



Environmental Associates

Noise Assessment

Coleraine Park

November 2022

Harris Primary Academy



Noise Assessment

Coleraine Park

Client: Harris Primary Academy

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Report Version	Prepared By	Reviewed By
Final	LK	NJD

NJD Environmental Associates LTD

www.njdenvironmental.co.uk

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FIGURES

- 1 Daytime Specific Noise dB LAeq,1h (1.5m grid height)

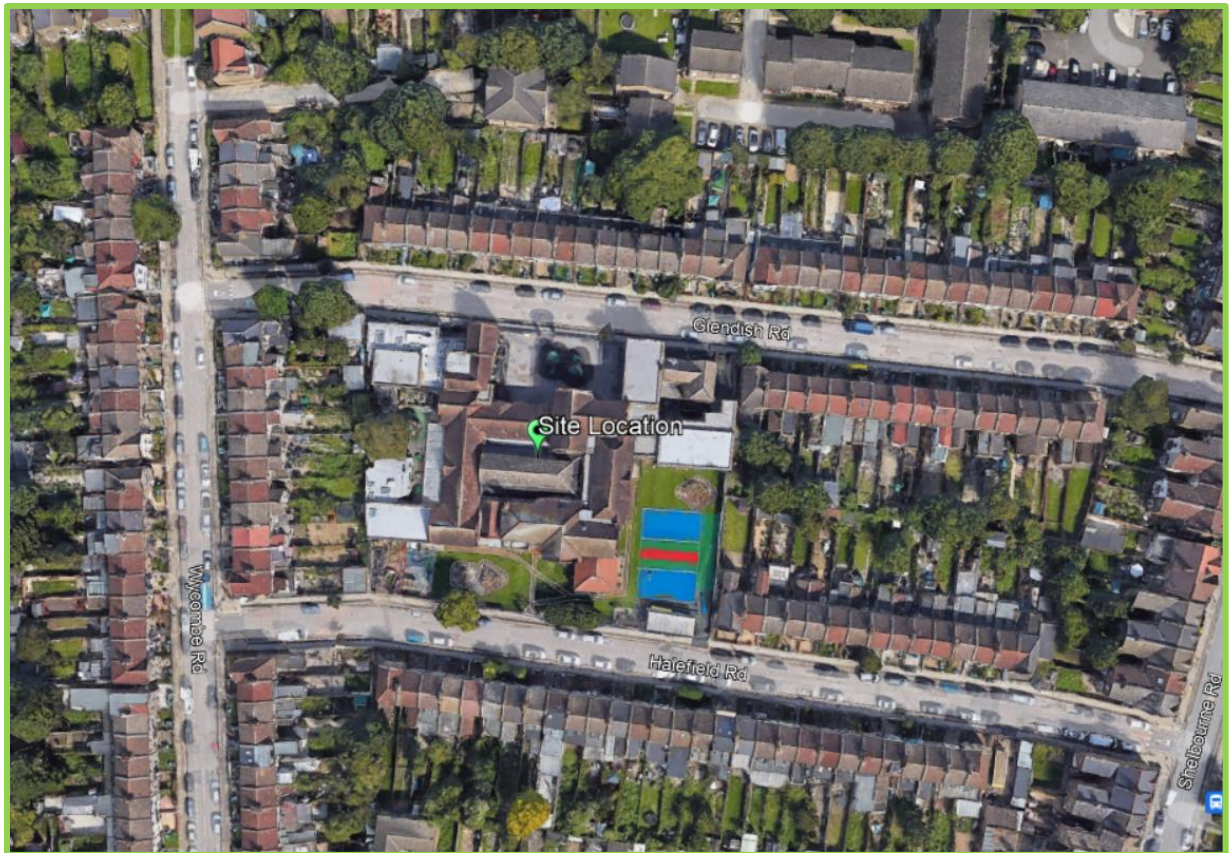
APPENDICES

- 1 Noise Measurements

1 INTRODUCTION

1.1 Background

- 1.1.1 NJD Environmental Associates LTD was instructed by Harris Primary Academy to undertake a noise assessment in support of a planning application for the installation of an Air Source Heat Pump (ASHP) at Coleraine Park, London.
- 1.1.2 The site location and position of the proposed plant is shown below in Drawings 1 and 2 respectively.



Drawing 1: Site Location



Drawing 2: Plant Location

- 1.1.3 A report has been prepared in support of the planning application; with background noise measurements taken representative of the nearest receptors, manufacturer noise data has been sourced, calculations have been performed using noise modelling software, and the results interpreted with reference to the relevant standards.

2 ASSESSMENT METHODOLOGY

2.1 BS8233:2014 and WHO 1999 Guidance Levels

- 2.1.1 BS8233:2014 '*Guidance on sound insulation and noise reduction for buildings*' provides guidance for the control of noise in and around buildings. It applies to the design of new buildings, or refurbished buildings undergoing a change of use.
- 2.1.2 BS8233 refers to the World Health Organisation research and recommendations when defining acceptable and upper guidance noise levels within gardens during the day, and within habitable rooms in dwellings during the day and night-time periods as follows:

Table 1: Summary of BS8233 and WHO guidance noise levels

Activity	Location	0700 to 2300h	2300 to 0700h
Resting	Living room	35dB LAeq,16h	-
Relaxing	Gardens	55dB LAeq,16h	-
Dining	Dining room	40dB LAeq,16h	-
Sleeping (daytime resting)	Bedroom	35dB LAeq,16h	30dB LAeq,8h 45dB L _{Amax}

2.2 BS4142:2014+A1:2019 Industrial and Commercial Sound Guidance

- 2.2.1 Where industrial or commercial noise is present or proposed and likely to impact a residential receptor, the guidance contained within BS 4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound' should be followed. The guidance enables the effects of such noise on people nearby to be assessed and the associated risks to be minimised.
- 2.2.2 The guidance provides a methodology for determining an initial estimate of significance through subtracting the measured background noise level from the rating level (the specific sound level of the source corrected for any distinctive acoustic characteristics).
- 2.2.3 Typically, the greater the difference, the greater the magnitude of the impact.
- A difference of around +10dB 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.
 - 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 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.
- 2.2.4 The context, as defined within BS4142, relates to the following factors:
- The absolute level of sound.
 - Character and level of the residual sound compared to the character and level of the specific sound.
 - Acoustic design measures.

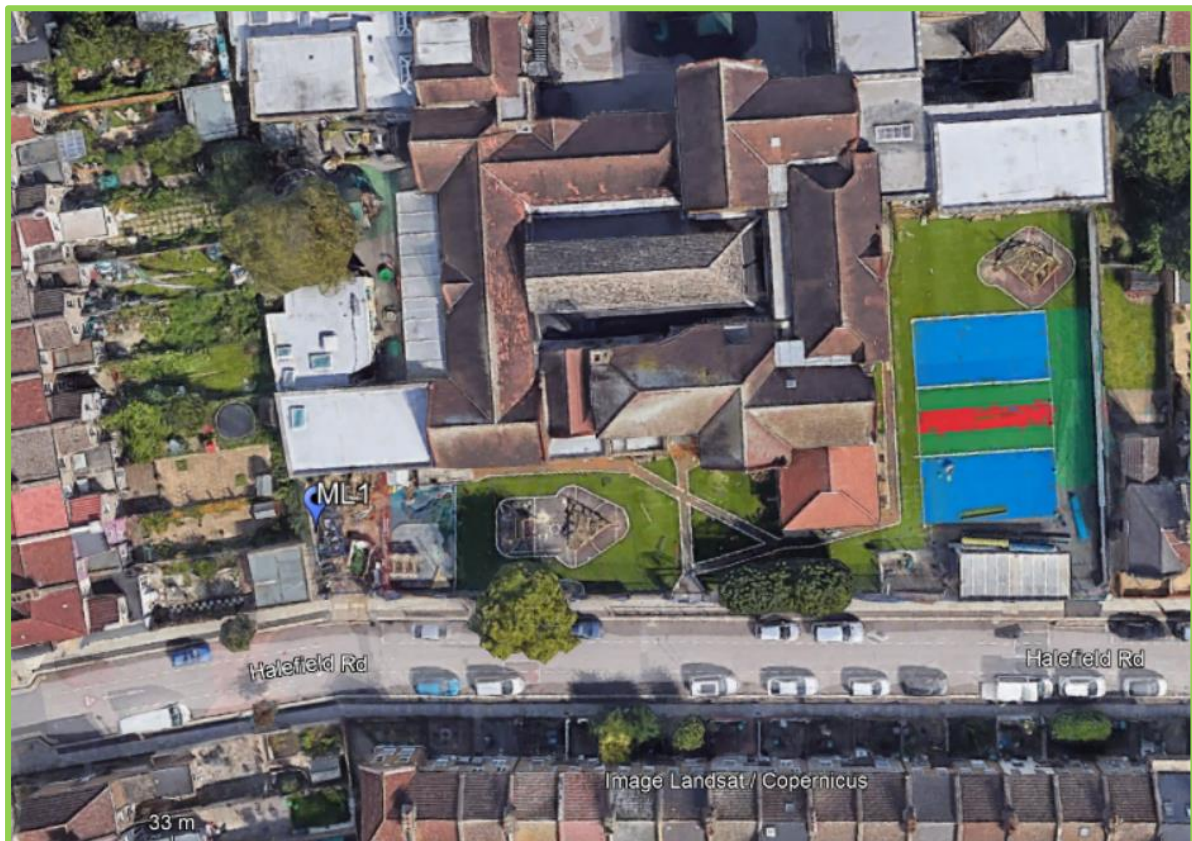
3 NOISE SURVEY

3.1 Introduction

- 3.1.1 From the 13th May 2022 to 16th May 2022, noise measurements were taken in the vicinity of the development site, in order to determine representative background noise levels at the nearest noise sensitive receptor locations.
- 3.1.2 Measurements were taken using a SVANTEK sound level meter. The Class 1 instrument logged 1/3 octave levels throughout the measurements, in addition to audio recordings to aid subsequent analysis. The instrument was calibrated before and after the measurements, with no notable drift observed.
- 3.1.3 The sound level meter (SN: 46457) and field calibrator (SN: 58815) both hold valid calibration certificates traceable to national standards, compliant with the requirements of BS7445. All calibration certificates can be made available upon request.

3.2 Monitoring Location

- 3.2.1 Measurements were taken at the location shown in Drawing 3 below.



Drawing 3: Noise monitoring location

- 3.2.2 The monitoring location was as follows:

- **ML1:** Microphone located on the western boundary of the school grounds, approximately 20m away from the closest residential receptor location.

The measurement took place during the following dates and times:

- 1700h on the 13th May 2022 to 0900h on the 16th May 2022

3.2.3 The acoustic environment was found to be dominated by road traffic noise.

3.2.4 Weather conditions throughout the survey were favourable; with windspeeds typically between 3 to 5m/s⁻¹, and no rainfall noted.

Uncertainties

3.2.5 Background noise measurements have been undertaken with high precision Class 1 instruments calibrated before and after the survey by an appropriately qualified and experienced technician.

3.2.6 The baseline data has been recorded over a number of separate days over the weekend period, where background and residual noise levels should generally be lower.

3.2.7 The noise models presented in this assessment calculate noise propagation to the methodologies contained within ISO 9613-2 Acoustic – Attenuation of sound during propagation outdoors. This gives a higher level of accuracy for the level of attenuation provided by intervening topography and barriers than the method provided by BS5228.

3.2.8 Whilst an element of uncertainty will inherently exist in any noise assessment due to the large number of potential variables, all reasonable steps have been taken to reduce this by using background data from the weekend period for the baseline as a worst case.

3.2.9 As such, the level of uncertainty should not be significant and the results and conclusions should be considered robust.

3.3 Existing Noise Levels

3.3.1 The noise levels from the identified monitoring location are summarised in Table 2 below.

Table 2: Summary of measured noise levels (dBA)		
Period Start Date	LAeq	LA90
Daytime (0700 – 2300h)		
Week 13/05/2022 & 16/05/2022	51	43
Saturday 14/05/2022	50	39
Sunday 15/05/2022	52	45
Night-time (2300 – 0700h)		
Week 13/05/2022 & 16/05/2022	45	36
Saturday 14/05/2022	44	36
Sunday 15/05/2022	49	39

3.3.2 Full details of the measurements are presented in Appendix 1.

4 CADNAA NOISE MODELS

4.1 Input Data

- 4.1.1 A noise model of the site and surrounding land has been developed using CadnaA software, with buildings positioned to reflect the proposed conditions.
- 4.1.2 The nearest existing sensitive receptors (ESRs) have been identified as being residential dwellings off Wycombe Road to the west of the site (ESR1); Wycombe and Halefield Road to the south (ESR2 and ESR3).
- 4.1.3 For the purpose of these calculations, the ground absorption has been set to G=0 (which represents an acoustically hard ground around the development site), with buildings, roads and car parks also set to G=0 with two orders of reflection considered.
- 4.1.4 The models have been programmed to assess the propagation of noise across receptor points set at the windows of the ESRs.
- 4.1.5 During the daytime scenario (Figure 1) the receptors and contours have evaluated the propagation of noise across a 1.5m high grid.
- 4.1.6 Noise levels for the ASHP have been derived from the manufacturer specification. The plant has been assumed to operated continuously at full

capacity, therefore no corrections have been applied for 'on-time'. The details are summarised in Table 3 below.

Table 3: Sound Power Level of ASHP (dB LwA)				
Manufacturer	Model	Description	Sound Power Level	On-time
Enerblue	Black HT EVO 65 (SLN Model)	Air Source Heat Pump	85	100%

- 4.1.7 The noise level data has been programmed into CadnaA on the basis of a single point source.
- 4.1.8 The modelling software then calculates propagation of the source to the receptor location and corrects for the appropriate A-weighted broadband level.
- 4.1.9 The heat pump is proposed to only be operational during the daytime period (07:00 – 23:00), therefore no assessment of night-time impact has been performed.

4.2 Intrinsic Acoustic Mitigation

- 4.2.1 As part of the intrinsic design of the site, acoustic mitigation has been included in the form of a 3.5m high acoustic fence around the western, eastern and southern boundaries of the plant area.
- 4.2.2 The acoustic fence will be close boarded with no gaps with a minimum superficial mass of 10-12 kg/m².
- 4.2.3 The location of the barriers is shown on Figure 1.

4.3 Noise Model Factors and Limitations

- 4.3.1 The noise models presented in this assessment calculate noise propagation to the methodologies contained within ISO 9613-2 Acoustic – Attenuation of sound during propagation outdoors. This gives a higher level of accuracy for the level of attenuation provided by intervening topography and barriers than the method provided by BS5228.
- 4.3.2 All noise level predictions are based on simplified models of sound generation and propagation; however, some local conditions such as gusts of wind or bursts of turbulence in the air are too complex to be factored into the algorithms.

- 4.3.3 The noise models may therefore be subject to some minor uncertainties; however, it is noted that all predictions assume theoretical down-wind propagation from all sources to all receptors, and as such the models are more likely to over-predict noise levels compared to real-life conditions.
- 4.3.4 It is noted that certain architectural intricacies are beyond the capability of the noise modelling software parameters. However, the models are deemed to closely replicate the dimensions of all significant structural elements wherever possible.
- 4.3.5 The primary factor that governs the validity of the models is the quality of the input data. As such, all practicable means have been explored to ensure that the data used in the models is as accurate as possible.

5 MODEL RESULTS

- 5.1.1 Based on the levels calculated in Figure 1, the specific noise levels at the identified ESR locations are summarised in Table 4 below.

Table 4: Calculated Specific Noise Levels (dB LAeq,T)	
Receptor Location	Specific Noise Level
	Daytime (1.5m)
ESR1	38
ESR2	39
ESR3	35

6 BS4142 ASSESSMENT OF PLANT NOISE

6.1 Background Noise Level

- 6.1.1 The data from ML1 has been analysed to determined representative background noise levels during the daytime periods. The 15-minute periods (as logged and presented in Appendix 1) have been assessed to determine the modal average level during the respective periods.
- 6.1.2 Review of the data indicates that these values are representative of the background values that are typical in the vicinity of the receptor locations. The results are show in Table 5.

Table 5: Summary of background noise levels (dBA)	
Location:	Daytime Modal LA90 0700 to 2300h
ML1	39

6.2 Specific Noise Level

- 6.2.1 The results from Figure 1 and Table 4 show the calculated specific noise levels at the different receptor locations. To ensure a robust assessment, the highest specific noise level from ESR2 have been used in the BS4142 assessment.

6.3 Assessment of Impact

Table 6: BS4142 Assessment		
	Noise level (dB)	Commentary
Results	Day	
Specific sound level	39	Based on the calculated levels from Figure 1
Acoustic feature correction	+2	A precautionary penalty for tonality has been applied.
Rating level	41	Specific noise level corrected for acoustic features
Background sound level	39	Reference Table 5
Excess of rating over background sound level	+2	Rating level minus background level
Initial assessment of impact	M/A	Negligible (N); Low (L); Minor Adverse (M/A); Adverse (A); Significant Adverse (S/A)
Assessment of Context	The initial assessment indicates that noise associated with the ASHPs will likely result in a minor adverse impact, depending on the context. The context is assessed below: The specific noise level at the nearest ESR location is predicted to be up to 39dB LAeq at the worst-case façade. Assuming 15dB of attenuation for a partially open window (WHO 1999), internal noise levels would be approximately 24dB LAeq, which is significantly below the internal guidance noise level for living rooms and bedrooms (35dB LAeq) during the daytime period. Furthermore, the specific noise level is significantly below the existing residual noise levels (50 dB LAeq) during the daytime period, so should not contribute a noticeable amount to the ambient level following development. With reference to the NPSE; noise from the proposed plant is likely may be just perceptible. However, the commercial noise should not result in a perceived change in the quality of life for the receptor and the impact will reside at the 'LOAEL (Lowest Observed Adverse Effect Level) in accordance with the NPSE.	
Conclusion	It is concluded that noise from the plant should not be at a level or character that causes any changes in behaviour or attitude to the receptor. On balance, the commercial noise impact is considered to be Low.	

7 CLASSROOMS

- 7.1.1 Consideration has also been given during the design phase to the resultant noise levels from the ASHP within existing classroom areas of the school.
- 7.1.2 The assessment of classrooms is outside the scope of BS4142+A1:2019. Reference can however be made to BB93, which suggests that internal target noise levels in classrooms can be set at 40 dB LAeq where the receiving room is subject to natural ventilation. This therefore corresponds to an external target noise level of 55 dB LAeq, assuming an attenuation of 15 dB through a partially open window.
- 7.1.3 Following a review of the internal layouts and the noise levels within Figure 1, no classrooms are subject to external noise levels at the façade of higher than 55 dB and therefore BB93 guideline noise levels are achieved.

8 CONCLUSIONS

- 8.1.1 NJD Environmental Associates has undertaken a noise assessment in relation to a planning application for the installation of an ASHPs located at Coleraine Park, London.
- 8.1.2 The assessment considers noise from an ASHP; with calculations performed using noise modelling software, and the results interpreted in accordance with the relevant standards.
- 8.1.3 Including intrinsic mitigation, the BS4142 assessment has found that the rating noise level is predicted to be no more than 2 dB above the existing background noise levels
- 8.1.4 Following an assessment of context, noise from the plant is expected to result in a **Low** impact, based on the installation of acoustic fencing around the perimeter of the plant area, as shown on Figure 1 and the supporting planning drawings.
- 8.1.5 On the basis of the mitigation being installed as proposed, it is concluded that noise should not be a prohibitive factor in the determination of this planning application.

njd

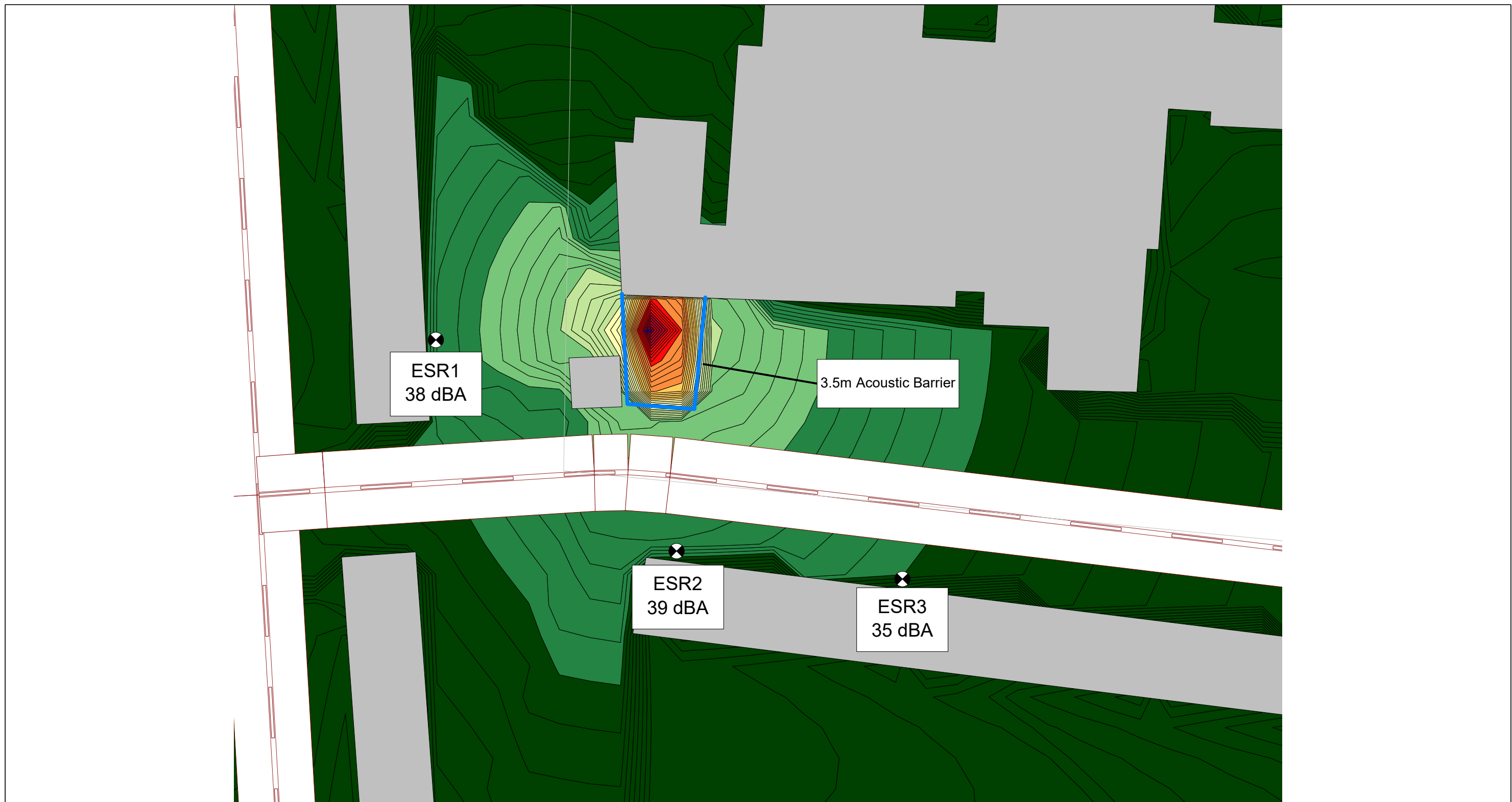
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	Client: Harris Primary Academy	Figure 1: Daytime Specific Noise dB LAeq,1hr (1.5m grid height)	0 <= ... < 35 35 <= ... < 40 40 <= ... < 45 45 <= ... < 50 50 <= ... < 55 55 <= ... < 60 60 <= ... < 65 65 <= ... < 70 70 <= ... < 75 75 <= ... < 80 80 <= ...	 Date: November 2022
	Job Title: NJD22-0025 Coleraine Park	Drawn By: L Kelter		

L13.SVL : Logger results

No.	Date & time	P1 (A, Lin) LAeq (SR) [dB]	P1 (A, Fast) LAFmax (SR) [dB]	P1 (A, Lin) L10	P1 (A, Lin) L90
1	13/05/2022 17:00:00	56	87	55	43
2	13/05/2022 17:15:00	47	63	50	43
3	13/05/2022 17:30:00	48	72	50	42
4	13/05/2022 17:45:00	48	70	50	42
5	13/05/2022 18:00:00	50	71	50	43
6	13/05/2022 18:15:00	56	74	56	42
7	13/05/2022 18:30:00	50	70	48	41
8	13/05/2022 18:45:00	48	73	49	42
9	13/05/2022 19:00:00	48	69	50	42
10	13/05/2022 19:15:00	45	65	46	41
11	13/05/2022 19:30:00	50	67	50	42
12	13/05/2022 19:45:00	49	75	48	40
13	13/05/2022 20:00:00	44	60	46	40
14	13/05/2022 20:15:00	46	63	47	40
15	13/05/2022 20:30:00	46	73	48	39
16	13/05/2022 20:45:00	48	73	48	40
17	13/05/2022 21:00:00	44	64	46	40
18	13/05/2022 21:15:00	46	72	46	39
19	13/05/2022 21:30:00	45	61	48	39
20	13/05/2022 21:45:00	46	67	48	38
21	13/05/2022 22:00:00	45	62	46	40
22	13/05/2022 22:15:00	46	67	46	40
23	13/05/2022 22:30:00	46	74	46	39
24	13/05/2022 22:45:00	42	62	43	38
25	13/05/2022 23:00:00	41	60	42	36
26	13/05/2022 23:15:00	41	62	43	36
27	13/05/2022 23:30:00	43	62	44	37
28	13/05/2022 23:45:00	41	60	42	36
29	14/05/2022 00:00:00	42	62	42	37
30	14/05/2022 00:15:00	42	64	43	37
31	14/05/2022 00:30:00	40	61	42	36
32	14/05/2022 00:45:00	40	60	41	36
33	14/05/2022 01:00:00	41	62	43	36
34	14/05/2022 01:15:00	41	62	43	37
35	14/05/2022 01:30:00	37	48	39	35
36	14/05/2022 01:45:00	40	58	42	35
37	14/05/2022 02:00:00	38	63	39	34
38	14/05/2022 02:15:00	38	60	39	34
39	14/05/2022 02:30:00	38	63	38	34
40	14/05/2022 02:45:00	41	62	41	34
41	14/05/2022 03:00:00	38	59	39	33
42	14/05/2022 03:15:00	41	69	43	33
43	14/05/2022 03:30:00	41	63	42	33
44	14/05/2022 03:45:00	38	58	40	34
45	14/05/2022 04:00:00	38	69	39	33
46	14/05/2022 04:15:00	45	65	44	34

47	14/05/2022 04:30:00	41	65	43	36
48	14/05/2022 04:45:00	43	69	43	36
49	14/05/2022 05:00:00	44	65	43	36
50	14/05/2022 05:15:00	45	66	44	36
51	14/05/2022 05:30:00	46	71	41	35
52	14/05/2022 05:45:00	45	68	43	35
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54	14/05/2022 06:15:00	43	70	44	35
55	14/05/2022 06:30:00	49	74	46	36
56	14/05/2022 06:45:00	47	71	48	35
57	14/05/2022 07:00:00	51	72	52	38
58	14/05/2022 07:15:00	45	74	47	38
59	14/05/2022 07:30:00	47	70	49	38
60	14/05/2022 07:45:00	51	76	47	36
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62	14/05/2022 08:15:00	48	77	49	37
63	14/05/2022 08:30:00	48	75	50	38
64	14/05/2022 08:45:00	49	74	48	38
65	14/05/2022 09:00:00	45	75	47	37
66	14/05/2022 09:15:00	47	73	47	36
67	14/05/2022 09:30:00	42	58	45	36
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69	14/05/2022 10:00:00	46	67	49	41
70	14/05/2022 10:15:00	50	83	50	40
71	14/05/2022 10:30:00	48	67	49	40
72	14/05/2022 10:45:00	49	67	52	44
73	14/05/2022 11:00:00	53	73	53	45
74	14/05/2022 11:15:00	53	73	54	45
75	14/05/2022 11:30:00	54	70	55	45
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79	14/05/2022 12:30:00	56	71	59	47
80	14/05/2022 12:45:00	55	76	56	46
81	14/05/2022 13:00:00	53	72	55	41
82	14/05/2022 13:15:00	52	71	52	42
83	14/05/2022 13:30:00	44	56	46	41
84	14/05/2022 13:45:00	49	74	51	42
85	14/05/2022 14:00:00	46	62	48	41
86	14/05/2022 14:15:00	44	62	46	39
87	14/05/2022 14:30:00	45	72	47	39
88	14/05/2022 14:45:00	46	72	46	39
89	14/05/2022 15:00:00	45	71	46	40
90	14/05/2022 15:15:00	47	64	50	39
91	14/05/2022 15:30:00	51	71	50	39
92	14/05/2022 15:45:00	45	63	47	40
93	14/05/2022 16:00:00	47	70	50	39
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95	14/05/2022 16:30:00	43	60	45	39
96	14/05/2022 16:45:00	49	71	49	39

97	14/05/2022 17:00:00	45	66	45	38
98	14/05/2022 17:15:00	44	68	45	39
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105	14/05/2022 19:00:00	53	74	55	47
106	14/05/2022 19:15:00	52	65	54	46
107	14/05/2022 19:30:00	53	80	54	48
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110	14/05/2022 20:15:00	55	77	57	49
111	14/05/2022 20:30:00	51	68	54	47
112	14/05/2022 20:45:00	50	60	52	46
113	14/05/2022 21:00:00	49	64	51	46
114	14/05/2022 21:15:00	48	67	50	44
115	14/05/2022 21:30:00	49	64	51	46
116	14/05/2022 21:45:00	49	73	51	44
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118	14/05/2022 22:15:00	46	59	48	41
119	14/05/2022 22:30:00	47	61	49	43
120	14/05/2022 22:45:00	48	57	50	44
121	14/05/2022 23:00:00	47	55	49	43
122	14/05/2022 23:15:00	47	66	50	44
123	14/05/2022 23:30:00	47	66	49	43
124	14/05/2022 23:45:00	46	63	48	43
125	15/05/2022 00:00:00	46	62	47	40
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152	15/05/2022 06:45:00	47	75	45	39
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160	15/05/2022 08:45:00	52	78	49	42
161	15/05/2022 09:00:00	64	85	51	43
162	15/05/2022 09:15:00	51	74	53	44
163	15/05/2022 09:30:00	52	73	51	45
164	15/05/2022 09:45:00	52	74	52	45
165	15/05/2022 10:00:00	49	73	51	43
166	15/05/2022 10:15:00	55	75	53	45
167	15/05/2022 10:30:00	55	78	51	43
168	15/05/2022 10:45:00	50	71	52	45
169	15/05/2022 11:00:00	51	68	53	46
170	15/05/2022 11:15:00	51	63	53	48
171	15/05/2022 11:30:00	50	71	52	46
172	15/05/2022 11:45:00	51	71	51	45
173	15/05/2022 12:00:00	49	69	51	45
174	15/05/2022 12:15:00	49	64	52	45
175	15/05/2022 12:30:00	47	73	50	41
176	15/05/2022 12:45:00	50	73	49	42
177	15/05/2022 13:00:00	56	77	50	46
178	15/05/2022 13:15:00	49	66	51	42
179	15/05/2022 13:30:00	47	71	48	41
180	15/05/2022 13:45:00	47	66	48	42
181	15/05/2022 14:00:00	49	76	48	43
182	15/05/2022 14:15:00	49	63	51	46
183	15/05/2022 14:30:00	49	66	50	47
184	15/05/2022 14:45:00	53	70	56	49
185	15/05/2022 15:00:00	52	73	53	47
186	15/05/2022 15:15:00	52	78	50	44
187	15/05/2022 15:30:00	51	78	53	46
188	15/05/2022 15:45:00	49	65	51	46
189	15/05/2022 16:00:00	48	73	50	45
190	15/05/2022 16:15:00	49	71	50	46
191	15/05/2022 16:30:00	48	61	50	46
192	15/05/2022 16:45:00	51	77	49	45
193	15/05/2022 17:00:00	49	71	50	44
194	15/05/2022 17:15:00	51	77	52	45
195	15/05/2022 17:30:00	49	73	52	45
196	15/05/2022 17:45:00	51	63	54	47

197	15/05/2022 18:00:00	48	60	49	45
198	15/05/2022 18:15:00	49	73	50	45
199	15/05/2022 18:30:00	49	77	48	44
200	15/05/2022 18:45:00	49	67	50	45
201	15/05/2022 19:00:00	48	72	49	45
202	15/05/2022 19:15:00	54	78	53	44
203	15/05/2022 19:30:00	48	65	51	45
204	15/05/2022 19:45:00	48	59	49	45
205	15/05/2022 20:00:00	47	59	49	44
206	15/05/2022 20:15:00	48	67	50	44
207	15/05/2022 20:30:00	47	61	48	44
208	15/05/2022 20:45:00	47	69	48	44
209	15/05/2022 21:00:00	47	64	48	44
210	15/05/2022 21:15:00	47	69	47	43
211	15/05/2022 21:30:00	49	63	51	45
212	15/05/2022 21:45:00	52	62	55	47
213	15/05/2022 22:00:00	52	64	55	48
214	15/05/2022 22:15:00	50	61	52	47
215	15/05/2022 22:30:00	49	59	51	46
216	15/05/2022 22:45:00	47	57	50	44
217	15/05/2022 23:00:00	46	63	47	43
218	15/05/2022 23:15:00	46	55	48	43
219	15/05/2022 23:30:00	45	62	47	42
220	15/05/2022 23:45:00	43	61	45	39
221	16/05/2022 00:00:00	45	63	46	42
222	16/05/2022 00:15:00	45	61	47	42
223	16/05/2022 00:30:00	44	59	45	42
224	16/05/2022 00:45:00	42	62	44	40
225	16/05/2022 01:00:00	41	68	42	38
226	16/05/2022 01:15:00	40	67	40	37
227	16/05/2022 01:30:00	38	60	39	35
228	16/05/2022 01:45:00	40	64	40	34
229	16/05/2022 02:00:00	39	55	41	36
230	16/05/2022 02:15:00	40	56	42	36
231	16/05/2022 02:30:00	39	57	41	35
232	16/05/2022 02:45:00	37	56	38	35
233	16/05/2022 03:00:00	38	55	39	35
234	16/05/2022 03:15:00	37	53	39	35
235	16/05/2022 03:30:00	38	57	40	36
236	16/05/2022 03:45:00	42	60	44	36
237	16/05/2022 04:00:00	41	54	43	38
238	16/05/2022 04:15:00	42	56	44	37
239	16/05/2022 04:30:00	41	65	41	35
240	16/05/2022 04:45:00	37	58	38	34
241	16/05/2022 05:00:00	42	64	42	36
242	16/05/2022 05:15:00	43	59	44	38
243	16/05/2022 05:30:00	46	68	46	41
244	16/05/2022 05:45:00	50	77	47	42
245	16/05/2022 06:00:00	50	77	47	39
246	16/05/2022 06:15:00	48	72	46	38

247	16/05/2022 06:30:00	54	83	47	39
248	16/05/2022 06:45:00	52	75	51	39
249	16/05/2022 07:00:00	55	83	52	43
250	16/05/2022 07:15:00	51	72	49	43
251	16/05/2022 07:30:00	54	76	52	43
252	16/05/2022 07:45:00	53	76	50	44
253	16/05/2022 08:00:00	56	84	55	45
254	16/05/2022 08:15:00	54	80	53	45
255	16/05/2022 08:30:00	54	76	52	44
256	16/05/2022 08:45:00	53	79	50	43
257	16/05/2022 09:00:00	49	71	50	43