by the Wärtsilä Defence buildings.
- 4.15 Subjectively, noise from the Donaldson plant was audible when at the front of 5 Abrams Way, however it was not significant compared to the existing ambient and background noise level (road traffic noise from the A27 and existing plant). Plant noise levels at the nearest properties have therefore been determined by calculation using the measured noise levels close to the plant.
- 4.16 Noise from the Donaldson was not perceptibly tonal at the nearest properties.

5.0 NOISE ASSESSMENT

Noise Levels at 5 Abrams Way

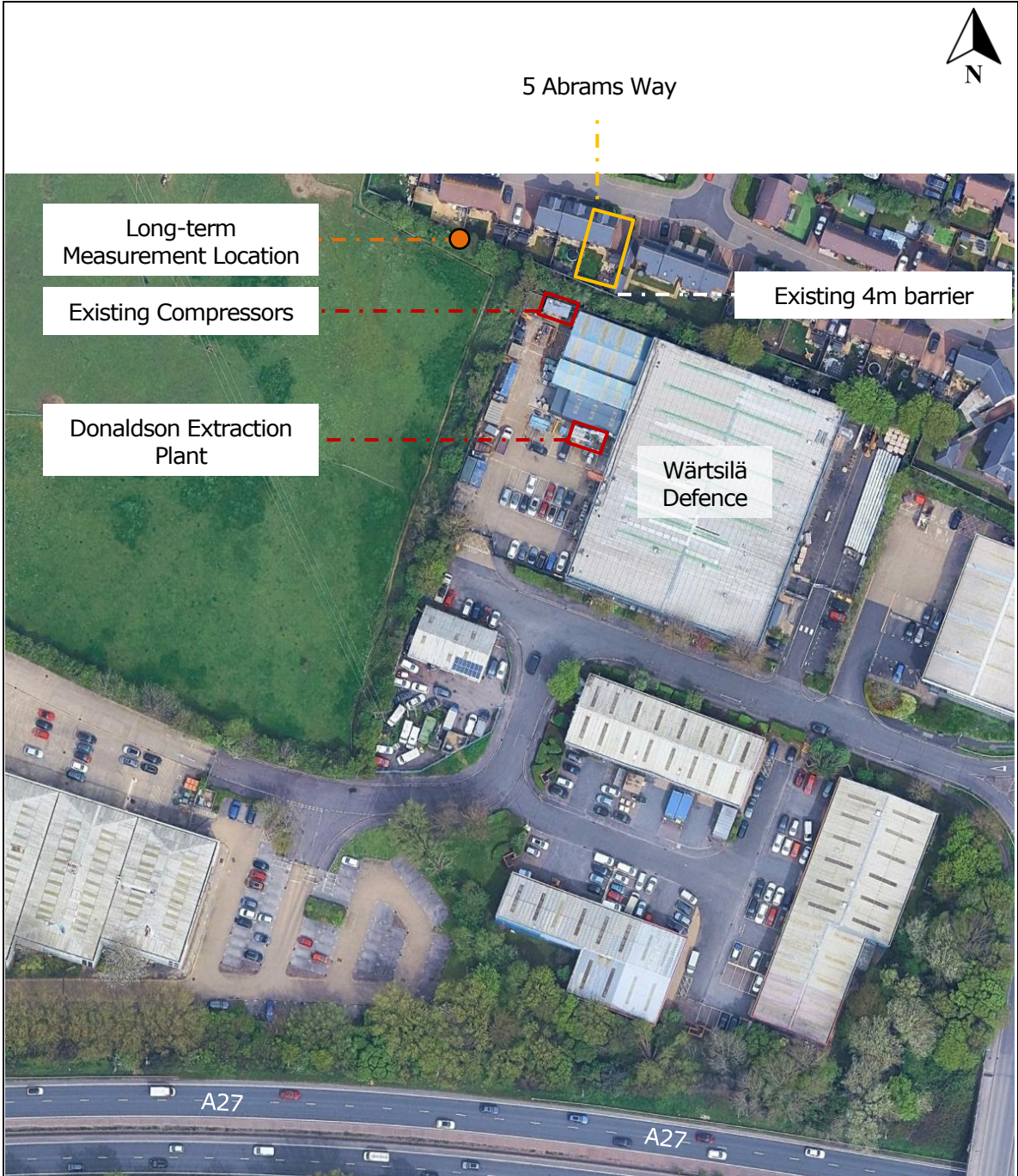
- 5.1 Calculations have been undertaken, based on the measured plant noise levels summarised in Table 1, to predict the noise level from plant at the first-floor windows at the rear of 5 Abrams Way. Calculations include losses due to distance (approximately 45m), and losses for acoustic screening from the existing barrier and buildings.
- 5.2 The Donaldson plant is not intermittent, impulsive, or tonal at 5 Abrams Way, therefore, no character correction has been applied, in line with BS 4142: 2014 +A1: 2019.
- 5.3 The calculated plant noise rating level at the rear façade of 5 Abrams Way is 42 dB $L_{A,r,T}$.
- 5.4 The calculated and measured plant noise levels from the Donaldson plant are more than 5 dBA below the background noise level of 50 dB $L_{A90,T}$ during the relevant operating hours, and therefore meet the plant noise criterion set out by Havant Borough Council.

6.0 CONCLUSIONS

- 6.1 24 Acoustics Ltd has been appointed by Wärtsilä Defence Solutions Ltd to undertake an assessment of noise from plant at their site in Havant. Retrospective planning consent is sought from Havant Borough Council, for the installation of an external dust extraction system.
- 6.2 An environmental noise survey has been undertaken to determine the existing background noise levels, representative of nearby residential properties. Short-term measurements were also undertaken to determine the noise level generated by the extraction plant.
- 6.3 Calculations have been undertaken, based on the measured noise levels, to determine the noise levels from the extraction plant at the nearest noise-sensitive receptors.
- 6.4 The assessment demonstrates that noise from the extraction plant is at least 5 dBA below the background noise level, and therefore meets the plant noise criterion set out by Havant Borough Council.

REFERENCES

1. Ministry of Housing, Communities & Local Government. National Planning Policy Framework, February 2025.
2. DEFRA, Noise Policy Statement for England, March 2010.
3. Planning Practice Guidance - Noise, Department of Communities and Local Government (revised July 2019).
4. British Standards Institution. British Standard 4142: Methods for rating and assessing commercial and industrial sound, 2014. BS 4142:2014+A1:2019
5. British Standards Institution. British Standard 7445: 1991 Description and measurement of environmental noise Part 2 - Acquisition of data pertinent to land use.



Project: Wärtsilä Defence, Havant	Title: Site overview		
DWG No: Figure 1	Scale: N.T.S.	Rev: -	
Date: March 2026	Drawn By: JL	Job No: 11534	



Project: Wärtsilä Defence, Havant	Title: Short-term plant measurements		 24Acoustics
DWG No: Figure 2	Scale: N.T.S.	Rev: -	
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APPENDIX A – ACOUSTIC TERMINOLOGY

Noise is defined as unwanted sound. The range of audible sound is from 0 to 140 dB. The frequency response of the ear is usually taken to be around 18 Hz (number of oscillations per second) to 18000 Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than the lower and higher frequencies and because of this, the low and high frequency components of a sound are reduced in importance by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most widely used and which correlates best with subjective response to noise is the dBA weighting. This is an internationally accepted standard for noise measurements.

For variable sources, such as traffic, a difference of 3 dB is just distinguishable. In addition, a doubling of traffic flow will increase the overall noise by 3 dB. The 'loudness' of a noise is a purely subjective parameter, but it is generally accepted that an increase/ decrease of 10 dB corresponds to a doubling/ halving in perceived loudness.

External noise levels are rarely steady, but rise and fall according to activities within an area. In attempt to produce a figure that relates this variable noise level to subjective response, a number of noise indices have been developed. These include:

i) The L_{Amax} noise level

This is the maximum noise level recorded over the measurement period.

ii) The L_{Aeq} noise level

This is "equivalent continuous A-weighted sound pressure level, in decibels" and is defined in British Standard BS 7445 as the "value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval, T , has the same mean square sound pressure as a sound under consideration whose level varies with time".

It is a unit commonly used to describe construction noise and noise from industrial premises and is the most suitable unit for the description of other forms of environmental noise. In more straightforward terms, it is a measure of energy within the varying noise.

iii) The L_{A10} noise level

This is the noise level that is exceeded for 10% of the measurement period and gives an indication of the noisier levels. It is a unit that has been used over many years for the measurement and assessment of road traffic noise.

iv) The L_{A90} noise level

This is the noise level that is exceeded for 90% of the measurement period and gives an indication of the noise level during the quieter periods. It is often referred to as the background noise level and is used in the assessment of disturbance from industrial noise.

APPENDIX B – ENVIRONMENTAL NOISE MEASUREMENTS

