



KR05599

Hayling Island

Noise Impact Assessment...

Standard: British Standard 4142:2014

Site: MOT Testing Station

Address: G&H Industrial Units

East of Furniss Way

Hayling Island

Postcode: PO11 0ED

Customer: PWP Architects

Address: 61 South Street

Havant

Hampshire

Postcode: PO9 1BZ

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KR Associates (UK) Ltd

Quietly confident...



Revisions...

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		Standard	British Standard 4142:2014		
Issue	Date	Details of Revision			
V1.0	06/01/2017	Description	Initial Report for Submission		
		Signature			
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1. Executive Summary....

1.1. Instruction

KR Associates (UK) Ltd have been instructed by PWP Architects to undertake an environmental noise survey to determine the impact of the proposed MOT Testing Station at G&H Industrial Units located at East of Furniss Way, Hayling Island, PO11 0ED on the local residents.

1.2. Outline of Proposal

The existing site is made up of approximately 8 industrial units on the corner of Furniss Way and Station Road in the East of Hayling Island. The proposal is to develop an MOT Testing Station which will include the operation of a roller brake tester, vehicle hoists, a compressor and an exhaust extract system.

1.3. Scope of Report

A full planning application is to be submitted to Havant Borough Council under the Town and Country Planning Act 1990 to support the change of use from a light industrial (B1) to General Industrial (B2) in order to allow the site to operate as a MOT Testing Station. The report is prepared in general accordance with British Standard 4142:2014 and aims to assess the impact of the operation of the Testing Station on the surrounding residential properties.

1.4. Operating Hours

Prior to permission being granted for the proposed development Havant Borough Council require that the following condition relating to noise be imposed:

“Machinery shall only be worked between the hours of 08:00 and 18:00 Monday to Friday (except recognised Public Holidays) and between the hours of 08:00 and 13:00 hours on Saturdays, and not at all on Sundays”

1.5. Executive Summary (Repeated at Section 7)

1.5.1 Assessment Position

The assessment position has been determined as the residential properties newly developed alongside the industrial units to the east of Furniss Way located approximately 20m from the proposed plant.

1.5.2 Background Noise Measurements

Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
L _{Amax,1h}	L _{Aeq,1h}	L _{A90,1h}	L _{Amax,1h}	L _{Aeq,1h}	L _{A90,1h}	L _{Amax,15m}	L _{Aeq,15m}	L _{A90,15m}
46 - 94 dB	42 - 75 dB	36 - 61 dB	63 - 102 dB	48 - 84 dB	39 - 49 dB	41 - 81 dB	35 - 60 dB	36 - 46 dB

1.5.3 Criterion at Assessment Position

NPPF Policy Aim (p 123)	Action	Night Noise Guidelines	ISO 1996: 2016 / IEMA	BS 4142: 2014
Significant Adverse Impact	Avoid	L_{night} 55 dB or more	$L_{Aeq, t}$ +10 dB or more	+10 dB
Adverse Impact	Mitigate	L_{night} 40 – 55 dB	$L_{Aeq, t}$ +3 to +9 dB	+5 dB
Improved Quality of Life	Ideal if Possible	L_{night} 40 dB or less	$L_{Aeq, t}$ +2 dB or less	+0 dB

1.5.4 Mitigation Measures

Due to the equipment being located internally and the day to day practices put into place by the staff (keeping the roller doors shut etc.) no mitigation measures should be required for this site. With regards to the external section of the extract system, it would be recommended to direct it out of the northern façade of the building away from the residential properties.

1.5.5 Assessment of Noise Levels

Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
$L_{Aeq, 1h}$	$L_{A90, 1h}$	BS4142	$L_{Aeq, 1h}$	$L_{A90, 1h}$	BS4142	$L_{Aeq, 1h}$	$L_{A90, 1h}$	BS4142
39 dB	41 dB	-2 dB	Not Operating			Not Operating		

1.6. Conclusions

1.6.1 National Planning Policy Framework

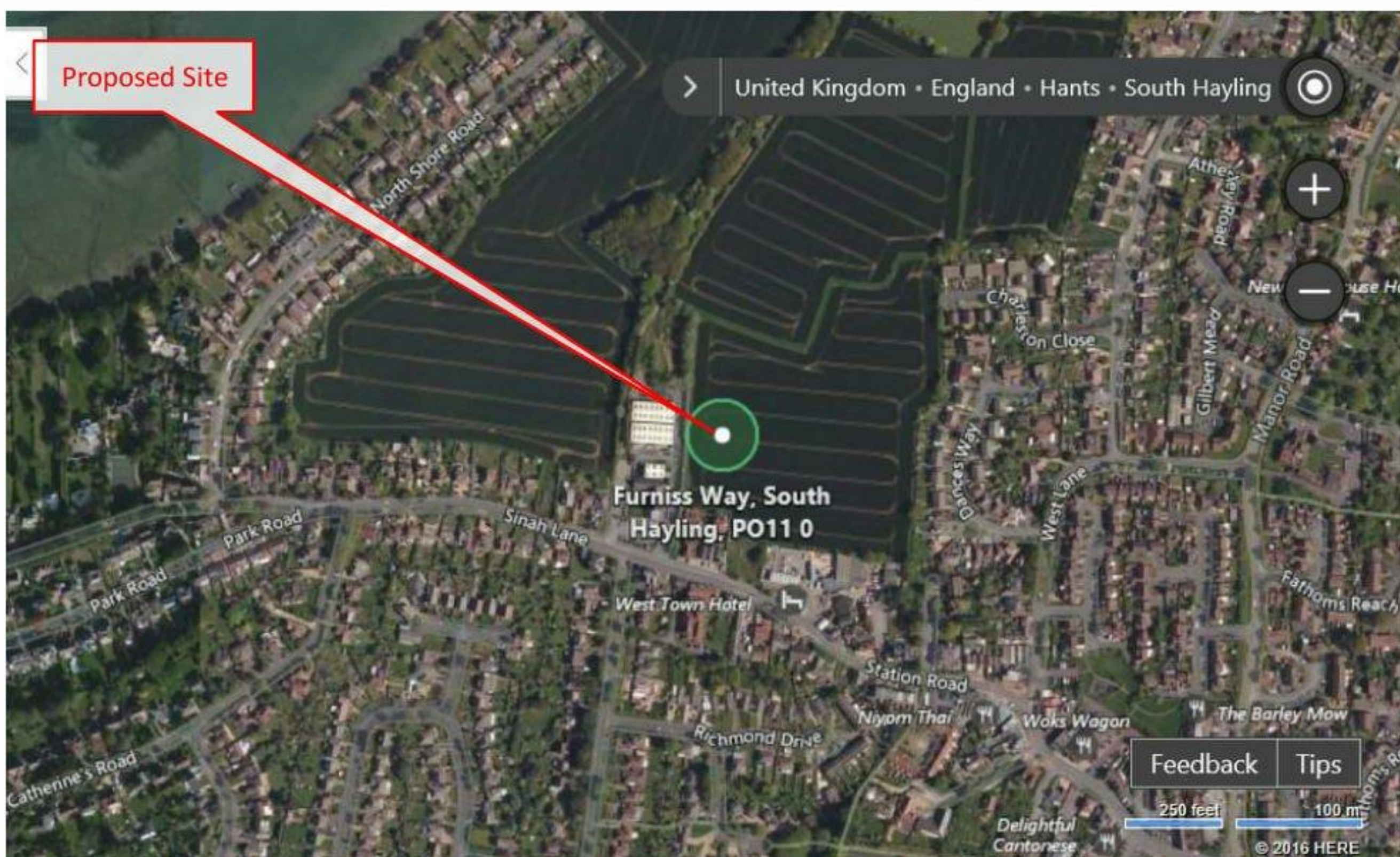
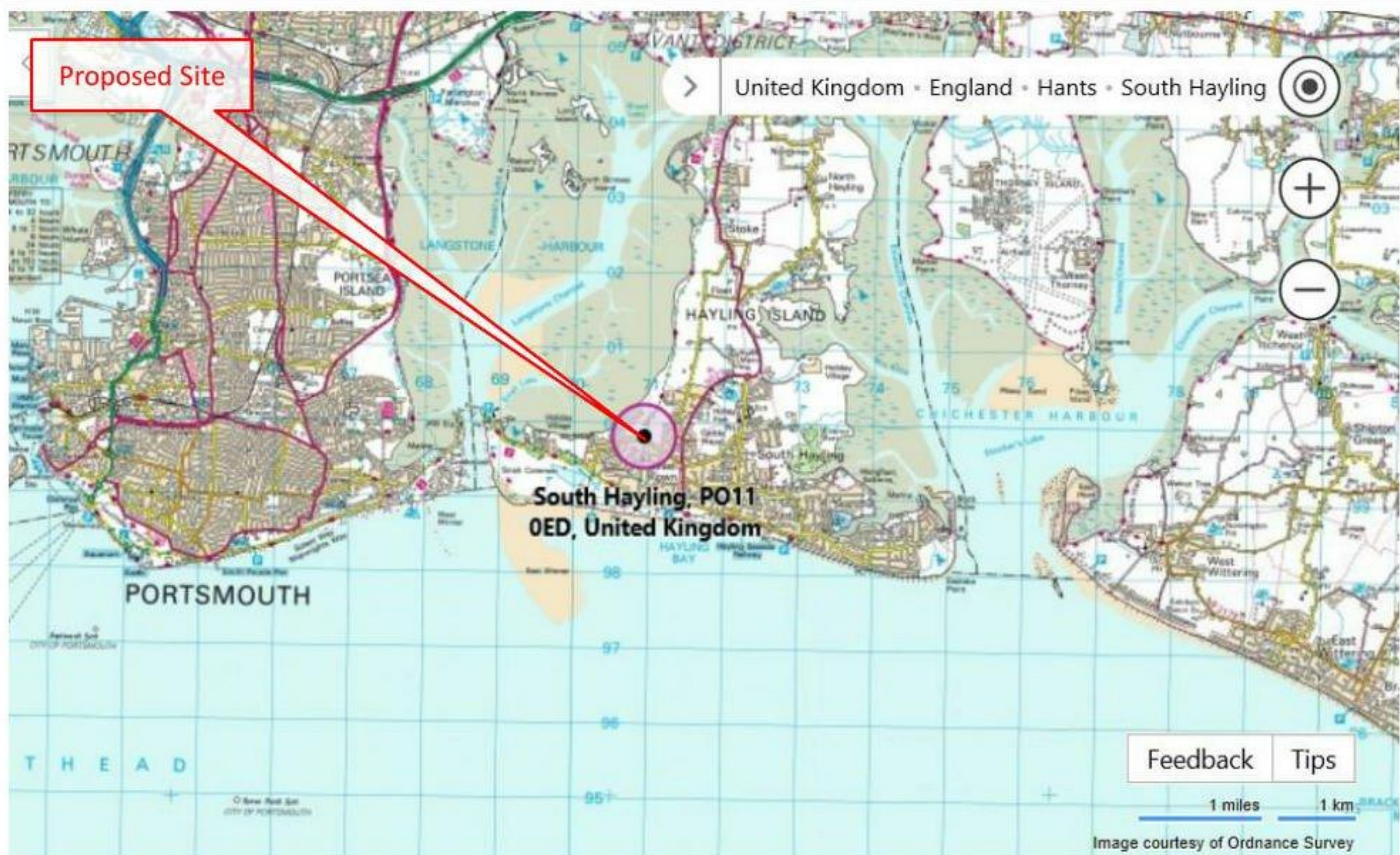
In accordance with paragraph 14 of the National Planning Policy Framework (2012) planning permission should be granted for the proposal as the benefits outweigh any significant adverse impacts in terms of noise from the installation of the proposed additional mechanical equipment.

1.6.2 British Standard 4142:2014

The resultant noise levels indicate compliance in accordance with British Standard 4142:2014 demonstrating that the proposed development will not have a significant or adverse effect on the local residents in terms of noise.

2. Site Location...

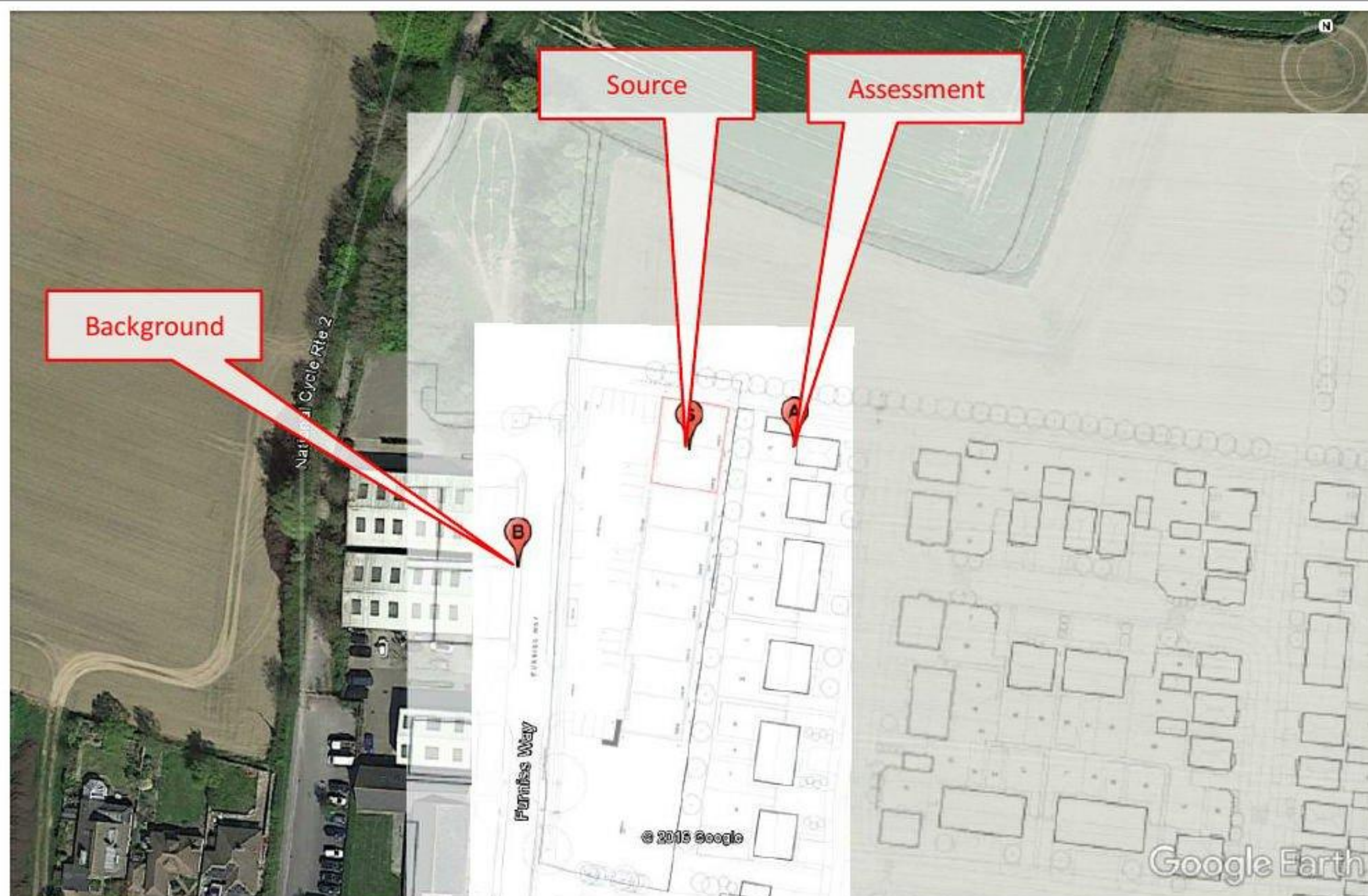
2.1. General Location of Site



Site Plan (Imagery © Google 2016)

The proposed site is to be located within the industrial estate to the east of Furniss Way which can be accessed via Station Road. The predominant access to the MOT Testing Station will be separate to that proposed for the residential developments.

2.2. Key Positions (Source, Assessment & Background)



Position	Description	Latitude	Longitude	Elevation
Source	MOT Testing Station	50.793896°	-0.993869°	4 m
Assessment	Proposed residential property to the east	50.793902°	-0.993545°	2 m
Background	Lamp post on Furniss Way	50.793669°	-0.994392°	3 m

Site Plan (Imagery © Google 2016)

2.3. Free Field Source Sound Pressure Levels at 10m

Source	Description of Source	Sound Pressure Level at 10m – Annex C 13487: 2003		
		07:00 – 19:00	19:00 – 23:00	23:00 – 07:00
Source 1	Roller Brake Tester	$L_{p(10)}$ 41 dB	Not Operating	Not Operating
Source 2	Vehicle Hoists	$L_{p(10)}$ 42 dB		
Source 3	Silent Compressor	$L_{p(10)}$ 31 dB		
Source 4	Exhaust Extract System	$L_{p(10)}$ 41 dB		
Combined Sound Pressure Level at 10m (1 Reflective Surface)		$L_{p(10)}$ 46 dB		

2.4. Locations and Distances of Individual Source Positions



Position	Relative Distance	Latitude	Longitude	Elevation
Source 1	24 m to assessment position	50.793973	-0.993865	1 m
Source 2	24 m to assessment position	50.793937	-0.993870	1 m
Source 3	24 m to assessment position	50.793895	-0.993880	1 m
Source 4	24 m to assessment position	50.793981	-0.993792	3 m

Site Plan (Imagery © Google 2016)

For the purpose of this report, the location of the equipment has been assumed pending confirmation of the finalised layout plans. It would be recommended to direct the external section of the extract fan from the north façade of the building away from the residential properties to the east.

2.5. Photographs



Furniss Way



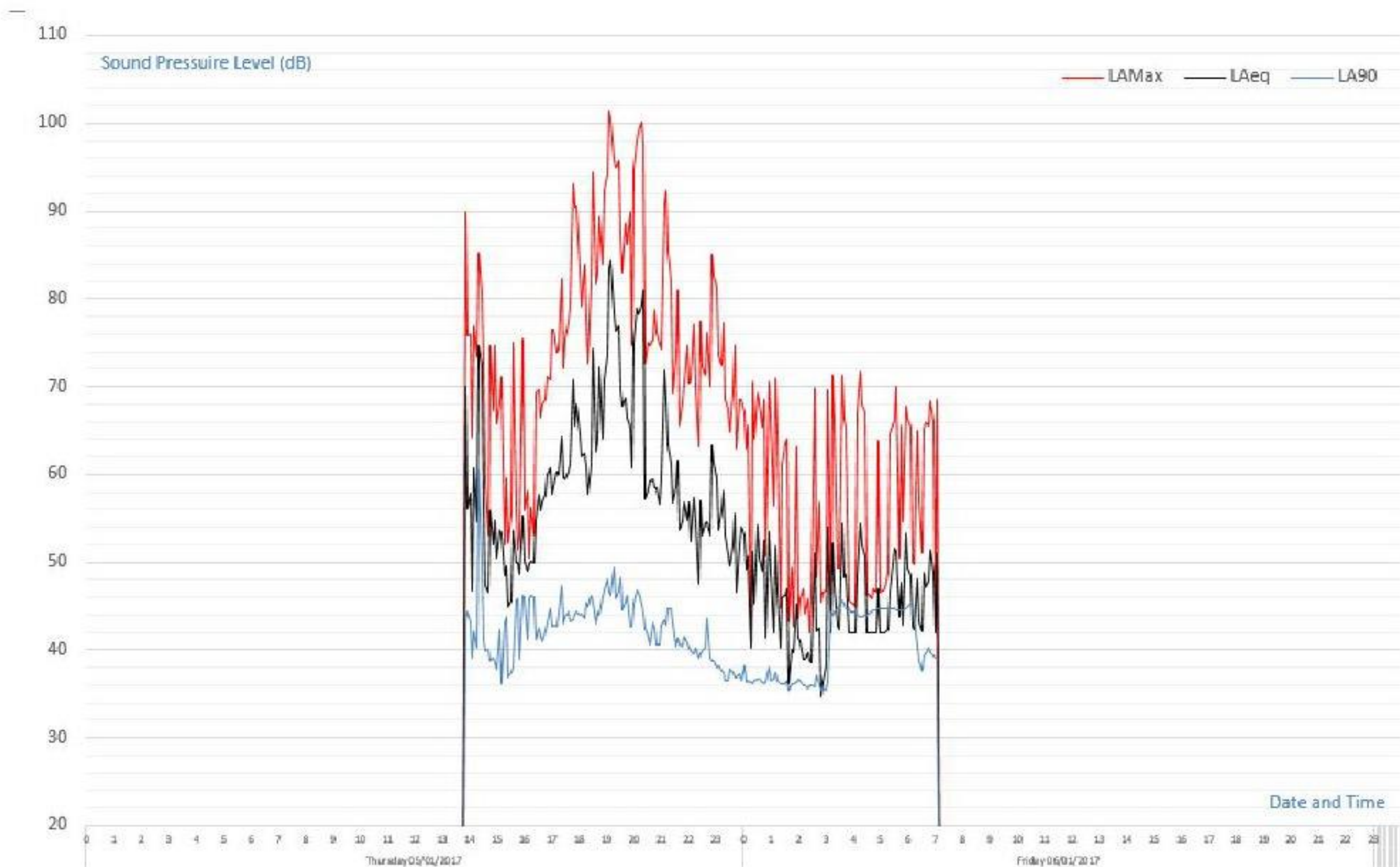
Station Road



Site Under Development

3. Background Noise Measurements...

3.1. 24-hour Background Measurements



Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
L _{Amax,1h}	L _{Aeq,1h}	L _{A90,1h}	L _{Amax,1h}	L _{Aeq,1h}	L _{A90,1h}	L _{Amax,15m}	L _{Aeq,15m}	L _{A90,15m}
46 - 94 dB	42 - 75 dB	36 - 61 dB	63 - 102 dB	48 - 84 dB	39 - 49 dB	41 - 81 dB	35 - 60 dB	36 - 46 dB

3.2. Modal Analysis of Background Data



4. Criterion...

4.1. National Planning Policy Framework: 2012 ("NPPF")

The National Planning Policy Framework ("NPPF") published in March 2012 sets out the Government's National Planning Policies for England and how these can be applied by local communities when developing their local plans or deciding planning application to best reflect the needs and priorities of the local communities. Current planning law requires Local Authorities to grant planning applications in accordance with the local development plan unless there are material considerations which require them to reach a different decision for sustainable developments.

4.1.1 Paragraph 14 - Requirement of Grant Planning Permission

"At the heart of the National Planning Policy Framework is a presumption in favour of sustainable development, which should be seen as a golden thread running through both plan-making and decision taking:

For decision-taking this means:

Approving development proposals that accord with the development plan without delay; and

Where the development plan is absent, silent or relevant policies are out-of-date, granting planning permission unless:

Any adverse impact of doing so would significantly and demonstrably outweigh the benefits, when assessed against policies in this Framework taken as a whole."

This report therefore will determine if there is a significant adverse impact in terms of noise from the development and then allow the Local Authority to grant planning permission unless they can demonstrate that the significant adverse impact would outweigh the benefits of the development.

4.1.2 Paragraph 123 - Aim of Planning Decisions with respect to Noise

Paragraph 123 of the NPPF provides the overall aims in terms of noise when determining planning applications.

"Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;

mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions..."

4.2. Noise Policy Statement for England: 2010 ("NPSE")

The "Noise Policy Statement for England" was published in March 2010 by Defra which expands on the requirements of paragraph 123 of the NPPF and clarifies the objectives on the need to manage noise to obtain sustainable developments for the future.

4.2.1 Noise Policy Aims

The NPSE details the three main aims to meet the Governments long term vision:

“Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy in sustainable development:

- Avoid significant adverse impact on health and the quality of life;
- Mitigate and minimise adverse impacts on health and quality of life; and
- Where possible, contribute to the improvement of health and the quality of life.”

4.2.2 Lowest and Significant Observed Adverse Effects (LOAEL & SOAEL)

The NPSE provide clarity on the exact aims of the Policy by introducing the following concepts.

“LOAEL – Lowest Observed Adverse Effect Level

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

SOAEL – Significant Observed Adverse Effect Level

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

4.3. Night Noise Guidelines (“NNG”)

The European Union and the World Health Organisation published the document *“Night Noise Guidelines for Europe”* in 2009.

4.3.1 Recommendation for Health Protection

“Below the level of 30 dB $L_{night, outside}$ no effects on sleep are observed except for a slight increase in the frequency of body movements during sleep due to night noise.

.... 40 dB $L_{night, outside}$ is equivalent to the lowest observed adverse effect level (LOAEL) for night noise.

Above 55 dB the cardiovascular effects become the major public health concern.”

For reference the $L_{night, outside}$ is the average outside noise level over 8 hour calculated over a year (EU: 2002/49/EC).

4.4. ISO 1996 – Part 1: 2016

This document details the measurement and assessment of environmental noise and details the basic quantities and assessment procedures adopting the principle of Rating Noise Level which is the resultant noise level after various corrections have been applied.

4.4.1 Designation of Day, Evening and Night Time

The document provides guidance on the designation of day time and evening time in section 3.6.1. and 3.6.2:

" $L_{day, 12 \text{ hours}}$ equivalent continuous sound pressure level when the reference time interval is the day

Note 2 – A day is normally 12 hours between 7h and 19 h....

$L_{evening, 4 \text{ hours}}$ equivalent continuous sound pressure level when the reference time interval is the day

Note 2 – An evening is normally 4 hours between 19h and 23h

$L_{night, 8 \text{ hours}}$ equivalent continuous sound pressure level when the reference time interval is the night

" Note 2 – A night is normally 8 hours between 23h and 07h

4.4.2 Adjustments to Specific Noise Levels

The following adjustments are detailed within table A.1 of Annex A which enable the calculation of the Rating Level from the Specific Noise level

Type	Specification	Level Adjustment – dB
Source Character	Regular Impulsive	+ 5 dB
	Highly Impulsive	+ 12 dB
	Prominent Tones	+ 3 dB to + 6 dB
Time Period	Evening (19:00 to 23:00)	+5 dB
	Night Time (23:00 to 07:00)	+10 dB
	Weekend Day Time (07:00 to 19:00)	+5 dB

For reference the impulsivity and tones must be clearly audible at the assessment position and to this end the specific noise level must not be more than 3 dB below the existing residual noise level to allow the inclusion of the source character adjustment.

4.5. IEMA Guidelines for Environmental Noise Impact Assessment

The Institute of Environmental Management and Assessment ("IEMA") document entitled "*Guidelines for Environmental Noise Impact Assessment*" version 1.2 dated November 2014 describes the methodology for undertaking a noise impact assessment and an outline procedure for rating the significance of the likely impact based on the change in the overall noise levels.

4.5.1 Description of Effect of Change in Noise Level

Noise Level Change (dB)	Subjective Response	Significance
0.1 – 2.9	Barely perceptible	Minor Impact
3.0 – 5.9	Noticeable	Moderate Impact
6.0 – 9.9	Up to a doubling of loudness	Substantial Impact
10.0 or more	More than a doubling of loudness	Major Impact

4.6. WHO – Criterion for Community Noise

The World Health Organisation document entitled “*Guidelines for Community Noise*” published in 1999 suggests that a maximum level of $L_{A\text{Max}}$ 60 dB at a distance of 1m from a bedroom window is a suitable criterion to avoid sleep disturbance during the night time period. The document clarifies this is for a single event at paragraph 4.3.1. of the document. Usefully the document provides some overall guidance and commentary at paragraph 4.2.7.

“The annoyance response to noise is affected by several factors, including equivalent sound pressure level and the highest sound pressure level of the noise, the number of such events, and the time of day.....

During the daytime, few people are seriously annoyed by activities with L_{Aeq} levels below 55 dB; or moderately annoyed with L_{Aeq} levels below 50 dB.....

It is emphasized that for intermittent noise it is necessary to take into account the maximum sound pressure level as well as the number of events”

4.7. British Standard 4142:2014 (“BS4142”)

4.7.1 Scope of Standard

In the assessment of the proposed plant, consideration has been given to the scope of British Standard 4142:2014, which in section 1, details applicability of this standard to rating assessing sound of an industrial and/or commercial nature.

“The determination of noise amount to a nuisance is beyond the scope of this British Standard.

The standard is not intended to be applied to the derivation of indoor sound levels arising from sound levels outside, or the assessment of indoor sound levels.”

It is considered appropriate that both the background noise levels and the rating noise levels obtained fall within the scope of British Standard 4142:2014 by using outdoor sound levels to assess the effect of sound on local residents.

4.7.2 Assessment of Noise

British Standard 4142:2014 outlines a general consideration and 3 levels of impact based on the calculated assessment level:

“Typically, the greater [the] 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 +5dB is likely to be an indication of an adverse impact, depending on the context.*
- 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.”*

4.8. Local Authority

KR Associates spoke with Mark Moss of Havant Borough Council’s Environmental Health on Friday 6th January 2017 who stated that compliance with British Standard 4142:2014 i.e. 0dB will be acceptable.

4.9. Combined Noise Criterion

Taking the above documents into account it would be recommended that consideration is given to the following criteria:

NPPF Policy Aim (p 123)	Action	Night Noise Guidelines	ISO 9613: 2016 / IEMA	BS 4142: 2014
Significant Adverse Impact	Avoid	L _{night} 55 dB or more	L _{Aeq, t} +10 dB or more	+10 dB
Adverse Impact	Mitigate	L _{night} 40 – 55 dB	L _{Aeq, t} +3 to +9 dB	+5 dB
Improved Quality of Life	Ideal if Possible	L _{night} 40 dB or less	L _{Aeq, t} +2 dB or less	+0 dB

5. Calculations of Noise Levels...

5.1. ISO 9613 – Part 2:1996

The International Standards Organisation (“ISO”) published ISO 9613 – Part 2: 1996 entitled “*Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculations*” which details the corrections that are required to establish the resultant noise levels of the existing and proposed plant at the assessment position.

5.1.1 Source Directivity (D_c)

A correction is made to account for the location of the source and the effect of additional reflective surfaces excluding the ground and is contained within section 6 of ISO 9613 - Part 2:1996.

Number of Surfaces	Correction in dB (D_c)
1 Reflective Surface	+3 dB
2 Reflective Surfaces	+6 dB
3 Reflective Surfaces	+9 dB

5.1.2 Geometric Divergence (A_{div})

A correction is made for the distance between the source and assessment position using the following formula defined in section 7.1 of ISO 9613-Part 2:1996.

Formula	Symbols
$A_{div} = 20 \cdot \log_{10} (d/d_0) + 11$	A_{div} = Reduction due to Geometric Divergence (dB) d = Distance from source to receiver (m) d_0 = reference distance (1m)

5.1.3 Ground Absorption (A_{gr})

A correction is made for the effect of the ground between the source and receiver depending on whether it is considered hard or soft ground.

Type of ground	Correction in dB (A_{gr})
Hard Ground	+ 3 dB
Soft Ground	+ 0 dB

5.1.4 Atmospheric Absorption (A_{atm})

As the source was less than 100m from the receiver position (assessment position) no correction was made for atmospheric absorption.

5.1.5 Barrier Effect (A_{bar})

A correction is made for any barrier in the direct line of site between the source and the assessment position and is detailed in section 7.4 of ISO 9613-Part 2:1996. For clarity the K_{met} meteorological correction has been ignored and C_2 equals 40 and C_3 equals 1.

Formula	Symbols
$A_{bar} = 10 \cdot \log_{10} [3 + (40 \cdot \delta / \lambda) - A_g]$ *Note 1 where $\delta = a + b - r$ and $\lambda = c / f$	A_{bar} = Effective barrier attenuation (dB) A_g = Total Ground Absorption (dB) *Note 1: Only apply the A_g correction if $A_g > 0$ δ = Path difference (m) a = Distance from source to barrier head (m) b = Distance from barrier head to assessment position (m) r = Distance from source to assessment position (m) λ = Wavelength of sound (m) c = Speed of sound – Assumed to be 342 ms^{-1} f = Octave band centre frequency (Hz)

5.2. British Standard 4142: 2014 Feature Correction

It is appropriate to add a character correction where there is a new source that cannot be measured in line with BS4142:2014. The 3 methods for approaching this are the subjective, objective, and reference methods. In this report the subjective method is used.

Section 9.2 Subjective Method	Perceptibility to noise sensitive façades	Correction
Tonality Ranging from not tonal to prominently tonal	Not tonal	+0
	Just perceptible	+2
	Clearly perceptible	+4
	Highly perceptible	+6
Impulsivity Considering both the rapidity and any overall change in sound levels	Not impulsive	+0
	Just impulsive	+3
	Clearly impulsive	+6
	Highly impulsive	+9
Readily Distinctive Characteristic is neither tonal nor impulsive	Is not present	+0
	Is present	+3
Intermittency Identifiable “on/off” conditions	Is not present	+0
	Is present	+3

5.3. Calculation of Plant Noise Levels

5.3.1 Day Time (07:00 to 19:00)

		Source	ISO 9613 – Part 2: 1996 Corrections					Assessment
Ref	Description	L_w	D_c	A_{div}	A_{gr}	A_{atm}	A_{bar}	L_p
1	Roller Brake Tester	69 dB	+3 dB	-39 dB	+3 dB	-0 dB	-5 dB	31 dB
2	Vehicle Hoists	70 dB	+3 dB	-38 dB	+3 dB	-0 dB	-5 dB	33 dB
3	Silent Compressor	59 dB	+3 dB	-39 dB	+3 dB	-0 dB	-5 dB	21 dB
4	Exhaust Extract System	69 dB	+3 dB	-37 dB	+3 dB	-0 dB	-5 dB	33 dB
TOT	Total Noise Levels	74 dB	-37 dB					37 dB

The proposed MOT testing Station will only be operating between the hours of 08:00 to 17:00 Monday to Friday and 08:00 to 13:00 on Saturdays.

6. Assessment of Noise Levels...

6.1. Night Noise Guidelines

Night Noise Guidelines	Day Time - 07:00 to 19:00	Evening – 19:00 to 23:00	Night Time – 23:00 to 07:00
Specific Sound	$L_{Aeq,1\text{ hour}}$ 37 dB	Not Operating	Not Operating
NPPF – Improve Quality of Life	Less than $L_{Aeq,1\text{ hour}}$ 40 dB		
NPPF – Paragraph 123	Complies		

6.1.1 ISO 1996 Part 1: 2016

ISO 1996 – Part 1: 2016	Day Time - 07:00 to 19:00	Evening – 19:00 to 23:00	Night Time – 23:00 to 07:00
Specific Sound	$L_{Aeq,1\text{ hour}}$ 37 dB	Not Operating	Not Operating
Adjustment - Regular Impulsive	+0 dB		
Adjustment – Tonal	+0 dB		
Adjustment - Time Period	+0 dB (Day Time)		
Rating Levels	$L_{Aeq,1\text{ hour}}$ 37 dB		
Residual Sound Levels	$L_{Aeq,1\text{ hour}}$ 57 dB		
Rating + Residual	$L_{Aeq,1\text{ hour}}$ 57.0 dB		
Increase in Residual Noise	+ 0.0 dB		
IEMA Significance	+2 dB (No Impact)		
NPPF – Paragraph 123	Complies		

6.1.2 Assessment of Average Noise Levels (BS 4142: 2014)

BS 4142: 2014	Day Time - 07:00 to 19:00	Evening – 19:00 to 23:00	Night Time – 23:00 to 07:00
Residual Noise Levels	$L_{Aeq,1\text{ hours}}$ 57 dB	Not Operating	Not Operating
Specific Noise Levels	$L_{Aeq,1\text{ hours}}$ 37 dB		
Impulsivity Feature	+2 dB		
Tonality Feature	+0 dB		
Rating Noise Levels	$L_{Aeq,1\text{ hours}}$ 39 dB		
Background Noise Levels	$L_{A90,1\text{ hours}}$ 41 dB		
BS 4142 Assessment	-2 dB		
NPPF – Paragraph 123	-0 dB (Low Impact)		
Uncertainty (95% Confidence, k=2)	+/- 1.96 dB		

7. Conclusions...

7.1. Assessment Position

The assessment position has been determined as the residential properties newly developed alongside the industrial units to the east of Furniss Way located approximately 20m from the proposed plant.

7.2. Background Noise Measurements

Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
$L_{Amax,1h}$	$L_{Aeq,1h}$	$L_{A90,1h}$	$L_{Amax,1h}$	$L_{Aeq,1h}$	$L_{A90,1h}$	$L_{Amax,15m}$	$L_{Aeq,15m}$	$L_{A90,15m}$
46 - 94 dB	42 - 75 dB	36 - 61 dB	63 - 99 dB	48 - 84 dB	39 - 49 dB	41 - 81 dB	35 - 60 dB	36 - 46 dB

7.3. Criterion at Assessment Position

NPPF Policy Aim (p 123)	Action	Night Noise Guidelines	ISO 9613: 2016 / IEMA	BS 4142: 2014
Significant Adverse Impact	Avoid	L_{night} 55 dB or more	$L_{Aeq, t}$ +10 dB or more	+10 dB
Adverse Impact	Mitigate	L_{night} 40 – 55 dB	$L_{Aeq, t}$ +3 to +9 dB	+5 dB
Improved Quality of Life	Ideal if Possible	L_{night} 40 dB or less	$L_{Aeq, t}$ +2 dB or less	+0 dB

7.4. Mitigation Measures

Due to the equipment being located internally and the day to day practices put into place by the staff (keeping the roller doors shut etc.) no mitigation measures should be required for this site. With regards to the external section of the extract system, it would be recommended to direct it out of the northern façade of the building away from the residential properties.

7.5. Assessment of Noise Levels

Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
$L_{Aeq,1h}$	$L_{A90,1h}$	BS4142	$L_{Aeq,1h}$	$L_{A90,1h}$	BS4142	$L_{Aeq,1h}$	$L_{A90,1h}$	BS4142
39 dB	41 dB	-2 dB	Not Operating			Not Operating		

7.6. Conclusions

7.6.1 National Planning Policy Framework

In accordance with paragraph 14 of the National Planning Policy Framework (2012) planning permission should be granted for the proposal as the benefits outweigh any significant adverse impacts from the installation of the proposed additional mechanical equipment.

7.6.2 British Standard 4142:2014

The resultant noise levels indicate compliance in accordance with British Standard 4142:2014 demonstrating that the proposed development will not have a significant or adverse effect on the local residents in terms of noise.

7.7. Uncertainty

Day Time (07:00 – 19:00)	Evening (19:00 – 23:00)	Night Time (23:00 – 07:00)
+1.96 dB (k=2, 95% Confidence)	+1.88 dB (k=2, 95% Confidence)	+1.98 dB (k=2, 95% Confidence)

8. Appendix A - BS 4142:2014 Information to Be Reported...

8.1. a) Competency

	Name	Role	Competency
1)	Ms. E. Samphier	Trainee Consultant	Currently undertaking the IOA Diploma
	Mr. R. Scrivener	Director	Master of Science Degree in Acoustics and Noise Control (MSc) Member of the Institute of Acoustics (MIOA)

8.2. b) Source Under Investigation

	Source Number	Description		
1)	Source 1	Roller Brake Tester		
	Source 2	Vehicle Hoists		
	Source 3	Silent Compressor		
	Source 4	Exhaust Extract System		
2) 3) 4) 5)	Description of Source	Source Location	Hours of Operation	Mode of Operation
	Source 1	Located internally.	08:00 to 18:00	Continuously on Demand
	Source 2			
	Source 3			
	Source 4			
	Description of Operation	Period	Conditions	Load
	All Sources	Day Time (07:00 to 19:00)	Ambient Temp 32°C	Maximum Load (100%)
		Evening (19:00 to 23:00)	Ambient Temp 28°C	Not Operating
		Night Time (23:00 to 07:00)	Ambient Temp 24°C	Not Operating
	Description of Premises	The site is located to the east of Furniss Way and is currently under development		

8.3. c) Subjective Impression of Source at Assessment Position

1)	Dominance	Source will not be dominant at residential facade
	Audibility	Source will not be audible at residential facade
2)	Residual Noise Sources	Residual noise due to local road traffic

8.4. d) Existing Contexts

	Type of Receptor	Period	Sensitivity	Description
1)	Residential	Day Time (07:00 to 19:00)	Low	Noise can disturb outside amenity space and internal living space
		Evening (19:00 to 23:00)	Moderate	Noise can interrupt people trying to get to sleep
		Night Time (23:00 to 07:00)	High	Noise can disturb sleeping

8.5. e) Relative Positions

1)	Assessment Position	Residential property to the east of site		
		BS 4142:2014 Criteria	Details	Compliance with Criteria
		Section 6	1.0m from façade (external)	Position is valid
2)	Source Measurement	The source sound power levels were supplied by the client. It is believed the sound power levels were established in accordance with BS EN 13487:2003		
	Justification	The client supplied the noise levels for the proposed plant		
3)	Background Position	Lamp post on Furniss Way		
	Justification	BS 4142:2014 Criteria	Details	Compliance with Criteria
		Section 6.2	3.5m to any reflecting surface	Complies
		Section 6.2	Height 1.2m to 1.5m	Complies
		Section 6.2	1 st floor 1m to facade	Not applicable
		Section 6.2	Measurement Height	3.5
			Distance to Reflecting Surface	1.0
		In order to record remote background levels the noise meter had to be left in a secure position. The position represented the assessment position with the constraints of the site.		
4)	Topography, surfaces etc.	Hard and Flat		
5)	Relative Distances	The plant is located approximately 19.6 m to 24.2 m from the assessment position.		
6)	Dimensioned sketch	See maps and images		

8.6. f) Noise Measurement Equipment Calibration

1)	Type	Sound Level Meter	Microphone	Calibrator
		KRE/027/01 - NL31	KRE/027/03 - UC53A	KRE/027/04 - NC74
2)	Manufacturer	Rion	Rion	Rion
3)	Serial Number	503252	37016	34304655
4)	Certificate Number	Certificate: 09235	Certificate: 09235	Certificate: 09232
	Calibration Date=	07-Jun-18	07-Jun-18	07-Jun-18

8.7. g) Noise Measurement Equipment Operation Test

1)	Ref. Level of Calibrator	94 dB
2)	Meter Reading Before	94 dB – Meter operation checked. Meter in good working order.
	Meter Reading After	94 dB - Meter operation checked. Meter in good working order.

8.8. h) Weather Conditions

1)	Wind Speed	1 km/h
	Wind Direction	variable
2)	Temperature Inversion	Unlikely to have occurred
3)	Precipitation	None
4)	Fog	None
5)	Wet Ground	Not within the measurement period
6)	Frozen Ground or Snow	Not within the measurement period
7)	Temperature	-5°C to 5°C
8)	Cloud Cover	Partly Cloudy

8.9. i) Date and Time of Measurements

1)	Source Measurements	Unknown
	Background Measurements	5 th January 2016 to 6 th January 2016

8.10. j) Measurement Time Interval

1)	Source Measurements	$T_m = 15 \text{ minutes}$	
	Background Measurements	Day Time (07:00 to 19:00)	$T_m = 12 \text{ hours}$
		Evening (19:00 to 23:00)	$T_m = 4 \text{ hours}$
		Night Time (23:00 to 07:00)	$T_m = 8 \text{ hours}$

8.11. k) Reference Time Interval

1)	Reference Time Interval	Day Time (07:00 to 19:00)	$T_r = 1 \text{ hour}$
		Evening (19:00 to 23:00)	$T_r = 1 \text{ hour}$
		Night Time (23:00 to 07:00)	$T_r = 15 \text{ minutes}$

8.12. l) Specific Noise / m) Background Noise / n) Rating / o) Assessment / p) Conclusions

These details are all included within the body of the report and are not replicated within this section.

END OF REPORT (1st and last page not numbered)

KR Associates (UK) Ltd

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