Addendum Note

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Weybridge Business Park, Weybridge

Job Number: 100492	**Date:** 18 October 2022	**Client:** Bridge Industrial
Prepared By: BB	**Approved By:** DS	

1. Introduction

1.1. This addendum has been produced by Air and Acoustic Consultants Ltd to assess the impacts of a commercial development located at Weybridge Business Park, Weybridge. A detailed noise assessment[1] was produced by Air and Acoustic Consultants Ltd in support of the application. This addendum considers the new proposed site layout and in light of this a revised operational noise impact assessment has been undertaken, the results of which are presented in this addendum.

2. Development Proposals

2.1. The development proposals comprise the construction of a number of commercial buildings with associated parking. The revised proposed layout, which includes a reduction in floor space for Unit 100 and a reduction in car parking spaces on the northern site, is shown in Figure 1.

[1] Air & Acoustic Consultants. 2022. *100492 Weybridge Business Park, Weybridge – Noise Assessment.*

Figure 1: Proposed Site Layout

3. Legislation and Guidance

3.1. The legislation and guidance which forms the basis of this updated assessment was detailed and discussed in the original noise assessment.

4. Assessment Receptors

4.1. The receptors have been updated and selected to represent the noise sensitive properties most exposed to the potential noise sources, resulting from the proposed development.

4.2. The original assessment included a receptor to represent the moorings located on the River Wey to the east of the application site.

4.3. The updated proposed development layout locates the service yard for Unit 100, which contains the majority of the proposed noise sources close to the moorings on the River Wey. The moorings on the River Wey cannot be considered dwellings or premises used for residential purposes because the maximum time that boats can stay at the moorings is 48 hours and there is no planning permission for any residential use. Additionally, individual boats at the moorings will not be able to experience noise that could be considered a nuisance because that would require the noise to affect them for periods longer than they are permitted to stay at the moorings. Therefore, the receptor representing the moorings on the River Wey has not been included in this addendum.

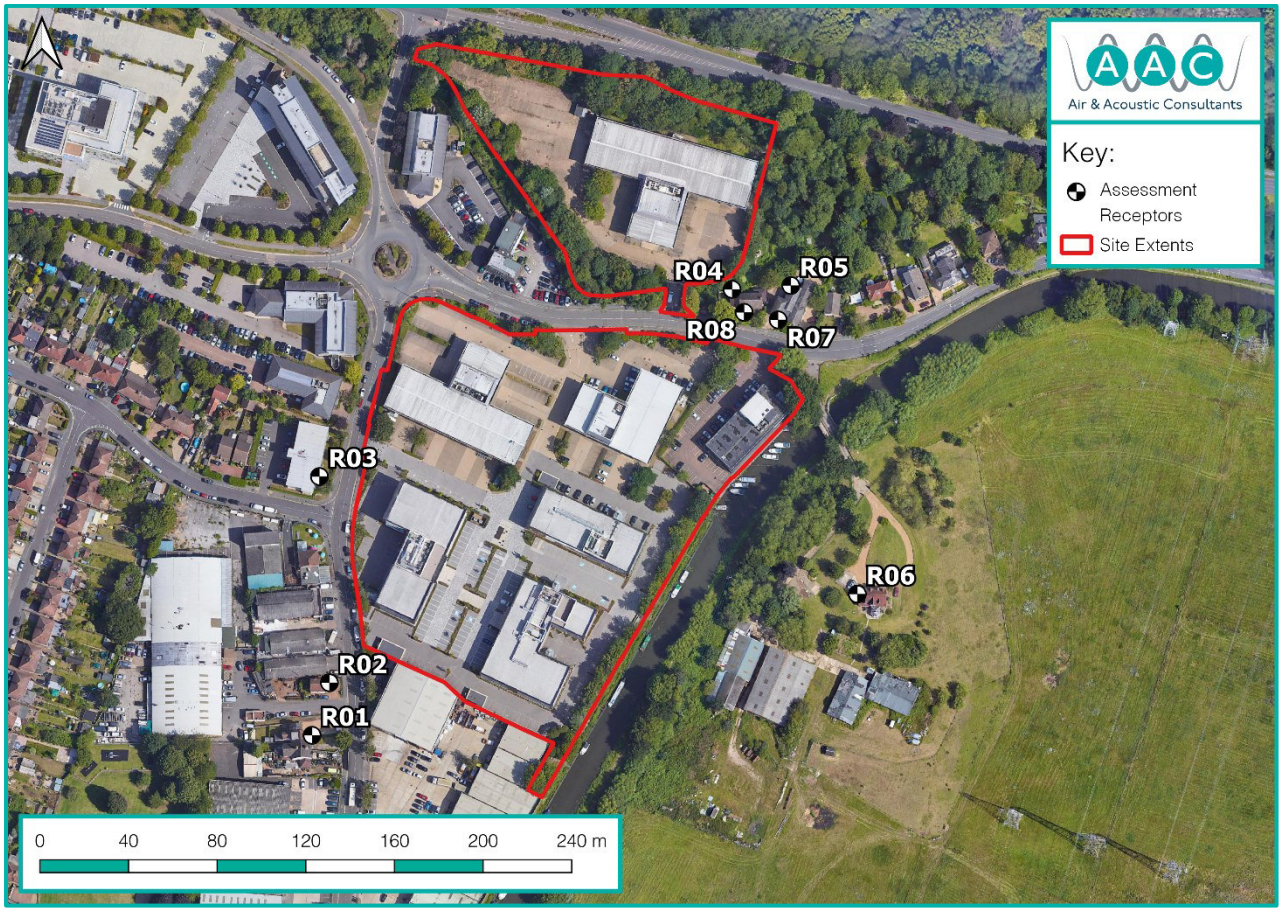
4.4. The exact wording contained in the scope of BS 4142:2014+A1:2019 states "*assessing sound at proposed new dwellings or premises used for residential purposes*".

4.5. The selected noise sensitive receptor locations are detailed in Table 1 and illustrated in Figure 2

Table 1: Noise Sensitive Receptors

Receptor	Height (m)	Description	Receptor Location Description
R01	4.0	22 Hamm Moor Lane	East façade
R02	4.0	20 Hamm Moor Lane	East façade
R03	7.0	Navigation House	East façade
R04	4.0	New House	North façade
R05	4.0	Bourneside	West façade
R06	4.0	Blackboy Farm	West façade

Figure 2: Assessment Receptor Locations



5. Baseline Noise Monitoring

5.1. The baseline noise monitoring data which is included in this updated assessment was detailed within the Baseline Monitoring section of the original assessment.

6. Operational Road Traffic Noise Assessment

6.1. The potential adverse effects from changes in road traffic noise have been assessed by considering the increase in traffic resulting from the proposed development operating at full capacity.

6.2. Based upon transport data provided by the project transport consultants, (Appendix B), the proposed development will generate a worst-case additional 397 vehicle trips on Addlestone Road east of the site accesses.

6.3. Traffic data has been provided for all surrounding roads in the opening year and five years in the future. The road that has the highest change in noise level is the link road connecting the Hamm Moor Lane Roundabout with the link road to the A317, however this road has no adjacent sensitive receptors. The worst affected road that has residential properties adjacent is Addlestone Road which will experience a BNL increase of +0.7 dB

6.4. To determine the likely impacts the change in noise level must be compared to the DMRB guidance, where a change in BNL of less than 1 dB indicates the predicted impacts would be classified as 'no change', or in terms of the NPPG (Noise) the NOEL.

7. Operational Commercial Sound Assessment

7.1. The potential adverse effects of commercial and/or industrial sound experienced at the closest noise sensitive receptors have been assessed using the methodology described in BS 4142:2014+A1:2019. The typical background sound levels for the daytime and night-time periods used in the assessment were provided within the original noise assessment.

7.2. The proposed layout for this planning application consists of three industrial buildings, two units (Unit 210 and Unit 220) are adjacent to each other on the northern parcel of the site and have not been changed in any way that will affect the noise assessment. Only Unit 100 has been changed to locate the access to the north and loading area to the east away from Hamm Moor Lane.

7.3. Unit 100 will have 14 HGV docks on the eastern façade as well as four level access doors, however it is understood that HGVs unloaded at the level access doors will be parked inside the building for any unloading with forklifts.

7.4. The proposed commercial premises will operate for 24-hours per day 7 days per week and has therefore been assessed during daytime and night-time periods.

7.5. The noise rating levels have been predicted at the façades of the identified noise sensitive receptors using a CadnaA noise propagation model, these noise rating levels are provided in Table 4.

7.6. The variables that have been used and any assumptions/limitations were detailed in the original noise assessment

7.7. The primary sources of operational sound likely to be produced by the proposed development have been identified as deliveries arriving and departing the site and the loading and unloading operations. Unloading may use trolleys or forklifts inside the buildings or trailers and have been included in the source terms. It is understood that should there be any forklifts on-site they will operate only inside of the buildings.

7.8. The source levels used for the predictions of goods vehicle movements, loading/unloading and forklifts, have been taken from the Air and Acoustic Consultants library of sound measurements. Details of the sources used in the assessment are provided in Table 2.

Table 2: Sound Sources Used in the Commercial Noise Assessment

Activity	Sound Power Level (dB) at Octave Band Centre Frequencies (Hz)								Overall (dBA)
	63	125	250	500	1 k	2 k	4 k	8 k	
HGV Movement	65.9	64.2	63.5	66.4	79.6	69.8	63.1	56.6	80.4
HGV Manoeuvring	96.9	93.0	86.3	87.4	88.5	87.7	89.9	75.6	95.4
HGV Loading	78.1	71.3	66.1	64.9	62.9	61.5	58.0	58.8	68.9

7.9. At this stage no fixed plant has been specified and has therefore not been included in the assessment.

7.10. Each sound source has had corrections added to account for the assessment period and activity duration as well as acoustic feature corrections in line with BS 4142:2014+A1:2019.

7.11. The on-time corrections for the operations have been derived using observations of similar types of developments observed by Air and Acoustic Consultants and from the traffic generation data provided by the transport consultants for the project, provided in the original assessment[2].

7.12. The on-time corrections are made using the following equation:

$$10 \times \log\left(\frac{d \times 10^{\frac{L}{10}}}{D}\right)$$

7.13. Where d is the duration of the activity in minutes, L is the sound power level of the activity and D is the assessment duration in minutes, one hour during the daytime and 15 minutes during the night-time. The on-time corrected noise sources are provided in Table 3.

7.14. The numbers of vehicle movement expected at Unit 100 have been predicted by the transport consultants for the project, however only the total numbers of movements per day have been provided. The provided data states there will be 58 HGVs in a day serving the northern site and 79 HGVs serving the southern site. There is no indication of whether certain hours will be busier than others but it is unlikely that HGV movements will be spread equally across the day; assumptions have been made about how many HGVs might enter the sites in the worst-case hours using the traffic predictions and the number of loading/unloading docks shown on the plans.

7.15. The total numbers of HGVs serving the southern site require a minimum of four HGVs to enter and leave the site in some hours and there are 14 unloading docks and four level access doors. A maximum of eight HGVs arriving and unloading have been assumed in the daytime assessment period and two during the night-time period.

7.16. A single HGV loading/unloading event, is likely to take longer than the 15-minute assessment period and so during the night-time the HGV loading/unloading events have been assumed to last for the whole assessment period.

7.17. The on-time corrections that have been applied to sources in the assessment are provided in Table 3.

Table 3: Sound Source On-Time Calculations

Activity/Equipment Name	Source Sound Power Level L_{WA} (dBA)	Duration (min)		Corrected Sound Power Level L_{WA} (dBA)	
		Daytime	Night-time	Daytime	Night-time
HGV Movement	80.4	4	0.66	68.6	66.8

[2] Air & Acoustic Consultants, 2022. *Weybridge Business Park, Weybridge – Noise Assessment.*

Activity/Equipment Name	Source Sound Power Level L_{WA} (dBA)	Duration (min)		Corrected Sound Power Level L_{WA} (dBA)	
		Daytime	Night-time	Daytime	Night-time
HGV Manoeuvring	95.4	1.5	1.5	79.4	85.4
HGV Loading	68.9	40	15	67.1	68.9

7.18. The calculation method used for the HGV movements in this assessment is based upon the haul road methodology described in BS 5228:2009+A1:2014.

7.19. As part of a BS 4142:2014+A1:2019 assessment distinctive characteristics of any specific sound source are accounted for with penalty corrections for tonality, impulsivity, and intermittency.

7.20. A full list of penalties applied to the proposed sources and resulting noise rating levels are provided in Table 4 along with justifications.

Table 4: BS 4142:2014+A1:2019 Acoustic Feature Corrections

Equipment /Activity	Characteristic and Justification	Penalty (dB)
HGV Movement	The existing ambient noise environment is currently affected by vehicle movements so this source will have similar characteristics and is unlikely to be prominent therefore no penalty has been added.	0
HGV Manoeuvring	There are likely to be predominantly impulsive elements to the sound when reversing and manoeuvring so a + 6 dB penalty has been added.	+6
HGV Loading	The unloading of the trailers is likely to have impulsive components to the noise, however, the impulsivity is likely to be less noticeable that from the manoeuvring.	+3

7.21. The sound sources included in the noise propagation model for the operational commercial noise assessment are shown in Figure 3.

Figure 3: Modelled Sound Source Locations, BS 4142 Commercial Noise Assessment

7.22. The predicted noise rating levels at each of the sensitive receptors are presented in Table 5 along with representative background sound levels used in the BS 4142:2014+A1:2019 assessment.

Table 5: Predicted Commercial Noise Impacts at Sensitive Receptors

Receptor	Height (m)	Daytime (07.00 – 23.00) (dBA)			Night-time (23:00 – 07:00) (dBA)		
		Rating Level $L_{Ar,\,Tr}$	Background Level	Diff	Rating Level $L_{Ar,\,Tr}$	Background Level	Diff
R01	4.0	19.1	51	-31.9	20.1	43	-22.9
R02	4.0	19.1	51	-31.9	20.0	43	-23.0
R03	7.0	31.9	51	-19.1	24.0	43	-19.0
R04	4.0	51.9	49	+2.9	53.0	42	+11.0
R05	4.0	50.9	49	+1.9	51.7	42	+9.7
R06	4.0	47.3	47	+0.3	45.5	41	+4.5
R07	4.0	48.7	49	-0.3	47.0	42	+5.0
R08	4.0	49.1	51	-1.9	47.5	43	+4.5

7.23. It can be seen in Table 5, that based upon a reasonable worst-case scenario, during the daytime all receptors will receive noise rating levels that are less than 5 dB above the background sound level. During the night-time three of the eight receptors will receive noise rating levels that are greater than 5 dB above the background sound level, these receptors are located on Addlestone Road, close to the site boundaries.

7.24. BS4142:2014+A1:2019 acknowledges context when considering the impacts of new noise sources. In this situation the proposed development will be situated close to an active industrial area which produces industrial sound. This suggests that the noise produced by the proposed development is likely to be similar to sound already experienced by some of the existing noise sensitive receptors. Therefore, the impacts suggested by the predicted noise levels are likely to be lower.

7.25. Predicted noise rating level contours are presented in Appendix A, showing how sound is likely to propagate from the sources to the sensitive receptors.

7.26. In accordance with national policy, the impacts would be categorised as LOAEL and will require some form of mitigation to reduce the noise levels at the affected residential receptors.

8. Operational Maximum Commercial Sound Levels Assessment

8.1. The WHO Guidelines state that to avoid night-time sleep disturbance indoor sound pressure levels should not exceed approximately 45 dB(A) L_{AFmax} more than 10 – 15 times per night. It is generally accepted that 60 dB(A) L_{AFmax} at the external façades of living spaces corresponds to the LOAEL. These values assume the sound reduction provided by a partially open window is 15 dB, resulting in an internal noise level of 45 dB(A) L_{AFmax}. The night-time maximum sound levels measured during the survey were consistently higher than the WHO L_{AFmax} criterion so the measured L_{AFmax} levels at the closest noise monitoring location have been used in this assessment.

8.2. The assessment of maximum noise levels has included noise from an HGV arriving or leaving and loading of a parked HGV at Unit 100.

8.3. All maximum events have been modelled as point sources at worst-case locations, the number of sources is fewer than in the BS 4142:2014+A1:2019 industrial noise assessment because maximum noise events are extremely unlikely to be simultaneous.

8.4. The source levels used in the assessment, have been taken from the Air and Acoustic Consultants library of sound measurements, details of the sources used in the assessment are provided in Table 6.

Table 6: Sound Sources Used in the Maximum Noise Assessment

Activity	Sound Power Level (dB) at Octave Band Centre Frequencies (Hz)								Overall dB(A)
	63	125	250	500	1 k	2 k	4 k	8 k	
HGV Movement	84.5	83.9	83.7	87.0	101.2	94.2	87.5	80.6	101.6
HGV Manoeuvring	106.3	93.9	88.7	88.2	89.8	88.4	92.7	84.2	95.9

8.5. The sound sources included in the noise propagation model for the maximum operational noise assessment are shown in Figure 4.

Figure 4: Modelled Sound Source Locations, Maximum Noise Assessment

8.6. The predicted levels at receptors from maximum noise events are provided in Table 7.

Table 7: Predicted Maximum Commercial Noise Impacts at Sensitive Receptors

Receptor	Height (m)	Night-time (23:00 – 07:00) (dBA)		
		Predicted Level	Criteria Level	Difference
R01	4.0	29.1	73.6	-44.5
R02	4.0	28.6	73.6	-45.0
R03	7.0	39.3	73.6	-34.3
R04	4.0	66.2	69.4	-3.2
R05	4.0	62.6	69.4	-6.8
R06	4.0	57.0	66.6	-9.6
R07	4.0	64.1	69.4	-5.3
R08	4.0	64.8	73.6	-8.8

8.7. The predicted maximum noise event levels from the commercial operations are higher than the WHO Community Noise Guideline of 60 dB(A) at three of the seven noise sensitive receptors, however, they are lower than the existing measured night-time maximum levels so mitigation will not be required.

8.8. Predicted night-time maximum noise level contours are presented in Appendix A, showing how sound is likely to propagate from the sources to the sensitive receptors.

9. Operational Car Parking Noise Assessment

9.1. The car parking associated with the proposed development has the potential to have adverse impacts on the existing residential properties because of vehicles entering and leaving the site, however, the vehicles will tend to move slowly compared with vehicles travelling on highways.

9.2. The total daily vehicle movements have been provided by the traffic consultants for the project (Appendix B) as have the number of parking spaces, which are indicated in the proposed plans. There is a higher number of vehicles predicted to enter the southern site however there are also a higher number of parking spaces. The corresponding movements of vehicles per space per hour is 0.15 for the north site and 0.08 for the south site.

9.3. The predictions are provided in Table 8 along with comparison to the daytime and night-time $L_{Aeq,T}$ sound level that represents each receptor.

Table 8: Predicted Car Parking Noise Impacts at Sensitive Receptors

Receptor	Height (m)	Daytime (07.00 – 23.00) (dBA)			Night-time (23:00 – 07:00) (dBA)		
		Predicted $L_{Aeq,16hr}$	Existing $L_{Aeq,16hr}$	Diff	Predicted $L_{Aeq,8hr}$	Existing $L_{Aeq,8hr}$	Diff
R01	4.0	18.7	61	-42.6	18.7	54.7	-36.0
R02	4.0	24.6	61	-36.7	24.6	54.7	-30.1
R03	7.0	41.4	61	-19.9	41.4	54.7	-13.3
R04	4.0	44.8	54	-8.9	44.8	47.7	-2.9
R05	4.0	42.2	54	-11.5	42.2	47.7	-5.5
R06	4.0	30.4	53	-22.5	30.4	46.4	-16.0
R07	4.0	37.9	54	-15.8	37.9	47.7	-9.8
R08	4.0	40.1	61	-21.2	40.1	54.7	-14.6

9.4. The predicted car parking noise levels at the sensitive receptors are all less than the existing daytime and night-time $L_{Aeq,T}$ sound levels. If the predicted levels were to be added to the existing sound levels the change in noise level would be less than 3 dB and it is unlikely that the change in noise level would be perceptible as specified in the IEMA guidance.

10. Mitigation Measures

10.1. The assessments show that mitigation will be required to ensure commercial noise levels are reduced at sensitive receptors R04, R05 and R07.

10.2. The specification of this barrier is as follows:

- Minimum height 4.5 meters;
- No gaps or holes in the barrier, below the barrier or between panels; and
- Minimum surface density of 16 kg/m^2.

10.3. Figure 5 shows where barriers should be located to reduce noise rating levels at the receptors to less than 5 dB above the background sound levels.

Figure 5: Noise Mitigation Measures

10.4. The assessment has considered the potential noise impact upon the closest noise sensitive receptors to the proposed development. It has been demonstrated, using the methodology and criteria within BS 4142:2014+A1:2019, that the proposed development would represent NOEL to LOAEL if the specified noise mitigation features are included. Where there are no likely adverse effects no further action is required.

11. Conclusions

11.1. The predicted changes in road traffic noise as a result of the development are negligible, roads that have houses adjacent are affected by a maximum of +0.7 dB in the opening year of the development.

11.2. The predicted night-time maximum sound levels are less than the noise sensitive receptors experience from the existing sound level environment and the predicted noise levels from the car parks will also be lower than the existing sound levels.

11.3. The predicted noise rating levels at some of the closest residential noise sensitive receptors would be greater than the criterion level of 5 dB above the background sound level without any mitigation. Therefore, a mitigation strategy employing an acoustic barrier has been designed to ensure that the noise rating level at all the noise sensitive receptors is less than 5 dB above the background sound level.

11.4. It can, therefore, be concluded that the proposed development with the specified mitigation measures is unlikely to conflict with national, regional and local planning policy or guidance.

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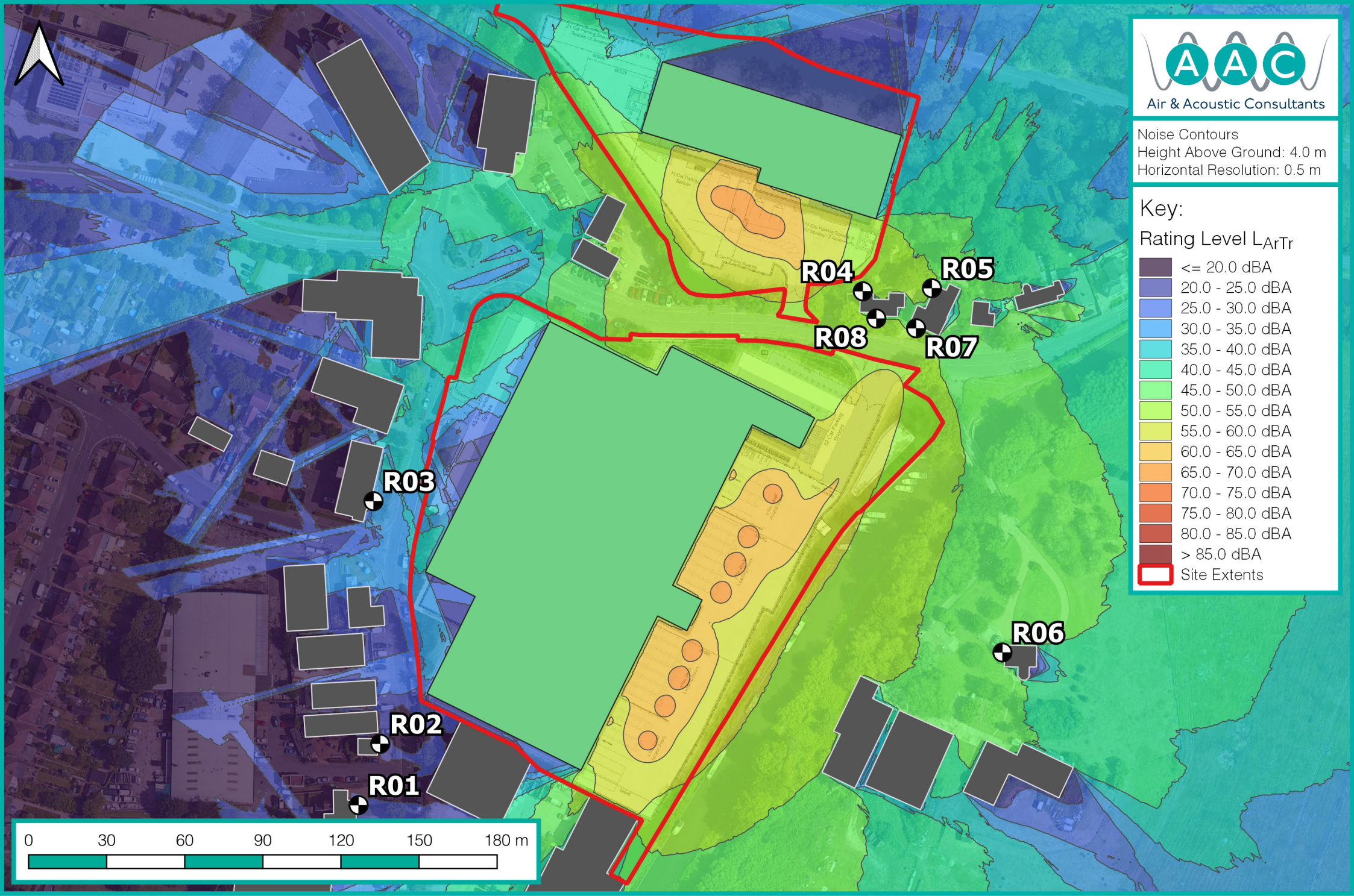
APPENDICES

APPENDIX A – NOISE CONTOURS

A.1 Daytime Industrial Noise Contours



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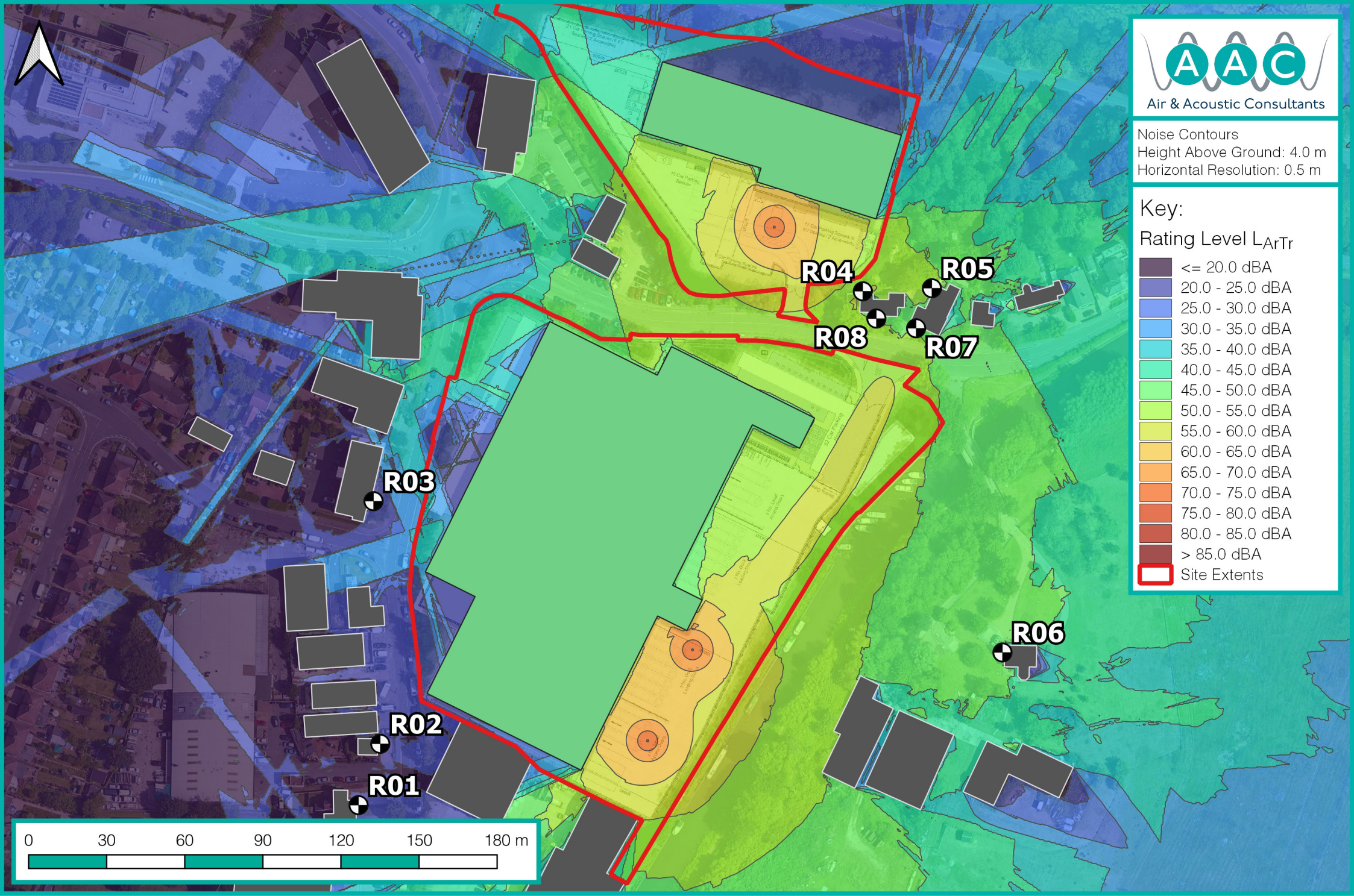
Noise Contours
Height Above Ground: 4.0 m
Horizontal Resolution: 0.5 m

Key:

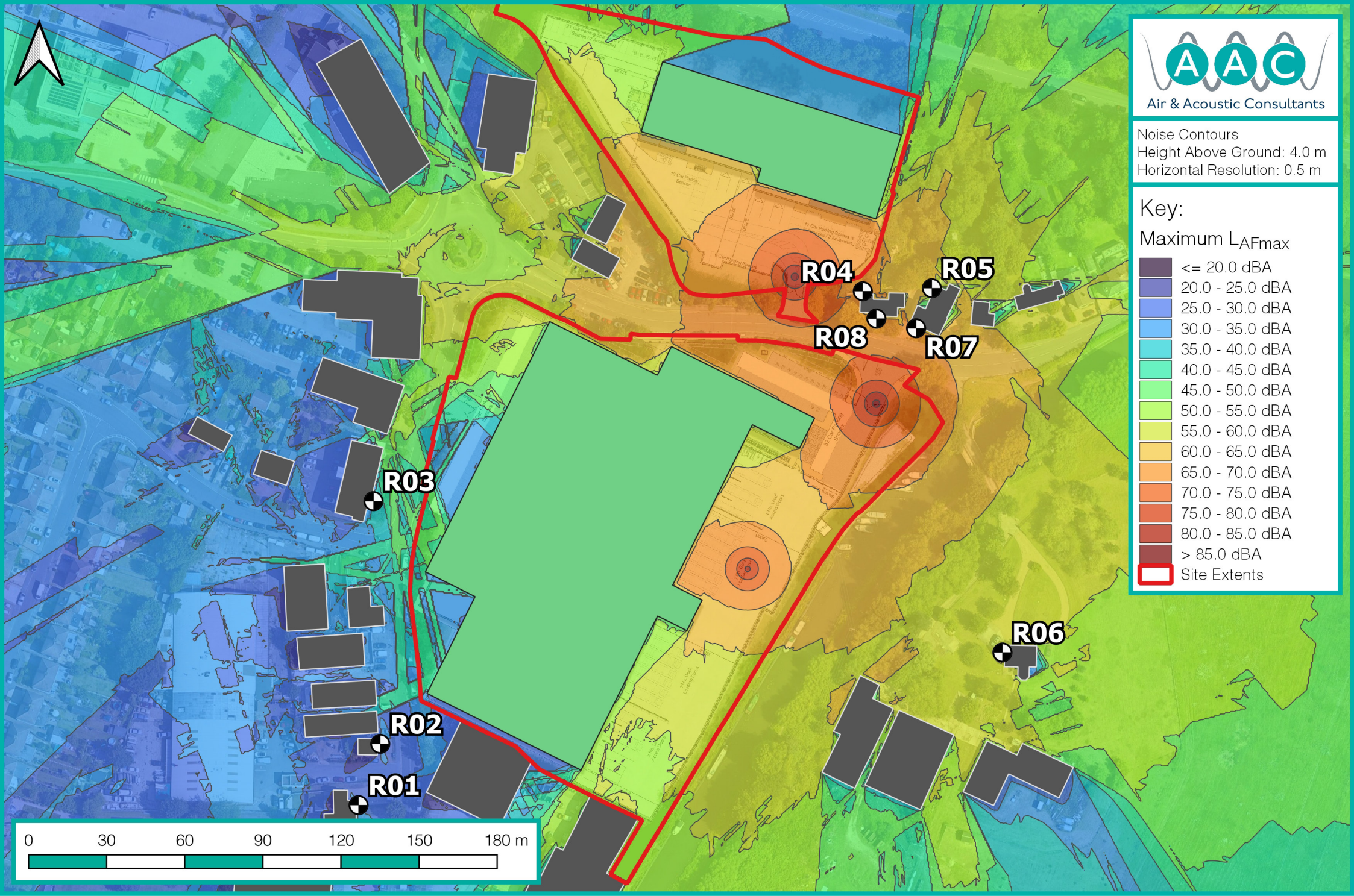
Rating Level L_{ArTr}

- <= 20.0 dBA
- 20.0 - 25.0 dBA
- 25.0 - 30.0 dBA
- 30.0 - 35.0 dBA
- 35.0 - 40.0 dBA
- 40.0 - 45.0 dBA
- 45.0 - 50.0 dBA
- 50.0 - 55.0 dBA
- 55.0 - 60.0 dBA
- 60.0 - 65.0 dBA
- 65.0 - 70.0 dBA
- 70.0 - 75.0 dBA
- 75.0 - 80.0 dBA
- 80.0 - 85.0 dBA
- > 85.0 dBA
- Site Extents

A.2 Night-Time Industrial Noise Contours



A.3 Night-Time Maximum Noise Contours



APPENDIX B – TRAFFIC DATA

Table B.1: Development Flow Data provided by the Transport Consultant

Location of Link	Posted Speed Limit (mph)	2022 Opening Year			2022 Base + Development		
		Total	HGV	HGV%	Total	HGV	HGV%
Site Access (Northern site)	20.0	0	0	0%	183	58	30%
Site Access (Southern Site)	20.0	0	0	0%	221	79	36%
Addlestone Road (east of site accesses)	30.0	2725	87	3%	2733	90	3%
Addlestone Road (west of site accesses)	30.0	2725	87	3%	3122	218	7%
Hamm Moor Lane	30.0	4779	206	4%	4779	206	4%
Dashwood Lang Road	20.0	692	36	5%	692	36	5%
Link Road (two-way)	30.0	4465	93	2%	4862	224	5%
A317 Weybridge Rd (east of Link Rd)	40.0	28086	1209	4%	28151	1230	4%
Link Road (southbound)	30.0	3191	54	2%	3392	120	4%
A317 Weybridge Rd (between Link Rd and Link Rd)	40.0	0	0	0%	32	11	33%
Link Road (northbound)	30.0	2464	95	4%	2922	121	4%
A317 Weybridge Rd (west of Link Rd)	40.0	23038	748	3%	23664	868	4%
Station Road	30.0	11561	238	2%	11727	293	2%
Woburn Hill	40.0	23932	223	1%	24098	278	1%