

SHARPS REDMORE

ACOUSTIC CONSULTANTS ▪ Established 1990



Report

Noise Assessment

Harts Farm Way, Havant

Prepared by

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Date 14 April 2021

Project No 2120238

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This report has been prepared with all reasonable skill, care and diligence commensurate with an acoustic consultancy practice under the terms and brief agreed with our client at that time. Sharps Redmore provides no duty or responsibility whatsoever to any third party who relies upon its content, recommendations or conclusions.

1.0 Introduction

- 1.3 Sharps Redmore (SR) has been to carry out an assessment of noise from operation of the proposed industrial building at Harts Farm Way, Havant. The site location is shown in Figure 1 below:

FIGURE 1: Site Location



- 1.2 The site is reclaimed land and has previously been used as landfill for a variety of refuse materials, understood to include household waste and material from road construction. It is otherwise undeveloped and currently accommodates a gravelled parking/turning area in the middle of the site with vegetation covering the majority of the site and mature tree planting around much of the perimeter.
- 1.3 The site is bordered by the A27 to the north and beyond that, agricultural fields around Old Bedhampton. The Hermitage Stream separates the site from the existing employment areas to the east along Harts Farm Way, as well as waste management and water treatment uses that define the urban area to the east and south east of the site. To the south and south/west of the site is Broadmarsh Coastal Park. Beyond the coastal park is Langstone Harbour, which approximately 280 metres from the site boundary and is designated as a SSSI.
- 1.4 Outline planning permission is being the development of the new employment units for flexible use across use classes E (light industrial), B2 and B8 with ancillary offices, car parking, service yards, drainage works, landscaping and associated works to prepare the site for development. All matters are reserved except the primary means of access to the site. An indicative site layout is shown in Appendix A to this report.
- 1.5 The purpose of this assessment is to consider the impact of operational activity on the Broadmarsh Coastal Park and Langstone Harbour SSSI. The report considers advice received from Natural England in relation to similar developments. This advice is discussed in more detail in relation to the assessment methodology and criteria in section 2.0 of the report.

- 1.6 Details of the existing baseline noise levels is included in Section 3.0 of the report. An assessment of the impact of noise from operational of the site. This is shown in section 4.0.

2.0 Assessment Methodology and Procedure

- 2.3 There are no standards for the assessment of noise affecting water bird receptors however reference has been made to the research work carried out by Wright *et al.* (2010) which investigated the effects upon water birds from impulsive noise and identified a range of noise levels which caused a behavioural response (based on L_{Aeq}). These are summarised below:
- No observable behavioural response: 54.9 to 71.5 dBA
 - Non-flight behavioural response: 62.4 to 79.1 dBA
 - Flight with return: 62.4 to 73.9 dBA; and
 - Flight with all birds abandoning the site: 67.9 to 81.1 dBA
- 2.4 The above advice highlights that below 55 dBA, effects would not be significant, but when noise levels increase particularly approaching 70 dBA, there is a range of bird responses.
- 2.5 Based on these studies, the noise levels of 70 dBA L_{Amax} has widely been used as a suitable threshold to indicate a level of effect where disturbance due to noise may cause a behavioural response.
- 2.6 Notwithstanding the above it is noted that in relation to the similar developments Natural England have advised that a threshold of 70 dB is no longer acceptable and regard should also be had to the change in noise level as a result of the development.
- 2.7 It has been proposed that the principles set out in the Natural England document 'A Review of the Effects of Noise on Birds' dated October 2018 form the basis of the assessment of the proposed scheme. This document sets out the requirement to understand both background (L_{A90}) and maximum (L_{Amax}/L_{A01}) noise levels which the birds are currently exposed to in assessing the impact of future noise sources.
- 2.8 With regards to impulsive/sporadic events, the document states the following:
- In the case of sporadic noise, a greater than 3 dBA increase in peak noise might be a useful and sufficiently precautionary rule-of-thumb when considering the likelihood of a significant effect.'
 - With regards to continuous noise sources, the document states that as a rule of thumb, increases of 3dB or more against existing levels could be significant.

3.0 Baseline Noise Levels

- 3.3 To determine existing baseline noise levels a noise survey was carried out between the 15th and 16th March 2021. The monitoring locations are shown and described in Figure 2 and Table 1 below.

FIGURE 2: Survey Locations



TABLE 1: Survey Details

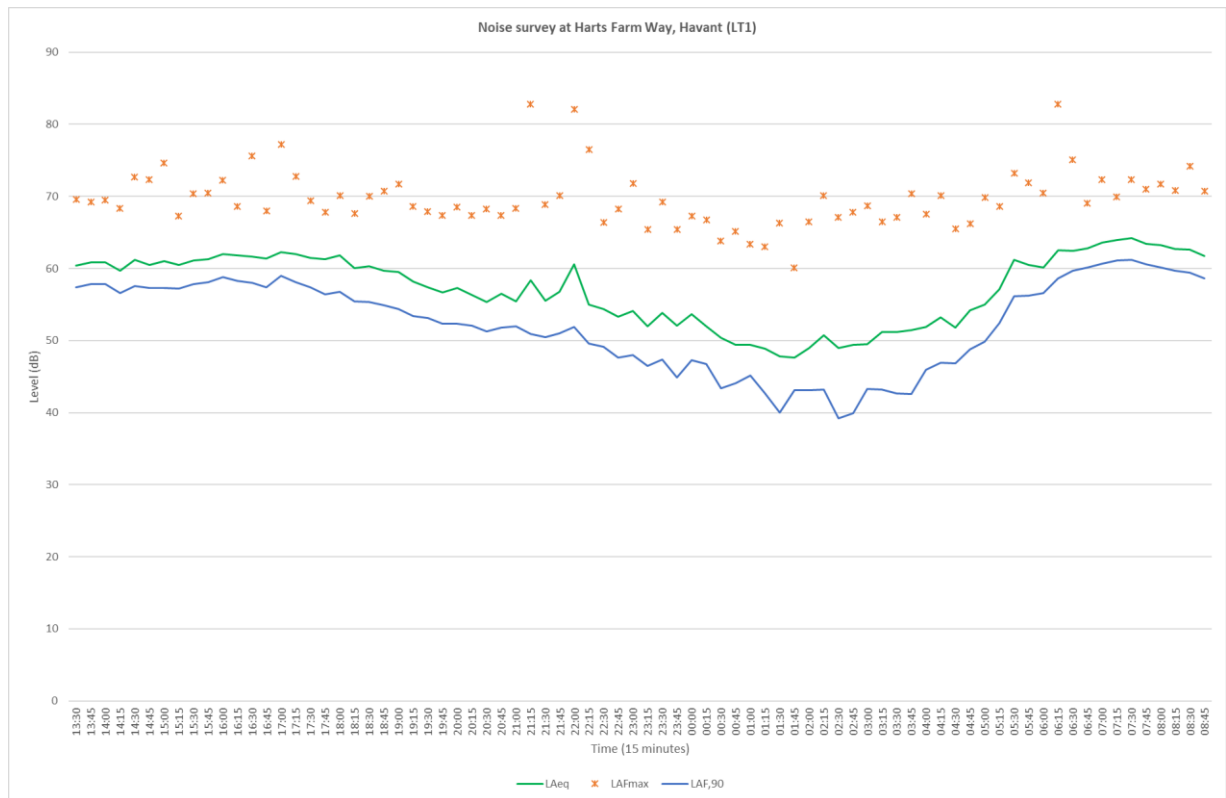
Site	Equipment used	Description
LT1	Norsonic 140 Type 1 SLM	Survey carried out for approximately 24 hours 1330 hours on 15 th March to 0830 hours on 16 th March 2021. Measurements carried out with microphone fixed on tri-pod approx. 1.3 m above ground level in free-field conditions.
ST2	Norsonic 118 Type 1 SLM	Measurements taken at location on northern boundary of the Broadmarsh Coastal Park. Measurements taken in free-field conditions. Noise levels measured during period 1130 hrs to 12.30 hours.
ST3		
ST4		

- 3.4 The results of the survey are shown in Table 2 and Figure 3 below.

TABLE 2: Survey Results

Location	Daytime (0700 – 2300 hrs)			Night time (2300 – 0700 hrs)		
	L _{Aeq,16hr}	L _{Amax}	L _{A90,(day)}	L _{Aeq,8hr}	L _{Amax}	L _{A90,(Night)}
LT1	61 dB	75 dB	58 dB	56 dB	72 dB	48 dB
ST2	59 dB	71 dB	55 dB	--	--	--
ST3	56 dB	64 dB	54 dB	--	--	--
ST4	56 dB	63 dB	54 dB	--	--	--

FIGURE 3: Survey Results LT1



- 3.5 Existing noise levels are dominated by road traffic and distant industrial noise. The highest noise level were recorded during the morning and afternoon rush hour periods before gradually dropping throughout the evening period. The sound level measurements were recorded during Covid-19 restrictions and road traffic, and therefore noise levels, were less that would normally be expected.
- 3.6 Based on the above survey results typical at the northern boundary of the Broadmarsh Coastal Park, this being the closest boundary to the development site have been determined as follows:

TABLE 3: Measured Noise Levels

Day	Night
Ambient Noise Levels (L_{AeqT}) – 59 dB	Ambient Noise Levels – 56 dB
Background Noise Levels (L_{A90T}) – 55 dB	Background Noise Level – 48 dB
Maximum Noise Levels (L_{Amax}) – 71 dB	Maximum Noise Levels – 71 dB

4.0 Noise Assessment

Noise Criteria

- 4.1 Based on the measured noise levels determined from the baseline survey noise criteria have been established taking into account the advice provided by Natural England (Section 2.0). For the purposes of the assessment it has been assumed that site operate 24 hours a day. The following noise limits at Broadmarsh Coastal Park have been determined:

TABLE 4: Noise Criteria

	Day	Night
Operational Noise (L_{AeqT})	58 dB (55 + 3dB)	51 dB (48 + 3 dB)
Maximum Noise Levels	70 dB	70 dB

- 4.2 The target for maximum noise level (L_{Amax}) is based on the studies referred to in section 2.0 of this report rather than existing measured maximum noise levels. This is lower than the target criteria which would be determined based on existing measured noise levels.

Noise Assessment – Operational Noise

- 4.3 To determine the noise level from operational site activity SR has used SoundPLAN noise modelling software to predict noise levels. SoundPLAN calculates the overall L_{Aeq} and L_{Amax} levels at defined receptors in accordance with relevant standards. The calculations are based on a number of input parameters, including noise source data, barriers, topography, intervening ground conditions and other buildings in the area.
- 4.4 The physical elements of the following models such as location, layout, topography and location of noise sources have been taken directly from the planning application drawings, site observations and on-line mapping.
- 4.5 The assessment is based on a large single B8 unit. In terms of noise this will generate the highest level of vehicle movements and therefore represents a worst case. The remaining input data is as follows:
- Noise source levels from unloading activity, HGV movements etc. have been determined from SR library data which has been validated by on-site measurements at similar sites.
 - The models are based on half the loading bays being used during one hour. In each hour a vehicle will arrive, unload and depart. This is a robust based on experience of similar sites.
- 4.6 Using the above input data the SR has considered the daytime and night time operational noise (L_{Aeq1hr}) and L_{Amax} . The results of the noise models are displayed Figures 3 to 5 below:

FIGURE 3 – Noise Levels ($L_{Aeq(day)}$)

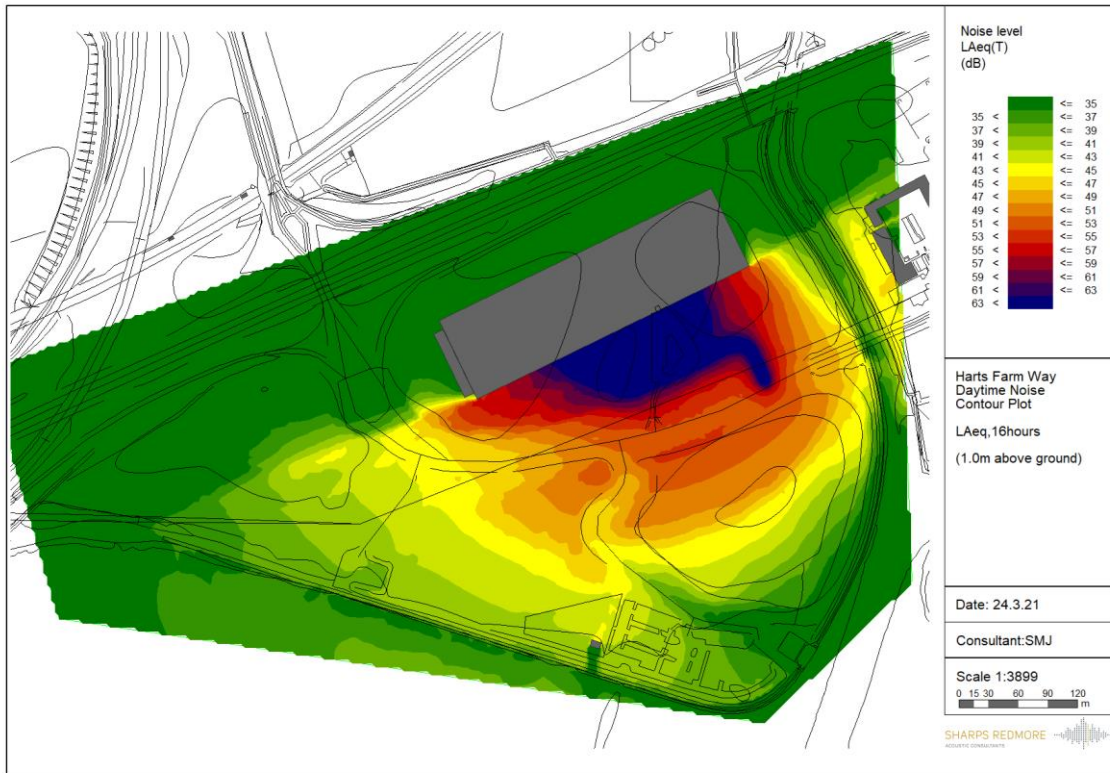


FIGURE 4 – Noise Levels ($L_{Aeq(night)}$)

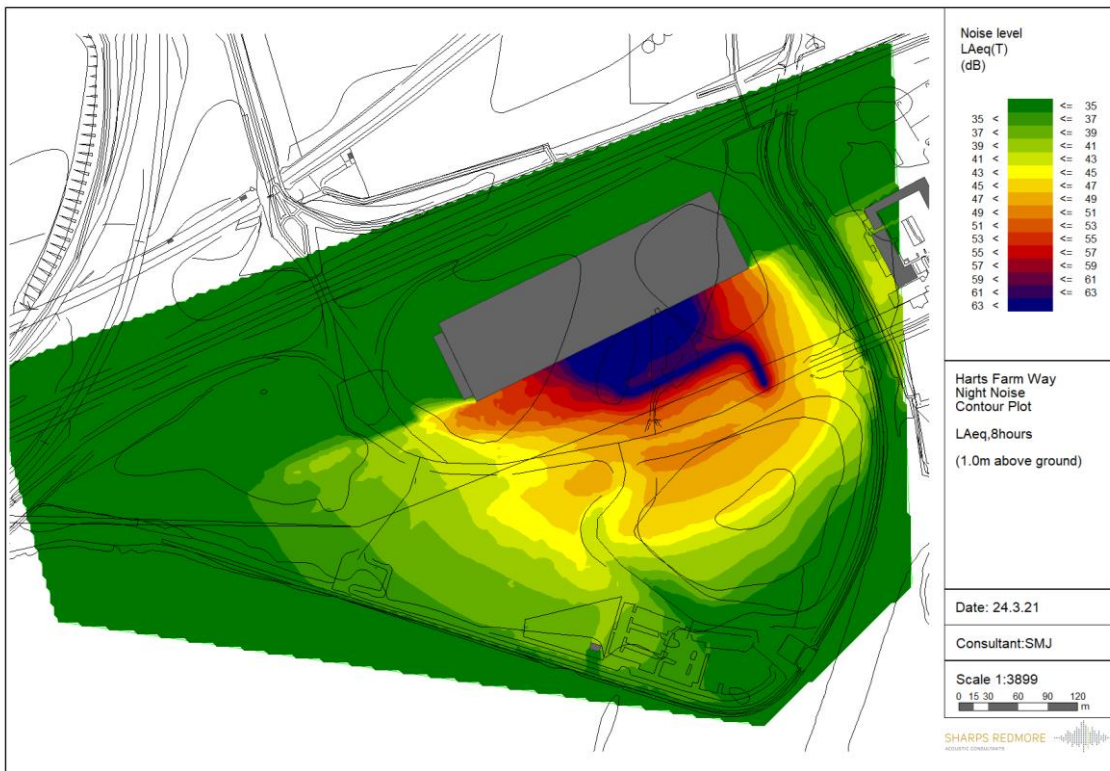
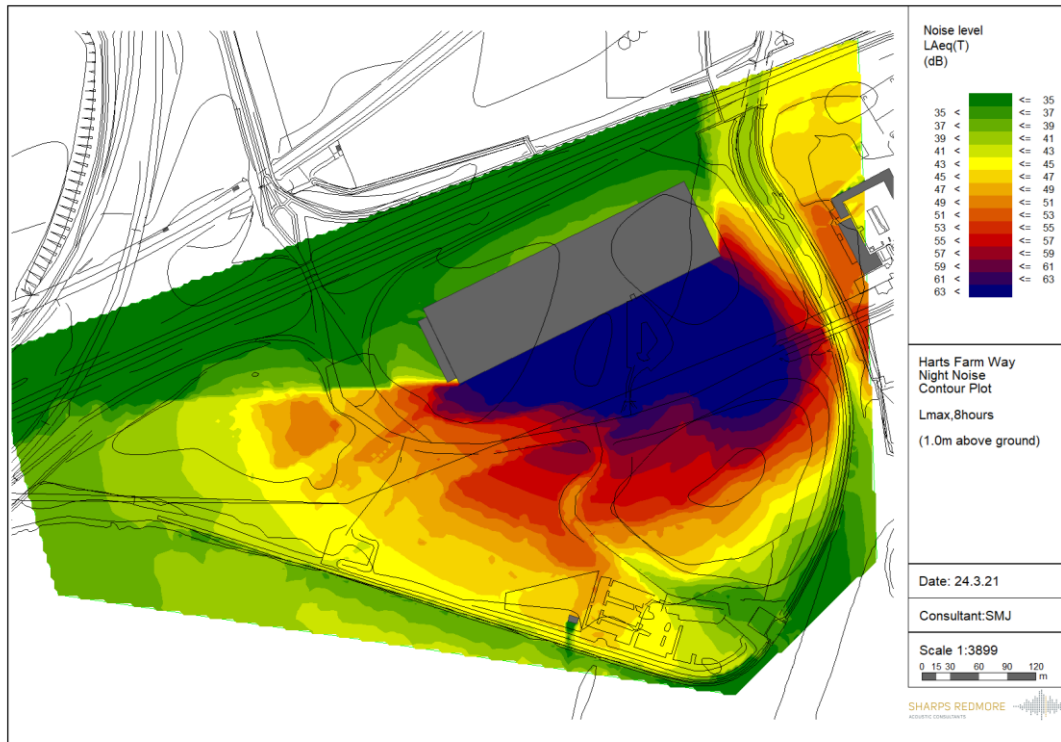


FIGURE 5 – Noise Levels (L_{Amax})



- 4.7 Using the above figures the predicted noise levels from operation activity at the boundary of the Broadmarsh Country Park have been determined.

TABLE 5: Predicted noise level from demolition activity

Daytime (0700 – 2300hrs)	Night time (2300 – 0700hrs)	L_{Amax}
53 dB $L_{Aeq(day)}$	49 dB $L_{Aeq(day)}$	63 dB

- 4.8 Based on a series of robust assumptions predicted noise levels from operational activity will be below the suggested criteria at Broadmarsh Country Park.
- 4.9 Noise from operational activity at the site will be characterised by noise from HGV movements and unloading activity, this is not of character with the existing noise climate. Predicted noise levels will be approximately 6 dB below the existing ambient noise levels measured, as result in the change in noise level will be no greater than 1dB. Such a change in noise level will be imperceptible.
- 4.10 SR understands that the Broadmarsh Country Park although an important habitat does not have any statutory designation. Notwithstanding, it is concluded that the impact of noise from operational activity will be below the criteria suggested by Natural England.

- 4.11 In relation to the Langmead SSI which is located approximately 280 metres to the south of the development site, beyond the Broadmarsh Country Park, noise be significantly lower, below 35 dB L_{Aeq} . Noise levels will be below the existing background noise levels measured.

Construction Noise

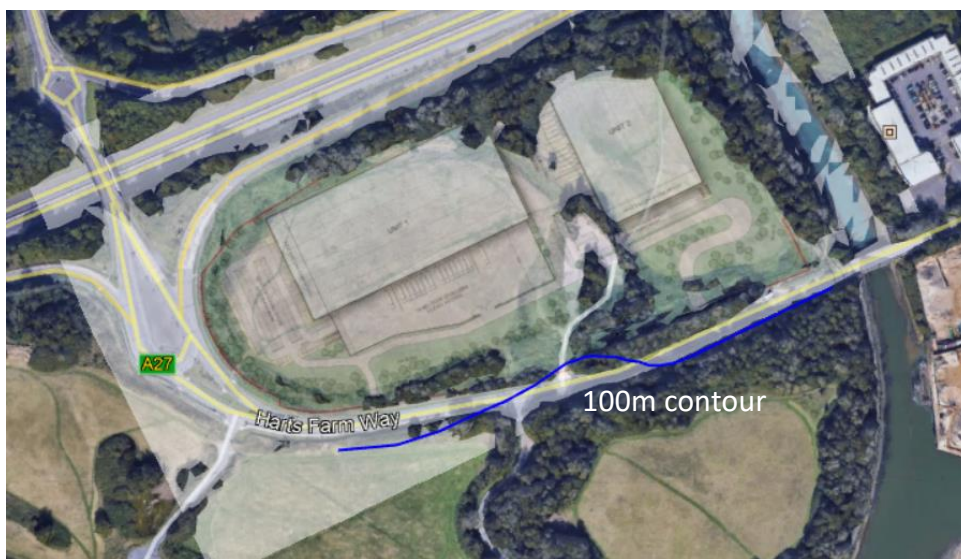
- 4.12 The exact details of the construction activity are not known and therefore it is not possible to carry out a detailed assessment at this time. However, in terms of the noise the main impacts will occur during the piling stage which will take place in groundworks and foundation stage. These works will be of limited duration. To reduce noise levels all construction work will be carried out in accordance with good industry practice and include the following:

- Where possible, locating plant so that it is screened from receptors by on-site structures, such as cabins.
- Siting stationary plant away from the southern boundary of the site.
- Using localised screening to shield receptors from particularly noisy equipment/activities;
- Using modern quiet equipment and ensuring such equipment is properly maintained and operated by trained staff;
- Applying silencers/enclosures to particularly noisy equipment where possible;

- 4.13 In relation to piling activity due to the characteristic of the work and the relatively short time over which the work will take place, the main impact will be peak noise levels (L_{Amax}). Typically to avoid disturbance to birds maximum noise levels should be below 70 dB L_{Amax} has widely been used as a suitable threshold to indicate a level of effect where disturbance due to noise may cause a behavioural response.

- 4.14 Based on the noise data provided, at 100m typically maximum noise levels are between 70 – 77 dB. Using a layout based on two units to represent a worst case situation, and a level from piling activity of 73 dB L_{Amax} , SR has shown where the 100m contour from the building, Figure 6 below. This would indicate a potential impact on the northern boundary of the Broadhurst Country Park when work is taking place at the closest point. However, for the majority of the time noise levels will be below the suggested criteria.

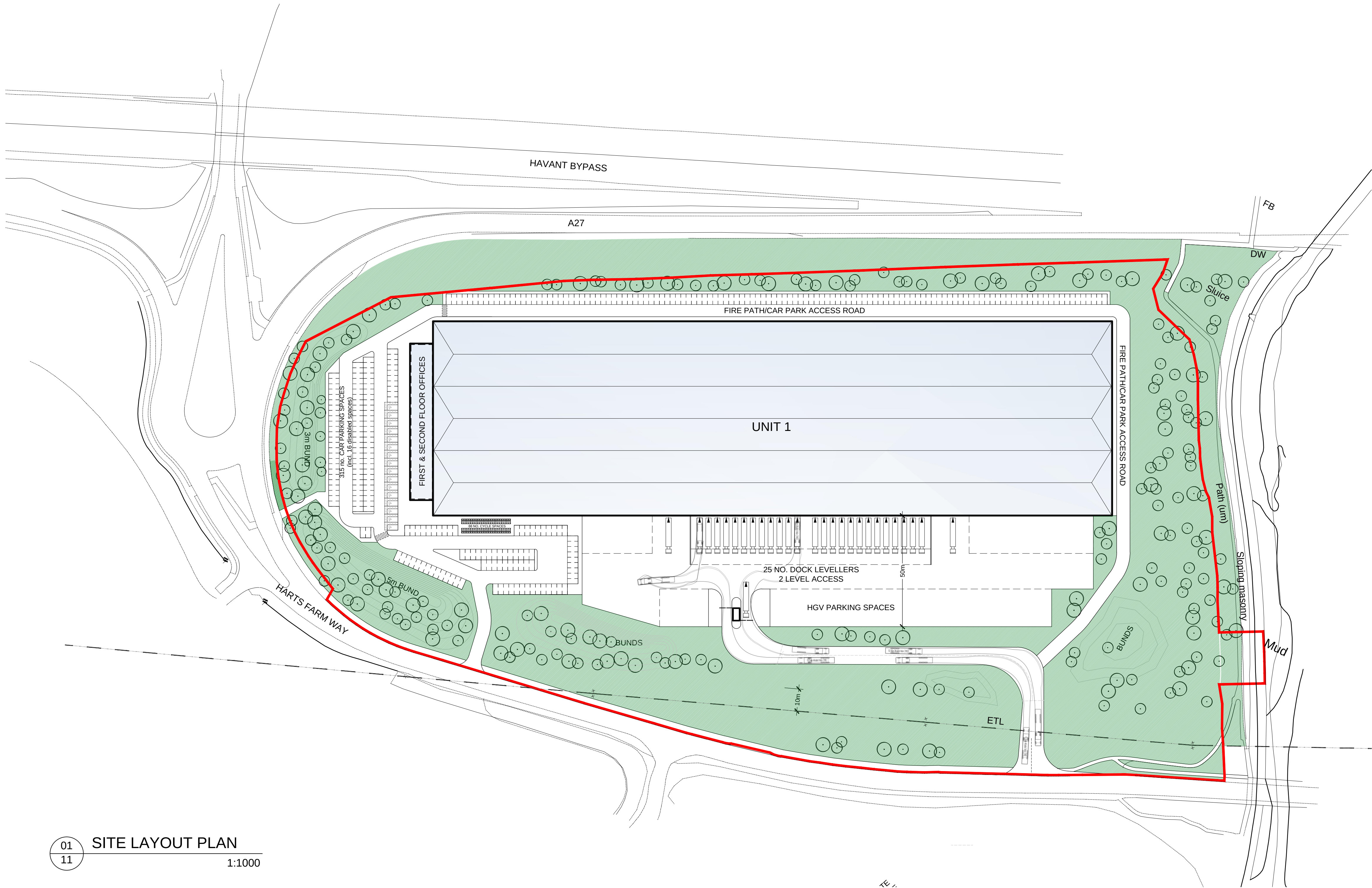
FIGURE 6: 100m contour from building foundations



- 4.15 The possible exceedance of the criteria should also be considered in context of the existing noise environment. Based on the noise survey carried out typical maximum levels on the northern boundary of the country park are already 71 dB L_{Amax} . Therefore, maximum levels from piling will be similar a level to the existing noise climate.

APPENDIX A

SITE LAYOUT



01 SITE LAYOUT PLAN
11 1:1000

NOTES:

SUBJECT TO STATUTORY CONSENTS

SUBJECT TO SURVEY

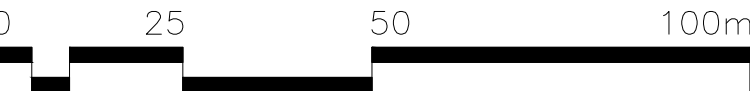
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AREA SCHEDULE
GIA

1	sqm	sqft
Unit	27,094	291,630
First & Second Floor Offices	1,298	13,970
Subtotal	28,392	305,600

TOTAL	28,392	305,600
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SITE AREA (APPROX.)	Ha	acres
	8.307	20.528

E	28/01/2021	Car and cycle parking updated, boundary updated to include drainage connection	AH	AC
D	14/01/2021	Secondary site access shown, parking numbers & roof plan updated	AH	AC
C	02/10/2020	Access road updated	PB	AC
B	23/09/2020	Car parking spaces relocated	PB	AC
A	02/07/2020	Offices revised. Proposed site boundary updated.	PB	AC
-	01/07/2020	First Issue	PB	AC
REV	DATE	NOTE	DRAW	CHK

MICHAEL SPARKS ASSOCIATES

CHARTERED ARCHITECTS

11 PLATO PLACE
ST DIONIS ROAD
LONDON SW6 4TU

TELEPHONE 020 7736 6162

www.msa-architects.co.uk

TITLE

HARTS FARM WAY, HAVANT

DRAWING

SITE LAYOUT PLAN

CLIENT

EXTON ESTATES

DATE	SCALE	DRAWN
JULY 2020	1:1000 @ A1	PB
	STATUS	CHECKED
	FEASIBILITY	AC

DRAWING NUMBER

31383 / FE / 11 E

APPENDIX B

SURVEY RESULTS

Survey Results

Date	L _{Aeq}	L _{Afmax}	L _{Afmin}	L _{Af10}	L _{Af90}
(2021/03/15 13:30:00.00)	60.4	69.6	54.5	62.6	57.4
(2021/03/15 13:45:00.00)	60.8	69.2	55.4	63	57.8
(2021/03/15 14:00:00.00)	60.8	69.5	55.2	62.8	57.8
(2021/03/15 14:15:00.00)	59.7	68.3	53.5	62.2	56.6
(2021/03/15 14:30:00.00)	61.2	72.7	54.6	63.3	57.6
(2021/03/15 14:45:00.00)	60.5	72.3	54.9	63.1	57.3
(2021/03/15 15:00:00.00)	61	74.6	55.3	63.3	57.3
(2021/03/15 15:15:00.00)	60.5	67.3	55	62.9	57.2
(2021/03/15 15:30:00.00)	61.1	70.4	55.7	63.5	57.8
(2021/03/15 15:45:00.00)	61.3	70.5	55.4	63.6	58.1
(2021/03/15 15:59:59.00)	62	72.2	56.5	64.1	58.8
(2021/03/15 16:14:59.00)	61.8	68.6	56.1	63.8	58.3
(2021/03/15 16:30:00.00)	61.6	75.6	55.4	63.6	58
(2021/03/15 16:45:00.00)	61.4	68	54.4	63.9	57.4
(2021/03/15 17:00:00.00)	62.3	77.2	56.4	64.4	59
(2021/03/15 17:14:59.00)	62	72.8	55.7	64.3	58.1
(2021/03/15 17:30:00.00)	61.5	69.4	55.4	63.8	57.4
(2021/03/15 17:45:00.00)	61.3	67.8	53.9	64.1	56.4
(2021/03/15 18:00:00.00)	61.8	70.1	54.5	64.8	56.8
(2021/03/15 18:15:00.00)	60	67.6	53.2	63.3	55.4
(2021/03/15 18:30:00.00)	60.3	70	52.8	63.3	55.3
(2021/03/15 18:45:00.00)	59.7	70.7	53.2	63	54.9
(2021/03/15 19:00:00.00)	59.5	71.7	51.3	62.9	54.4
(2021/03/15 19:15:00.00)	58.2	68.6	51.4	61.7	53.4
(2021/03/15 19:30:00.00)	57.4	67.9	51.2	60.7	53.1
(2021/03/15 19:45:00.00)	56.7	67.4	50.3	60	52.3
(2021/03/15 20:00:00.00)	57.3	68.5	49.5	60.9	52.3
(2021/03/15 20:15:00.00)	56.3	67.4	50.2	59.1	52.1
(2021/03/15 20:30:00.00)	55.3	68.2	49	58.2	51.3
(2021/03/15 20:45:00.00)	56.5	67.4	49.3	59.9	51.8
(2021/03/15 21:00:00.00)	55.4	68.3	48.3	57.2	52
(2021/03/15 21:15:00.00)	58.4	82.8	48.4	59.1	50.9
(2021/03/15 21:30:00.00)	55.5	68.9	47.9	58.2	50.5
(2021/03/15 21:45:00.00)	56.8	70.1	48.3	60.4	51
(2021/03/15 21:59:59.00)	60.6	82.1	49.9	61.9	51.9
(2021/03/15 22:15:00.00)	55	76.5	46.8	56.4	49.6
(2021/03/15 22:30:00.00)	54.4	66.4	45.3	57.4	49.1
(2021/03/15 22:44:59.00)	53.3	68.2	44.3	55.5	47.6
(2021/03/15 23:00:00.00)	54.1	71.8	45	56.3	48
(2021/03/15 23:14:59.00)	52	65.4	43.4	54	46.5
(2021/03/15 23:30:00.00)	53.8	69.2	43.9	55.8	47.4
(2021/03/15 23:45:00.00)	52.1	65.4	38.7	55.1	44.9
(2021/03/15 23:59:59.00)	53.7	67.3	42	57.1	47.3
(2021/03/16 00:15:00.00)	52	66.7	42	53.7	46.7

Date	L _{Aeq}	L _{Afmax}	L _{Afmin}	L _{Af10}	L _{Af,90}
(2021/03/16 00:30:00.00)	50.4	63.8	36.8	52.9	43.4
(2021/03/16 00:45:00.00)	49.4	65.1	40	51	44.1
(2021/03/16 01:00:00.00)	49.4	63.4	36.6	51	45.1
(2021/03/16 01:15:00.00)	48.9	63	38.5	51.5	42.7
(2021/03/16 01:30:00.00)	47.8	66.3	34.6	49	40
(2021/03/16 01:45:00.00)	47.6	60.1	34.3	50.1	43.1
(2021/03/16 02:00:00.00)	49	66.5	38.3	49.9	43.1
(2021/03/16 02:15:00.00)	50.7	70.1	38.1	51.7	43.2
(2021/03/16 02:29:59.00)	49	67.1	32.5	50.5	39.2
(2021/03/16 02:45:00.00)	49.4	67.8	31.3	50.3	39.9
(2021/03/16 03:00:00.00)	49.5	68.7	38.4	50.2	43.3
(2021/03/16 03:15:00.00)	51.2	66.5	39.3	52.8	43.2
(2021/03/16 03:30:00.00)	51.2	67.1	40.1	53.9	42.7
(2021/03/16 03:45:00.00)	51.4	70.4	39.5	53.2	42.6
(2021/03/16 04:00:00.00)	51.9	67.5	41.3	52.7	45.9
(2021/03/16 04:15:00.00)	53.2	70.1	41.9	55.4	46.9
(2021/03/16 04:29:59.00)	51.8	65.5	43.4	53.7	46.8
(2021/03/16 04:45:00.00)	54.2	66.2	45.9	57.1	48.8
(2021/03/16 05:00:00.00)	55	69.8	47.6	58.1	49.8
(2021/03/16 05:15:00.00)	57.1	68.6	49.3	60.4	52.4
(2021/03/16 05:30:00.00)	61.2	73.2	53.1	64.1	56.1
(2021/03/16 05:45:00.00)	60.5	71.9	53.7	63.4	56.2
(2021/03/16 06:00:00.00)	60.1	70.5	54.2	63	56.6
(2021/03/16 06:15:00.00)	62.5	82.8	56.7	64.6	58.6
(2021/03/16 06:29:59.00)	62.4	75.1	57.5	64.6	59.7
(2021/03/16 06:45:00.00)	62.8	69	58.4	65.1	60.1
(2021/03/16 07:00:00.00)	63.6	72.3	58	65.6	60.7
(2021/03/16 07:15:00.00)	63.9	69.9	59	66	61.1
(2021/03/16 07:30:00.00)	64.2	72.3	58.9	66.3	61.2
(2021/03/16 07:45:00.00)	63.4	71	58.6	65.4	60.6
(2021/03/16 08:00:00.00)	63.2	71.7	57.6	65.3	60.1
(2021/03/16 08:15:00.00)	62.7	70.8	57.5	65	59.7
(2021/03/16 08:30:00.00)	62.6	74.2	57.2	64.7	59.4
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