A47 Wansford to Sutton Dualling

Scheme Number: TR010039

Volume 6
6.3 Environmental Statement Appendices
Appendix 11.3 – Baseline noise survey

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

July 2021

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

A47 Wansford to Sutton Development Consent Order 202[x]

ENVIRONMENTAL STATEMENT APPENDICES
Appendix 11.3 – Baseline noise survey

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Rev 0	July 2021	Application Issue

Appendix 11.3

Baseline noise survey

Study area

11.3.1. The priority for undertaking noise measurements was given to residential properties considered to have the potential to be adversely affected by the Proposed Scheme. The closest accessible position where access had been granted at each property was used.

11.3.2. All long-term (LT) measurements were conducted over a week from the 8th May 2018 to the 15th May 2018 except for the measurement at the position LT2, which was conducted over a week from the 13th June 2018 to the 20th June 2018. Short-term (ST) measurements were conducted during the 9th, 10th and 11th May during the daytime.

11.3.3. The positions used for the measurements are indicated in Figure 11.1 (Noise location plan) (**TR010039/APP/6.2**).

Methodology

Measurement procedure

11.3.4. Table 11-3.1 presents details of the noise measurement equipment used. The sound level meters were designed to conform to Class 1 standard as defined within International Electro-technical Commission (2002) IEC 61672-1:2002. Electroacoustics-Sound level meters: Specifications

11.3.5. All sound level meters were calibrated by an UKAS accredited laboratory, traceable to national and international standards and no more than two years before the period of all measurements.

11.3.6. The field calibrator used was designed to be in compliance with International Electro-technical Commission (2003) IEC 60942:2003 Electroacoustics-Sound calibrators. The field calibrator was calibrated by an UKAS accredited laboratory, traceable to national and international standards and no more than one year before the period of all measurements.

11.3.7. Before and after each measurement session, the reference calibration of all sound level meters was checked using the field calibrator. Variations of no greater than 0.2dB were noted over all the measurement periods.

Table 11-3.1: Summary of equipment used for surveys

Measurements type	Sound level meter	
	Model	Serial number
Long-term (1 week)	Rion NL-52	1143538
	Rion NL-52	754168
	Rion NL-52	1176426
	Rion NL-52	1176427
Short-term (3 x 15 minutes)	Rion NL-52	1265461
	Rion NL-52	00231672
Calibrator	Larson Davis CAL200	2461

11.3.8. Each microphone was supported using a tripod at a height of 1.2 to 1.5m above the ground and fitted with a windshield suitable for outdoor use. Unless stated otherwise, measurements were conducted in the acoustic free field i.e. more than 3.5m away from any walls or vertical reflecting surfaces. Where measurements were undertaken in close proximity to buildings (a façade measurement), the horizontal distance between the microphone and the façade was 1m, where possible or otherwise stated.

11.3.9. For all the long-term measurements, the A-weighted equivalent continuous noise level ($L_{Aeq,8hr}$ and $L_{A10,18hr}$) were obtained along with a number of statistical indices (L_{AFmax}, L_{A10}, L_{A90}) over contiguous 1 hour intervals.

11.3.10. Photographs, to allow repeatability of the measurement locations (from Figure 11.3.9 to 11.3.17) and descriptions of the site, noise climate and weather conditions were noted at each measurement position. Where possible, measurements were conducted under dry conditions. Wind speeds were checked using a hand-held anemometer to be within the guideline limit of 5m/s for noise monitoring.

11.3.11. Significant extraneous noise events were excluded from the short-term measurements unless they were regular features of the noise climate in that area.

11.3.12. All measurements were undertaken by a consultant competent in environmental noise monitoring and completed in accordance with the principles of BS 7445-1: 2003 *Description and measurement of environmental noise. Guide to quantities and procedures*.

Weather conditions

11.3.13. The weather conditions during the survey (short-term measurement and installation and collection of long-term) were considered suitable to undertake noise measurements. Historic meteorological data have been supplied by the Met Office © Crown copyright 2018, the Met Office, at https://wow.metoffice.gov.uk/ from Wittering observation site and from The Helpston Weather Centre for data on the rainfall accumulation. Actual wind speeds at the site would be expected to be less than those recorded at the meteorological station as the microphone was located closer to the ground.

11.3.14. On the 8th May 2018, historic meteorological data indicates that weather was dry and no cloud cover was observed. Wind speeds were around 2.0m/s and direction was mainly to south. Temperatures were between 15.0°C and 23.0°C.

11.3.15. On the 9th May 2018, historic meteorological data indicates that the weather was dry with variable cloud cover up to a maximum of 60%. Wind speed varied between 1.0m/s and 2.0m/s and direction was mainly to west. Temperatures were between 14.0°C and 21.0°C.

11.3.16. On the 10th May 2018, historic meteorological data indicates that the weather was dry and mostly cloudy, with cloud cover up to a maximum of 60% and occasional sunny spells. Wind speed varied between 0.6m/s and 2.6m/s and direction was mainly to north. Temperatures were between 10.0°C and 14.0°C.

11.3.17. On the 11th May 2018, historic meteorological data indicates that the weather was dry and cloudy. Wind speed varied between 0.9 m/s and 14.8m/s and direction was mainly to the south-south-east. Temperatures were between 3.7°C and 15.9°C.

11.3.18. On the 12th May 2018, historic meteorological data indicates that it was raining form 15:20. Wind speed varied between 1.0m/s and 15.0m/s and direction was mainly to the south-south-west. Temperatures were between 7.3°C and 15.0°C.

11.3.19. On the 13th May 2018, historic meteorological data indicates that light rain was present for the entire day. Wind speeds varied between 5.2m/s and 6.8m/s and direction was mainly to the north east. Temperatures were between 8.3°C and 17.7°C.

11.3.20. On the 14th May 2018, historic meteorological data indicates that the weather was dry. Wind speed varied between 5.2m/s and 12.2m/s and direction was mainly to the south-east. Temperatures were between 7.6°C and 19.3°C.

11.3.21. On the 15th May 2018, historic meteorological data indicates that the weather was dry. Wind speed varied between 4.3m/s and 8.3m/s and direction was mainly to south-east. Temperatures were between 10.0°C and 14.0°C.

11.3.22. On the 13th June 2018, historic meteorological data indicates that the weather was dry. Wind speeds varied between 1.7m/s and 13.9m/s and direction was mainly to the south-south-west. Temperatures were between 8.7°C and 21.6°C.

11.3.23. On the 14th June 2018, historic meteorological data indicates light rain was present for the entire day. Wind speed varied between 1.7m/s and 25.2m/s and direction was mainly to the west-south-west. Temperatures were between 12.6°C and 20.4°C.

11.3.24. On the 15th June 2018, historic meteorological data indicates that the weather was dry. Wind speed varied between 4.3m/s and 13.9m/s and direction was mainly to the west-south-west. Temperatures were between 8.9°C and 20.4°C.

11.3.25. On the 16th June 2018, historic meteorological data indicates that it was raining from 20:10. Wind speed varied between 0.9m/s and 16.5m/s and direction was mainly to the south-west. Temperatures were between 12.0°C and 18.9°C.

11.3.26. On the 17th June 2018, historic meteorological data indicates that the weather was dry. Wind speed varied between 7.0m/s and 15.6m/s and direction was mainly to the south-west. Temperatures were between 10.6°C and 17.6°C.

11.3.27. On the 18th June 2018, historic meteorological data indicates that the weather was dry. Wind speed varied between 6.1m/s and 18.3m/s and direction was mainly to the west-south-west. Temperatures were between 14.5°C and 22.8°C.

11.3.28. On the 19th June 2018, historic meteorological data indicates that the weather was dry. Wind speed varied between 5.2m/s and 13.9m/s and direction was mainly to the west-south-west. Temperatures were between 15.6°C and 23.8°C.

11.3.29. On the 19th June 2018, historic meteorological data indicates that the weather was dry. Wind speed varied between 5.2m/s and 13.9m/s and direction was mainly to the west-south-west. Temperatures were between 15.6°C and 23.8°C

11.3.30. On the 20th June 2018, the weather was dry with around 10% of cloud cover. Wind speeds were less than 2.0m/s and direction was mainly to west. Historic metrological data indicates that temperatures were between 13.1°C and 23.4°C.

Results

11.3.31. A summary of all the results of the baseline noise measurements is provided in Table 11-3.2 for the short term and in Table 11-3.3 for the long term while the results of each position are within Table 11-3.4 to 11-3.17. In addition, the results

of the long-term noise measurement are presented graphically within Figures 11.3.1 to 11.3.4.

11.3.32. The values reported include L_{Aeq}, L_{Amax}, L_{A10} and L_{A90}. These have been defined in Appendix 11.3 (**TR010039/APP/6.3).**

Summary results

11.3.33. Table 11-3.2 summarise the short-term data collected for each of the measurement positions. All levels have been rounded to the nearest whole number.

Table 11-3.2: Summary of all short-term noise measurement data

Position	Dates	Range of L_{Aeq} dB	Range of L_{Amax} dB	Range of L_{A10} dB
ST1	09-10/05/2018	75-77	82-89	78-79
ST2	09-10/05/2018	64-65	71-77	67
ST3	09-10/05/2018	50-58	69-73	50-60
ST4	9-11/05/2018	50-55	59-64	52-56
ST5	9-10/05/2018	52-55	62-69	53-57
ST6	10-11/05/2018	56-59	64-69	59-61

11.3.34. Table 11-3.3 summarises the values of the LT data per each of the measurement positions for representative weekdays only (8th, 9th, 10th, 11th, 12th, 15th May and 13th, 14th, 15th, 18th, 19th, 20th June 2018). All levels have been rounded to the nearest whole number. The time range of each parameter is:

- $L_{A10,18hr}$ - between 06:00 and 24:00
- L_{day} - between 07:00 and 19:00
- $L_{evening}$ - between 19:00 and 23:00
- L_{night} - between 23:00 and 07:00

11.3.35. Partial measurements of periods at the start and end of the survey have not been included.

Table 11-3.3: Summary of free field LT data for representative weekdays only

Position	Location	$L_{A10,18hr\ day\ time}$ dB	L_{day} dB	$L_{evening}$ dB	L_{night} dB
LT1	10 Great North Rd, Peterborough, PE8 6HJ	82	80	77	76

Position	Location	$L_{A10,18hr\ day\ time}$ dB	L_{day} dB	$L_{evening}$ dB	L_{night} dB
LT2	6 Black Swan Spinney, Wansford, Peterborough, PE8 6LE	80	79	72	79
LT3	Old Station House, Peterborough, PE5 7XP	80	79	72	79
LT4	Willowhayne House, The Drift, Peterborough, PE5 7XA	51	56	55	50

Short-term measurement results

11.3.36. Short-term measurement position ST1 was located on Old North Road, in front of house no. 61, Wansford, PE8 6LB (refer to Figure 11.1 (Noise location plan) (**TR010039/APP/6.2**). The coordinates were recorded approximately as 507440, 300034.

Table 11-3.4: ST1 data summary

Date	Start time	$L_{Aeq,15min}$ dB	L_{Amax} dB	$L_{A10,15min}$ dB	$L_{A90,15min}$ dB
09/05/2018	10:00	74.9	84.8	78.3	66.6
09/05/2018	13:21	75.5	82.2	77.9	66.5
10/05/2018	15:51	76.8	89.2	79.4	70.8

11.3.37. Short-term measurement position ST2 was located was located on Wansford Mews, Wansford, PE8 6LJ, opposite to house no.1 and adjacent to the Ducati dealer (refer to Figure 11.1 (Noise location plan) (**TR010039/APP/6.2**). The coordinates were recorded approximately as 507564, 299542.

Table 11-3.5: ST2 data summary

Date	Start time	$L_{Aeq,15min}$ dB	L_{Amax} dB	$L_{A10,15min}$ dB	$L_{A90,15min}$ dB
09/05/2018	09:30	64.4	70.8	66.8	61.1
09/05/2018	14:00	64.8	72.1	66.9	61.5
10/05/2018	11:40	64.6	77.3	67.1	59.9

11.3.38. Short-term measurement position ST3 was located at the entrance of Sacrewell Farm and Community Centre, Great North Road, Thornhaugh, PE8 6HJ (refer to Volume 2, Figure 11.1 (Noise location plan) (**TR010039/APP/6.2**). The coordinates were recorded as. 507968, 299984.

Table 11-3.6: ST3 data summary

Date	Start time	$L_{Aeq,15min}$ dB	L_{Amax} dB	$L_{A10,15min}$ dB	$L_{A90,15min}$ dB
09/05/2018	12:09	49.6	68.5	50.4	46.5
09/05/2018	15:15	52.6	69.8	54.5	49.8
10/05/2018	09:00	57.7	72.7	59.5	54.9

11.3.39. Short-term measurement position ST4 was located in the back garden of The Bungalow, Old Great North Road, PE8 6LN (refer to Volume 2, Figure 11.1 (Noise location plan) (**TR010039/APP/6.2**). The coordinates were recorded approximately as 508173, 299215.

Table 11-3.7: ST4 data summary

Date	Start time	$L_{Aeq,15min}$ dB	L_{Amax} dB	$L_{A10,15min}$ dB	$L_{A90,15min}$ dB
09/05/2018	11:33	49.7	58.8	52.3	45.2
10/05/2018	16:30	54.8	64.4	56.2	53.0
11/05/2018	09:15	50.7	61.9	52.0	48.9

11.3.40. Short-term measurement position ST5 was located in the picnic area between the lakes to the north of The Bungalow, Old Great North Road, PE8 6LN (refer to Volume 2, Figure 11.1 (Noise location plan) (**TR010039/APP/6.2**). The coordinates were recorded approximately as 508440, 299227.

Table 11-3.8: ST5 data summary

Date	Start time	$L_{Aeq,15min}$ dB	L_{Amax} dB	$L_{A10,15min}$ dB	$L_{A90,15min}$ dB
09/05/2018	11:00	53.0	61.8	55.4	49.1
09/05/2018	14:46	55.0	63.1	57.1	52.2
10/05/2018	09:30	51.5	69.2	52.9	49.2

11.3.41. Short-term measurement position ST6 was located in front of Lower Lodge Farm, Old Great North Road, PE6 87BA (refer to Figure 11.1 (Noise location plan) (**TR010039/APP/6.2**). The coordinates were recorded approximately as 510355, 299360.

Table 11-3.9: ST6 data summary

Date	Start time	$L_{Aeq,15min}$ dB	L_{Amax} dB	$L_{A10,15min}$ dB	$L_{A90,15min}$ dB
10/05/2018	16:30	58	63.6	59.5	56.2
10/05/2018	10:06	58.8	68.5	60.6	56.5

Date	Start time	$L_{Aeq,15min}$ dB	L_{Amax} dB	$L_{A10,15min}$ dB	$L_{A90,15min}$ dB
11/05/2018	09:15	56.3	68.0	58.6	53.6

Long-term measurement results

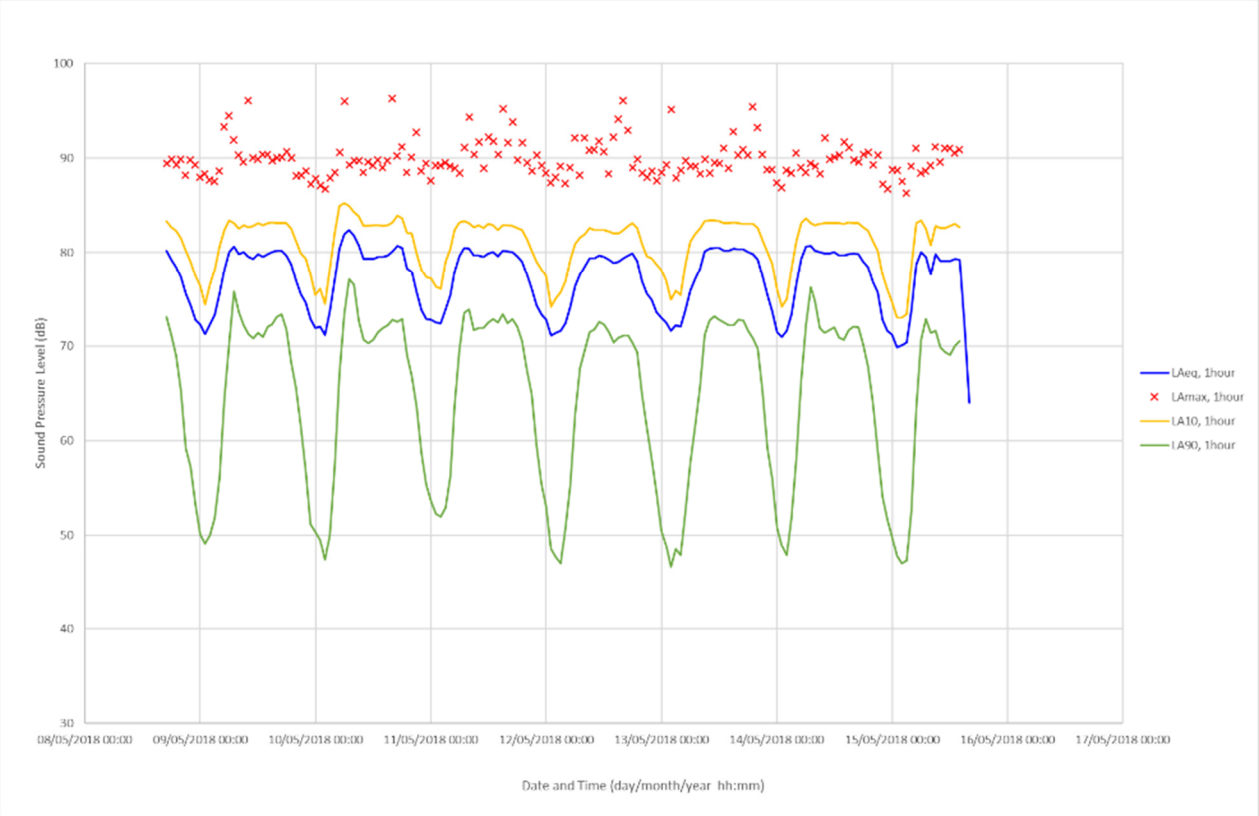
11.3.42. This section presents the noise measurement results obtained at each long-term measurement positions. Incomplete measurement interval (the periods at the start and end of the survey) have been excluded from the data below.

11.3.43. Long-term measurement position LT1 was located in the front garden of no.10 Great North Rd, Peterborough, PE8 6HJ (refer to Figure 11.1 (Noise location plan) (**TR010039/APP/6.2**). The coordinates were recorded approximately as 507304, 300526.

Table 11-3.10: LT1 data summary

Date	Day	L_{night} dB	$L_{A10,18hr\ day\ time}$ dB
09/05/2018	Wednesday	75.6	80.6
10/05/2018	Thursday	77.0	82.5
11/05/2018	Friday	75.5	82.1
12/05/2018	Saturday	73.3	81.7
13/05/2018	Sunday	73.3	82.4
14/05/2018	Monday	76.2	82.1
15/05/2018	Tuesday	75.1	---

Figure 11.3.1 LT1 plot of results

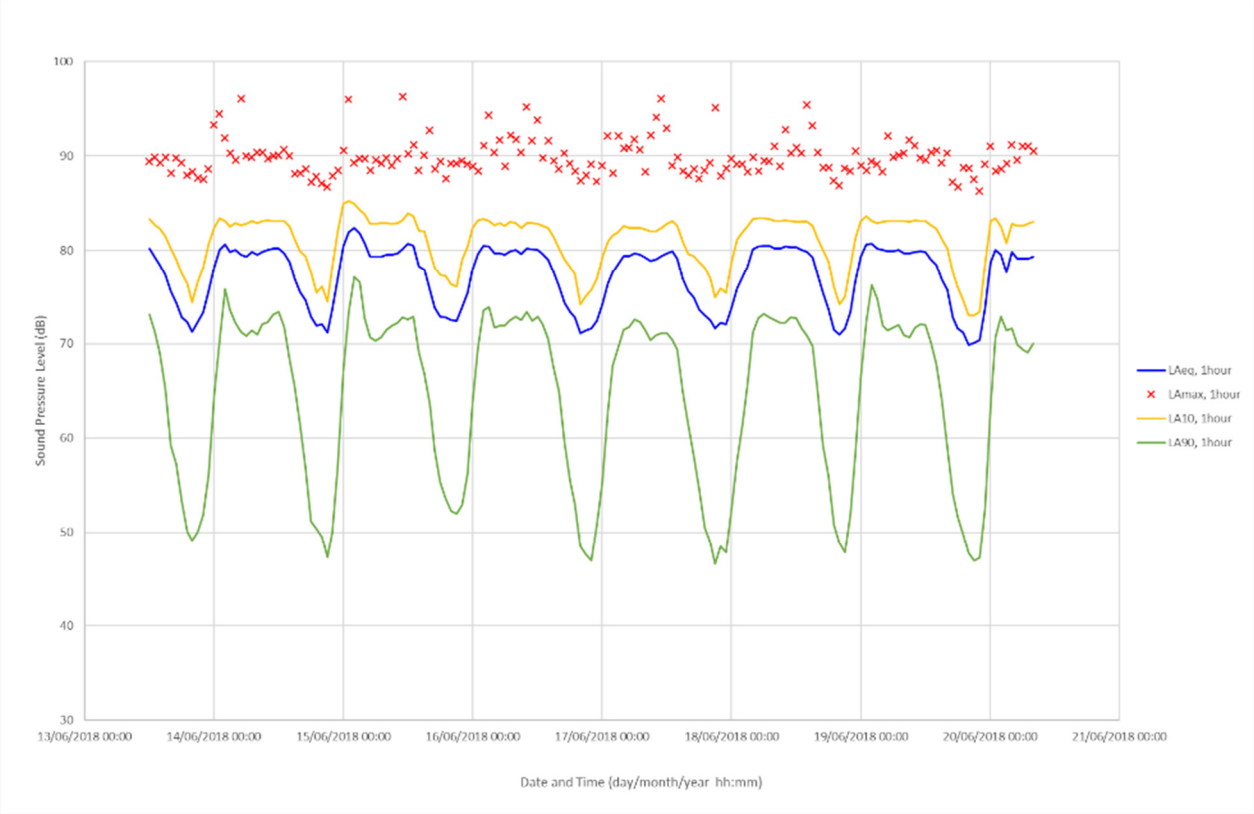


11.3.44. Long-term measurement position LT2 was located in the back garden of no.6 Black Swan Spinney, Wansford, Peterborough, PE8 6LE (refer to Figure 11.1 (Noise location plan) (**TR010039/APP/6.2**). The coordinates were recorded approximately as 507512, 299725.

Table 11-3.11: LT2 data summary

Date	Day	L_{night} dB	$L_{A10,18hr\ day\ time}$ dB
14/06/2018	Thursday	79.3	80.6
15/06/2018	Friday	80.7	80.7
16/06/2018	Saturday	79.3	80.1
17/06/2018	Sunday	77.8	80.1
18/06/2018	Monday	78.1	80.9
19/06/2018	Tuesday	79.8	79.7
20/06/2018	Wednesday	78.8	---

Figure 11.3.2 LT2 plot of results

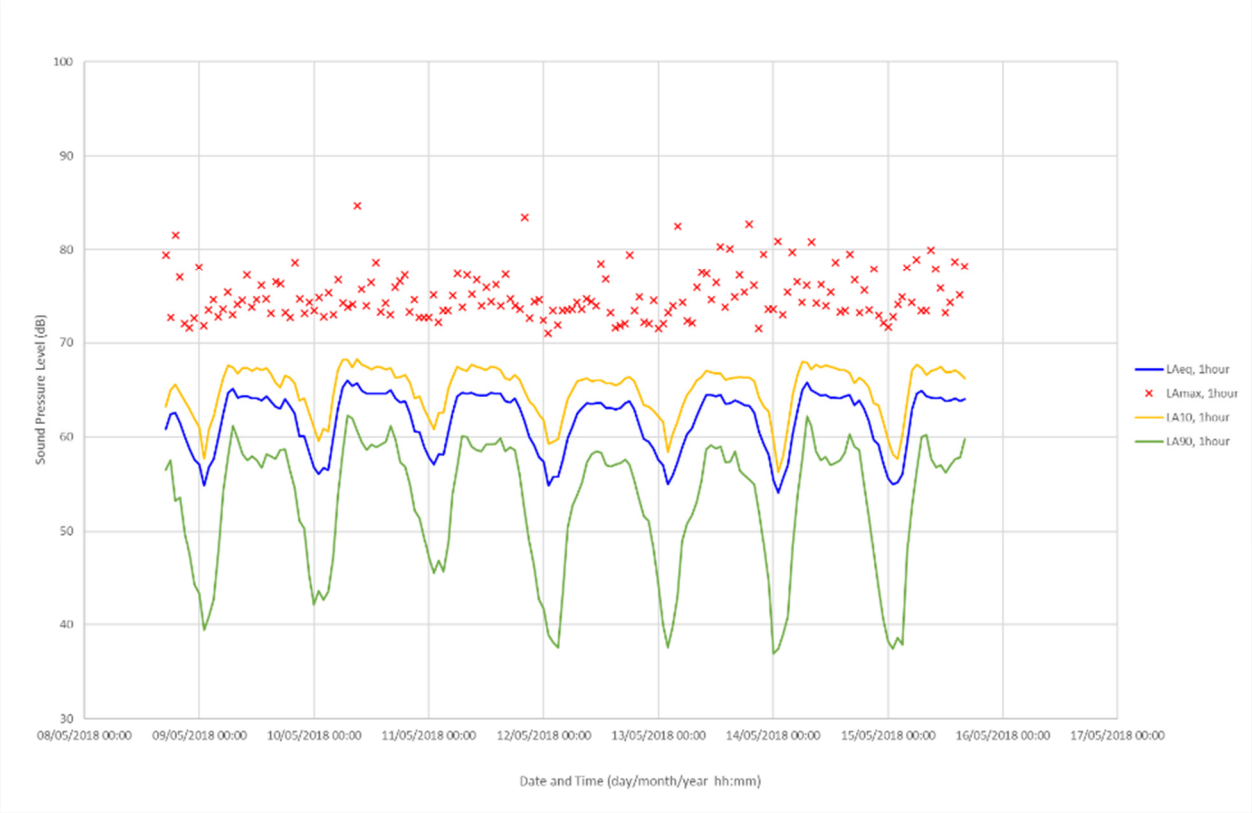


11.3.45. Long-term measurement position LT3 was located in the front garden of Old Station House, Peterborough, PE5 7XP (refer to Figure 11.1 (Noise location plan) (**TR010039/APP/6.2**). The coordinates were recorded approximately as 508968, 299624.

Table 11-3.12: LT3 data summary

Date	Day	L_{night} dB	$L_{A10,18hr\ day\ time}$ dB
09/05/2018	Wednesday	60.1	66.2
10/05/2018	Thursday	60.4	66.7
11/05/2018	Friday	60.4	66.3
12/05/2018	Saturday	58.0	65.4
13/05/2018	Sunday	57.9	65.7
14/05/2018	Monday	60.1	66.3
15/05/2018	Tuesday	59.8	---

Figure 11.3.3 LT3 plot of results

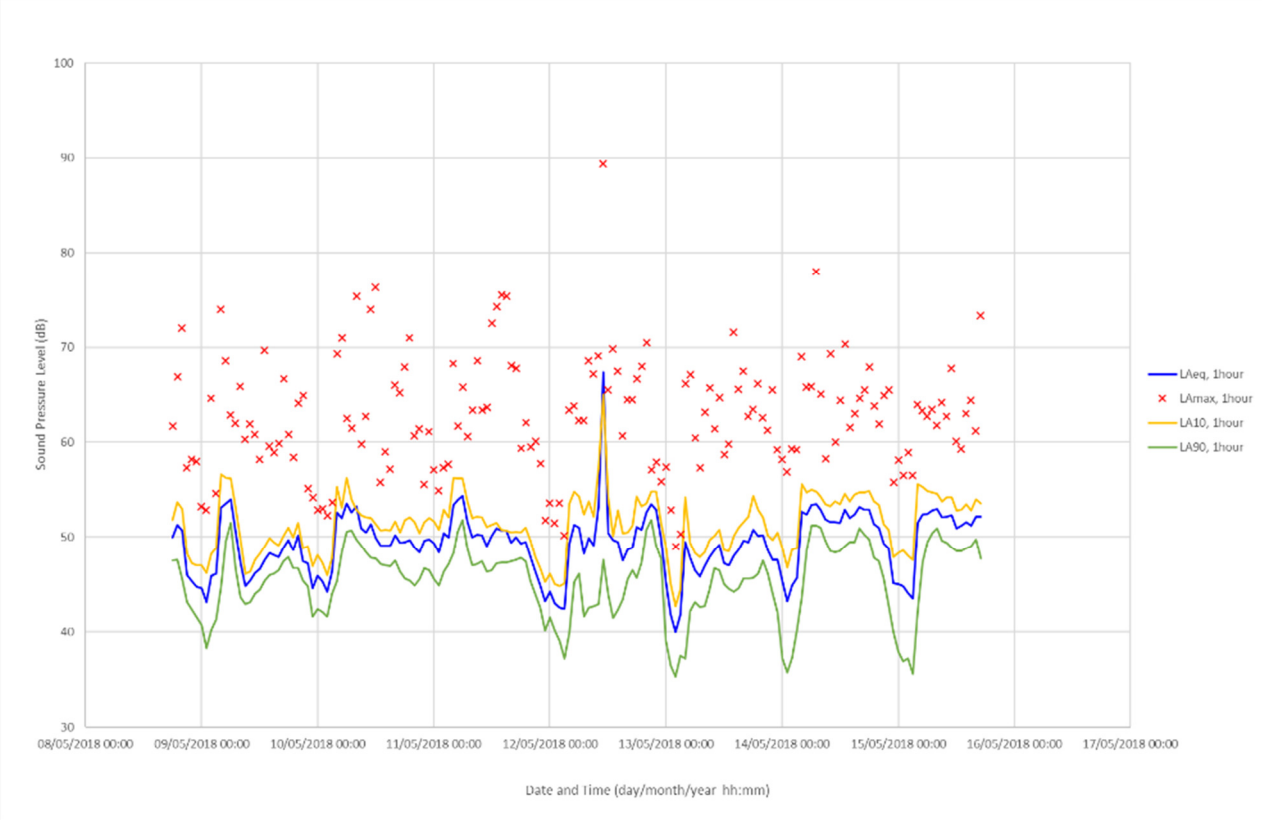


11.3.46. Long-term measurement position LT4 was located adjacent to the tennis court in the garden of Willowhayne House, The Drift, Peterborough, PE5 7XA, close to A47 carriageway towards Wansford (refer to Volume 2, Figure 11.1 (Noise location plan) (**TR010039/APP/6.2**). The coordinates were recorded approximately as 509588, 299079.

Table 11-3.13: LT4 data summary

Date	Day	L_{night} dB	$L_{A10,18hr\ day\ time}$ dB
09/05/2018	Wednesday	50.2	49.6
10/05/2018	Thursday	49.7	51.9
11/05/2018	Friday	51.8	50.8
12/05/2018	Saturday	47.5	53.7
13/05/2018	Sunday	46.6	50.4
14/05/2018	Monday	49.8	53.5
15/05/2018	Tuesday	49.0	---

Figure 11.3.4 LT4 plot of results



Photographs

Short-term measurement positions

Figure: ST1 (from the south)

Figure 11.3.6: ST2 (from the east)

Figure 11.3.7: ST3 (from the east)

Figure 11.3.8: ST4 (from the east)

Figure 11.3.9: ST5 (from the east)

Figure 11.3.10: ST6 (from the south)

Long-term measurement positions

Figure 11.3.11: LT1 (from the north)

Figure 11.3.12: LT2 (from the east)

Figure 11.3.13: LT3 (from the east)

Figure 11.3.14: LT4 (from the east)