

**M42 Junction 6 Improvement  
Scheme Number TR010027  
Volume 6**

**6.3 Environmental Statement  
Appendix 12.3 Baseline Noise Survey  
Report**

Regulation 5(2)(a)

Planning Act 2008

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

January 2019

Infrastructure Planning

Planning Act 2008

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

**M42 Junction 6 Improvement  
Development Consent Order 202[ ]**

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**6.3 Environmental Statement  
Appendix 12.3 Baseline Noise Survey Report**

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<b>Regulation Number</b>	Regulation 5(2)(a)
<b>Planning Inspectorate Scheme Reference</b>	TR010027
<b>Application Document Reference</b>	6.3
<b>Author</b>	M42 Junction 6 Improvement Project Team and Highways England

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Rev 1	January 2019	DCO Application

## Appendix 12.3 Noise Baseline Survey

### 12.1 Introduction

- 12.1.1 England has undertaken a targeted baseline noise survey at multiple positions around the proposed M42 Junction 6 Improvement Scheme.
- 12.1.2 The purpose of the baseline survey was to determine existing noise emissions from Birmingham Airport, the M42, A45, and the wider surrounding road network prior to the Scheme.
- 12.1.3 A glossary of the acoustic terminology used in this report can be found in Annex A.

### 12.2 Noise Monitoring Locations and Protocol

- 12.2.1 Noise levels have been monitored at multiple positions around the scheme that are most affected by existing environmental noise.
- 12.2.2 The nine monitoring locations (Annex B) were agreed with Solihull Metropolitan Borough Council (SMBC) due to their proximity to existing noise sensitive receptors (NSRs) and exposure to traffic noise from roads along the Scheme.
- 12.2.3 To define baseline noise conditions, long term (10 days) unattended monitoring was completed at eight locations between 15 March 2018 and 26 March 2018. Short-term daytime 3 hour monitoring was completed at one location (Location 6) on 26 March 2018 as it was not possible to gain access to a secure location for long term monitoring. The monitoring procedures conformed to BS 7445: 2003 'Description and Measurement of Environmental Noise' and the CRTN 'shortened measurement procedure' (for the short-term attended monitoring at Location 6). The measurement locations are described in Table 1. Photographs of each location and a map showing the monitoring locations are included in Annex B and in Figure 12.1 of the ES (Volume 2) [TR010027/APP/6.2].
- 12.2.4 Descriptions of any dominant or secondary noise sources have been included within Table 1.

**Table 1 Monitoring Locations**

Location	Details	Dominant Noise Sources	Secondary Noise Sources	Measurement Format
ML1	Hampton Lane Farm, Solihull Road, Hampton-in-Arden	Road traffic noise from Solihull Road and aircraft noise	Livestock	Unattended
ML2	Oak Tree Lodge, Shadow Brook Lane, Hampton in Arden	Road traffic noise from Catherine de Barnes Lane and aircraft noise	Shadow Brooke Lane, Birdsong	Unattended
ML3	Rustling Oaks, St Peters Lane,	Road traffic noise from A45 and M42 and	St Peters Lane and Birdsong	Unattended

	Bickenhill	aircraft noise		
ML4	Beech Cottage, Clock Lane, Bickenhill	Road traffic noise from A45 and Aircraft Noise	Birdsong and handheld power tools (D.I.Y)	Unattended
ML5	Rydal, Church Lane, Bickenhill	Road traffic noise from A45 and M42 and aircraft noise	Birdsong	Unattended
ML6	Near to Park Farm Cottage, Middle Beckenhill Lane, Solihull	Road traffic noise from M42 and A45	Birdsong	Attended
	Near to Park Farm Cottage, Middle Beckenhill Lane, Solihull	Road traffic noise from M42 and A45	Birdsong	Attended
ML7a	Four Winds, Catherine de Barnes Lane, Catherine-de-Barnes (front of property)	Road traffic noise from Catherine-de-Barnes Lane and aircraft noise	Birdsong	Unattended
ML7b	Four Winds, Catherine de Barnes Lane, Catherine-de-Barnes (rear of property)	Road traffic noise from Catherine-de-Barnes Lane and aircraft noise	Birdsong	Unattended
ML8	Mayfield, Solihull Road, Hampton in Arden	Road traffic noise from M42 and Solihull Road and aircraft noise	Birdsong	Unattended

12.2.5 Information relating to the measurement equipment used during the survey is presented in Table 2.

**Table 2 Instrument Details**

Instrument	Manufacturer	Model	Serial Number	Instrument
ML1	Rion	NL-52	00620865	ML1
ML2	Rion	NL-52	00410083	ML2
ML3	Rion	NL-52	00620864	ML3
ML4	Rion	NL-52	00620872	ML4
ML5	Rion	NL-52	00620964	ML5
ML6	Rion	NL-52	00620871	ML6
ML7a	Rion	NL-52	00620871	ML7a
ML7b	Rion	NL-52	00732094	ML7b
ML8	Rion	NL-52	00976220	ML8
Acoustic Field Calibrator (all sites)	Rion	NC-74	34494274	Acoustic Field Calibrator (all sites)

12.2.6 During calibration no significant deviation (more than 0.2 dB) from the reference value was noted. Full calibration details can be made available upon request.



12.2.7 The sound level meters were programmed to log a number of indicators including  $L_{Aeq}$ ,  $L_{A90}$ ,  $L_{A10}$  and  $L_{AFmax}$  values, in 15-minute contiguous intervals with a resolution of 100ms at all unattended monitoring locations. For ML6 (attended measurement) the sound level meter was programmed to record values in 1-hour contiguous intervals with a resolution of 100ms.

## 12.3 Meteorological Conditions

12.3.1 A weather station (located at ML7b) was used to collect information relating to the prevailing wind conditions throughout the survey period, the data was collected in 1-hour intervals. Information on wind direction, wind speeds (Average and Max) as well as ambient temperature and precipitation have been recorded in the Table 3 below.

**Table 3 Meteorological Conditions**

Date (2018)	Time Period (T)	Temperature (°C)*	Wind Direction (Degrees from north)	Wind Speed (Average) m/s*	Wind Speed (Max) m/s*	Precipitation (mm)
Thursday 15 March	15:00 – 23:00	8.7 – 11.8	300	0.6 – 1.6	2.5 – 4.9	0.9
	23:00 – 07:00	7.2 – 8.4	279	0.4 – 0.9	2.0 – 4.0	1.4
Friday 16 march	07:00 – 23:00	6.4 – 12.6	160	0.2 – 2.1	1.7 – 5.5	2.0
	23:00 – 07:00	1.1 – 5.8	93	0.9 – 1.5	3.2 – 6.1	0.1
Saturday 17 March	07:00 – 23:00	-2.1 – -1.5	91	0.9 – 1.8	3.9 – 8.2	1.4
	23:00 – 07:00	-3.0 – 1.8	88	1.0 – 1.2	4.4 – 5.9	5.2
Sunday 18 March	07:00 – 23:00	-2.9 – -0.7	94	0.9 – 1.6	3.2 – 6.2	1.0
	23:00 – 07:00	-0.7 – -0.4	91	0.7 – 0.9	2.8 – 4.7	0.0
Monday 19 March	07:00 – 23:00	-0.9 – 4.5	93	0.7 – 1.5	3.4 – 7.9	0.0
	23:00 – 07:00	1.0 – 2.3	260	0.3 – 0.6	1.5 – 2.9	0.2
Tuesday 20 March	07:00 – 23:00	0.9 – 7.7	243	0.0 – 0.7	0.4 – 3.8	0.0
	23:00 – 07:00	-3.0 – 2.0	246	0.0 – 0.1	0.3 – 0.7	0.0
Wednesday 21 March	07:00 – 23:00	-2.4 – 8.8	275	0.1 – 0.6	0.7 – 3.8	0.0
	23:00 – 07:00	3.3 – 5.7	207	0.3 – 0.5	1.3 – 2.2	0.0
Thursday 22 March	07:00 – 23:00	3.4 – 9.1	203	0.4 – 2.3	1.8 – 5.5	0.0
	23:00 – 07:00	6.2 – 7.3	183	2.3 – 3.0	5.4 – 8.4	0.5
Friday 23 March	07:00 – 23:00	6.2 – 10.9	184	0.1 – 2.4	0.7 – 5.6	0.0
	23:00 – 07:00	4.5 – 6.2	202	0.0 – 0.2	0.3 – 1.2	0.5
Saturday 24 March	07:00 – 23:00	4.6 – 9.3	191	0.2 – 0.5	1.0 – 2.0	0.1
	23:00 – 07:00	4.8 – 6.3	320	0.3 – 0.7	1.5 – 2.1	0.0
Sunday 25 march	07:00 – 23:00	4.8 – 12.9	304	0.3 – 0.8	1.2 – 2.8	0.0
	23:00 – 07:00	-0.8 – 4.6	239	0.0 – 0.3	0.4 – 1.7	0.0
Monday 26 March	07:00 – 23:00	2.0 – 10.8	188	0.3 – 1.1	1.3 – 3.7	0.0

12.3.2 During the survey period max wind speeds above the recommended 5 m/s have been recorded, although average wind speeds have not exceeded 3 m/s for any daytime or night-time period.

12.3.3 Weather conditions on Friday 16 (night-time), Saturday 17 (all day) and Sunday 18 (all day) March were particularly adverse, with high gust of wind,

low temperatures and snow. Upon review of the meteorological data and baseline sound data during these periods, it is considered likely that the meteorological conditions have affected the sound data. Therefore, the reliability of the sound data during this period is questionable.

## 12.4 Noise Monitoring Results

12.4.1 Tables 4 – D.8 present daily overviews of the baseline sound monitoring at each of the monitoring locations. Although a high level of uncertainty exists within the data collected throughout Saturday 17 and Sunday 18 March, owing to adverse meteorological conditions, the results of the entire baseline sound monitoring period have been retained for completeness.

**Table 4 Noise Monitoring Results at ML1 – Hampton Lane Farm**

Date	Start Time	$L_{Aeq,T}$ dB	Highest $L_{Amax,T}$ dB	Highest 10th Percentile $L_{A10,T}$ dB	Lowest 10th Percentile $L_{A90,T}$ dB
Thursday 15 March	13:00 – 23:00*	63.3	84.0	64.6	57.6
	23:00 – 07:00	59.8	83.1	64.0	52.0
Friday 16 March	07:00 – 23:00	62.0	87.2	63.8	48.8
	23:00 – 07:00	58.9	84.3	60.8	53.4
Saturday 17 March	07:00 – 23:00	63.0	88.8	64.6	55.1
	23:00 – 07:00	54.0	77.5	58.2	46.7
Sunday 18 March	07:00 – 23:00	62.2	87.4	64.7	53.7
	23:00 – 07:00	57.3	85.6	61.1	46.4
Monday 19 March	07:00 – 23:00	61.9	89.9	63.8	56.1
	23:00 – 07:00	55.4	78.4	58.6	49.0
Tuesday 20 March	07:00 – 23:00	61.7	91.9	63.8	53.6
	23:00 – 07:00	52.8	76.1	55.3	46.6
Wednesday 21 March	07:00 – 23:00	55.9	89.3	57.8	43.9
	23:00 – 07:00	51.9	78.0	56.7	43.9
Thursday 22 March	07:00 – 23:00	57.2	84.0	59.2	46.5
	23:00 – 07:00	57.5	82.9	59.7	51.0
Friday 23 March	07:00 – 23:00	63.5	95.0	65.2	49.2
	23:00 – 07:00	57.2	80.0	60.2	47.9
Saturday 24 March	07:00 – 23:00	59.9	90.0	62.9	51.1
	23:00 – 07:00	49.7	71.9	53.7	42.5
Sunday 25 March	07:00 – 23:00	55.1	86.3	58.1	45.1
	23:00 – 07:00	53.4	70.0	58.4	42.1
Monday 26 March	07:00 – 09:00*	60.2	83.6	66.5	45.7

\*Incomplete time period

**Table 5** Noise Monitoring Results at ML2 – Oak Tree  
Lodge, Shadow Brook

Date	Start Time	$L_{Aeq,T}$ dB	Highest $L_{Amax,T}$ dB	Highest 10th Percentile $L_{A10,T}$ dB	Lowest 10th Percentile $L_{A90,T}$ dB
Thursday 15 March	12:00 – 23:00*	63.9	90.0	61.6	49.8
	23:00 – 07:00	56.8	89.7	56.7	45.5
Friday 16 March	07:00 – 23:00	65.4	91.9	63.4	45.3
	23:00 – 07:00	58.1	91.0	57.1	47.5
Saturday 17 March	07:00 – 23:00	64.4	93.2	63.8	48.8
	23:00 – 07:00	49.8	80.7	51.9	43.3
Sunday 18 March	07:00 – 23:00	63.3	92.0	62.2	47.4
	23:00 – 07:00	58.2	93.2	55.0	41.9
Monday 19 March	07:00 – 23:00	61.7	92.1	62.1	50.6
	23:00 – 07:00	54.3	83.0	55.9	43.9
Tuesday 20 March	07:00 – 23:00	60.2	85.4	61.8	49.1
	23:00 – 07:00	54.3	86.6	56.1	42.2
Wednesday 21 March	07:00 – 23:00	59.5	81.8	60.4	44.5
	23:00 – 07:00	53.6	86.1	54.8	41.5
Thursday 22 March	07:00 – 23:00	62.1	97.7	62.0	46.8
	23:00 – 07:00	58.4	90.3	55.8	45.3
Friday 23 March	07:00 – 23:00	64.8	93.9	64.4	47.5
	23:00 – 07:00	59.8	89.8	56.0	40.8
Saturday 24 March	07:00 – 23:00	62.2	92.2	60.6	44.4
	23:00 – 07:00	53.8	81.1	54.4	38.8
Sunday 25 March	07:00 – 23:00	59.0	84.2	59.6	43.0
	23:00 – 07:00	55.2	83.4	58.6	38.9
Monday 26 March	07:00 – 11:00*	59.5	89.0	61.3	42.4

\*Incomplete time period

**Table 6** Noise Monitoring Results at ML3 – Rustling Oaks,  
Bickenhill

Date	Start Time	$L_{Aeq,T}$ dB	Highest $L_{Amax,T}$ dB	Highest 10th Percentile $L_{A10,T}$ dB	Lowest 10th Percentile $L_{A90,T}$ dB
Thursday 15 March	17:00 – 23:00*	64.1	89.0	58.9	48.4
	23:00 – 07:00	57.1	89.2	57.2	44.4
Friday 16 March	07:00 – 23:00	65.8	98.8	62.2	43.3
	23:00 – 07:00	57.9	88.7	54.6	46.6
Saturday 17 March	07:00 – 23:00	63.9	94.0	60.9	47.9
	23:00 – 07:00	48.4	83.6	49.7	40.3
Sunday 18 March	07:00 – 23:00	63.0	90.4	59.5	46.4
	23:00 – 07:00	56.8	88.4	55.2	40.8
Monday 19	07:00 – 23:00	59.0	89.5	58.8	50.6

March	23:00 – 07:00	52.6	80.8	55.7	43.0
Tuesday 20 March	07:00 – 23:00	57.6	82.4	59.2	48.6
March	23:00 – 07:00	53.3	83.4	57.3	41.9
Wednesday 21 March	07:00 – 23:00	56.9	82.4	57.9	47.5
	23:00 – 07:00	52.9	82.2	57.3	41.4
Thursday 22 March	07:00 – 23:00	61.0	91.3	60.4	46.6
	23:00 – 07:00	58.5	91.9	57.0	43.2
Friday 23 March	07:00 – 23:00	65.2	94.7	62.5	46.3
	23:00 – 07:00	59.8	90.4	57.7	36.0
Saturday 24 March	07:00 – 23:00	60.6	90.7	58.8	42.6
	23:00 – 07:00	51.7	78.8	56.6	39.5
Sunday 25 March	07:00 – 23:00	55.9	82.6	56.7	43.8
	23:00 – 05:00*	51.5	76.5	55.4	39.4
Thursday 15 March	17:00 – 23:00*	64.1	89.0	58.9	48.4

\*Incomplete time period

**Table 7 Noise Monitoring Results at ML4 – Beech Cottage, Clock Lane**

Date	Start Time	$L_{Aeq,T}$ dB	Highest $L_{Amax,T}$ dB	Highest 10th Percentile $L_{A10,T}$ dB	Lowest 10th Percentile $L_{A90,T}$ dB
Thursday 15 March	17:00 – 23:00*	63.7	87.6	60.5	51.1
	23:00 – 07:00	58.2	88.6	60.8	45.2
Friday 16 March	07:00 – 23:00	65.4	95.8	63.3	52.4
	23:00 – 07:00	58.7	92.0	60.3	47.5
Saturday 17 March	07:00 – 23:00	64.5	93.0	63.6	52.0
	23:00 – 07:00	51.9	84.3	55.3	43.6
Sunday 18 March	07:00 – 23:00	63.7	93.0	61.5	49.4
	23:00 – 07:00	57.3	88.1	61.1	41.5
Monday 19 March	07:00 – 23:00	61.3	89.0	63.6	54.7
	23:00 – 07:00	56.3	79.3	61.7	43.8
Tuesday 20 March	07:00 – 23:00	60.1	80.3	63.2	53.7
	23:00 – 07:00	58.1	80.1	62.9	47.2
Wednesday 21 March	07:00 – 23:00	60.4	79.4	62.9	55.0
	23:00 – 07:00	57.1	79.3	62.3	45.3
Thursday 22 March	07:00 – 23:00	62.2	88.9	63.4	53.2
	23:00 – 07:00	60.1	94.9	63.0	47.3
Friday 23 March	07:00 – 23:00	65.1	94.1	63.4	51.6
	23:00 – 07:00	59.5	89.5	59.3	41.3
Saturday 24 March	07:00 – 23:00	60.3	89.7	60.1	48.9
	23:00 – 07:00	54.6	78.5	59.4	43.5
Sunday 25 March	07:00 – 23:00	57.9	87.0	60.9	49.8
	23:00 – 07:00	58.6	82.2	64.1	42.1
Monday 26 March	07:00 – 15:00*	59.7	95.5	60.9	52.5

\*Incomplete time period

**Table 8** **Noise Monitoring Results at ML5 – Rydal, Church Lane**

Date	Start Time	$L_{Aeq,T}$ dB	Highest $L_{Amax,T}$ dB	Highest 10th Percentile $L_{A10,T}$ dB	Lowest 10th Percentile $L_{A90,T}$ dB
Thursday 15 March	18:00 – 23:00*	58.0	81.1	58.2	52.6
	23:00 – 07:00	55.3	78.3	59.0	48.1
Friday 16 March	07:00 – 23:00	58.5	86.1	61.1	48.6
	23:00 – 07:00	54.0	85.7	56.4	49.0
Saturday 17 March	07:00 – 23:00	57.7	86.5	58.9	50.7
	23:00 – 07:00	48.6	81.4	52.5	42.2
Sunday 18 March	07:00 – 23:00	57.5	89.7	58.5	48.5
	23:00 – 07:00	52.5	86.9	56.5	43.0
Monday 19 March	07:00 – 23:00	56.5	80.9	58.5	52.6
	23:00 – 07:00	54.6	73.0	59.7	46.6
Tuesday 20 March	07:00 – 23:00	56.5	91.0	59.6	51.8
	23:00 – 07:00	55.7	78.4	60.7	47.9
Wednesday 21 March	07:00 – 23:00	56.2	87.5	59.0	51.7
	23:00 – 07:00	55.3	79.2	60.1	46.6
Thursday 22 March	07:00 – 23:00	57.7	88.7	60.0	51.0
	23:00 – 07:00	55.7	83.4	58.4	47.3
Friday 23 March	07:00 – 23:00	58.6	92.1	60.8	49.8
	23:00 – 07:00	54.1	80.0	57.9	44.9
Saturday 24 March	07:00 – 23:00	54.7	86.9	56.9	47.6
	23:00 – 07:00	51.5	70.6	56.3	44.4
Sunday 25 March	07:00 – 23:00	55.5	91.2	57.2	48.0
	23:00 – 07:00	56.5	76.5	61.6	43.2
Monday 26 March	07:00 – 16:00*	55.5	93.8	57.9	46.8

\*Incomplete time period

**Table 9 Noise Monitoring Results at ML6 – Middle Bickenhill**

Date	Start Time	$L_{Aeq,T}$ dB	Highest $L_{Amax,T}$ dB	Highest 10th Percentile $L_{A10,T}$ dB	Lowest 10th Percentile $L_{A90,T}$ dB
Monday 26 March	12:40	55.9	68.7	57.3	53.7
	13:40	57.5	78.2	57.7	54.1
	14:40	56.5	74.9	57.7	54

**Table 10 Noise Monitoring Results at ML7a – Four Winds (Front)**

Date	Start Time	$L_{Aeq,T}$ dB	Highest $L_{Amax,T}$ dB	Highest 10th Percentile $L_{A10,T}$ dB	Lowest 10th Percentile $L_{A90,T}$ dB
Thursday 15 March	14:00 – 23:00*	62.9	85.4	65.9	51.6
	23:00 – 07:00	57.6	83.0	64.5	45.7
Friday 16 March	07:00 – 23:00	63.2	93.0	66.0	48.2
	23:00 – 07:00	57.5	86.8	61.5	47.6
Saturday 17 March	07:00 – 23:00	63.5	90.1	66.4	49.2
	23:00 – 07:00	51.2	76.7	57.8	42.8
Sunday 18 March	07:00 – 23:00	62.2	87.6	65.8	48.0
	23:00 – 07:00	56.6	86.2	61.8	40.5
Monday 19 March	07:00 – 23:00	61.2	89.3	65.1	49.7
	23:00 – 07:00	55.0	75.4	61.6	43.0
Tuesday 20 March	07:00 – 23:00	59.8	81.3	64.3	49.8
	23:00 – 07:00	54.3	76.2	61.1	40.7
Wednesday 21 March	07:00 – 23:00	57.8	83.6	62.8	42.4
	23:00 – 07:00	53.5	77.4	61.0	39.4
Thursday 22 March	07:00 – 23:00	59.5	82.8	63.7	44.7
	23:00 – 07:00	56.7	84.2	61.9	45.1
Friday 23 March	07:00 – 23:00	62.0	86.2	65.4	47.6
	23:00 – 07:00	56.5	81.4	60.4	38.0
Saturday 24 March	07:00 – 23:00	59.5	85.8	63.6	44.5
	23:00 – 07:00	51.9	82.1	58.2	38.0
Sunday 25 March	07:00 – 23:00	56.4	87.4	60.7	42.5
	23:00 – 07:00	55.4	73.3	62.9	37.0
Monday 26 March	07:00 – 11:00*	57.7	79.9	62.5	41.5

\*Incomplete time period

**Table 11: Noise Monitoring Results at ML7b – Four Winds (Rear)**

Date	Start Time	$L_{Aeq,T}$ dB	Highest $L_{Amax,T}$ dB	Highest 10th Percentile $L_{A10,T}$ dB	Lowest 10th Percentile $L_{A90,T}$ dB
Thursday 15 March	14:00 – 23:00*	60.0	86.0	58.6	48.2
	23:00 – 07:00	53.4	83.7	55.6	42.1
Friday 16 March	07:00 – 23:00	60.3	85.5	61.1	45.0
	23:00 – 07:00	54.4	86.5	53.7	44.4
Saturday 17 March	07:00 – 23:00	60.7	91.5	59.2	46.6
	23:00 – 07:00	46.5	78.8	50.0	40.2
Sunday 18 March	07:00 – 23:00	60.0	89.5	59.0	44.9
	23:00 – 07:00	53.8	85.5	53.9	38.3
Monday 19 March	07:00 – 23:00	55.7	85.9	57.3	47.7
	23:00 – 07:00	49.5	77.8	53.5	40.8
Tuesday 20 March	07:00 – 23:00	52.9	74.7	56.1	47.3
	23:00 – 07:00	49.7	74.7	54.1	39.9
Wednesday 21 March	07:00 – 23:00	49.6	74.0	52.0	41.4
	23:00 – 07:00	47.8	70.3	53.4	39.6
Thursday 22 March	07:00 – 23:00	54.7	83.8	55.9	43.7
	23:00 – 07:00	54.1	84.1	55.0	43.4
Friday 23 March	07:00 – 23:00	59.4	85.9	60.5	45.5
	23:00 – 07:00	54.4	81.0	54.6	35.3
Saturday 24 March	07:00 – 23:00	55.6	85.4	53.6	41.7
	23:00 – 07:00	46.5	74.3	53.0	36.6
Sunday 25 March	07:00 – 23:00	49.5	75.3	52.5	40.5
	23:00 – 07:00	51.0	72.6	57.8	36.0
Monday 26 March	07:00 – 10:00*	51.5	83.1	56.0	40.7

\*Incomplete time period

**Table 13: Noise Monitoring Results at ML8 – Mayfield, Solihull Road**

Date	Start Time	$L_{Aeq,T}$ dB	Highest $L_{Amax,T}$ dB	Highest 10th Percentile $L_{A10,T}$ dB	Lowest 10th Percentile $L_{A90,T}$ dB
Thursday 15 March	14:00 – 23:00*	62.3	87.2	64.9	47.8
	23:00 – 07:00	56.9	85.7	61.9	44.9
Friday 16 March	07:00 – 23:00	64.2	90.5	66.6	49.6
	23:00 – 07:00	57.7	87.6	60.0	49.2
Saturday 17 March	07:00 – 23:00	63.6	89.2	66.3	53.8
	23:00 – 07:00	52.9	81.6	57.5	44.3
Sunday 18 March	07:00 – 23:00	62.8	89.5	65.7	51.7
	23:00 – 07:00	58.7	87.3	62.7	45.9
Monday 19 March	07:00 – 23:00	63.9	87.2	66.8	56.2
	23:00 – 07:00	59.7	84.3	63.7	51.1
Tuesday 20 March	07:00 – 23:00	63.7	90.6	66.6	55.9
	23:00 – 07:00	58.5	86.1	62.6	51.0



Wednesday 21 March	07:00 – 23:00	62.0	91.5	65.1	53.6
	23:00 – 07:00	56.5	85.2	60.1	48.2
Thursday 22 March	07:00 – 23:00	61.9	87.6	64.3	49.1
	23:00 – 07:00	57.7	85.9	60.5	47.1
Friday 23 March	07:00 – 23:00	63.8	91.0	66.6	49.4
	23:00 – 07:00	58.7	86.7	61.2	45.1
Saturday 24 March	07:00 – 23:00	63.0	89.6	65.7	53.7
	23:00 – 07:00	56.5	80.7	59.1	47.4
Sunday 25 march	07:00 – 23:00	61.9	87.9	63.7	53.9
	23:00 – 07:00	58.5	79.2	63.2	48.6
Monday 26 March	07:00 – 10:00*	61.0	90.5	64.0	51.9

\*Incomplete time period

## 12.5 Conclusion

- 12.5.1 A baseline survey was conducted at nine locations at residential receptors around the Scheme. The baseline survey consisted of 8 unattended measurements and a single attended measurement; the purpose of the baseline survey was to determine the existing noise climate in the local vicinity prior to the proposed scheme.
- 12.5.2 The noise levels have been used within the assessments presented in Chapter 12: Noise and Vibration [TR010027/APP/6.1] to determine any changes to noise emissions as a result of the proposed scheme and to validate the noise model.



## Annex A: Sound Perception and Terminology

Between the quietest audible sound and the loudest tolerable sound there is a million to one ratio in sound pressure (measured in Pascals, Pa). Because of this wide range, a sound level scale based on logarithms is used in sound measurement called the decibel (dB) scale. Audibility of sound covers a range of approximately 0 to 140 dB. The human ear system does not respond uniformly to sound across the detectable frequency range and consequently instrumentation used to measure sound is weighted to represent the performance of the ear. This is known as the 'A weighting' and annotated as dB(A).

Table A.1 lists the sound pressure level in dB(A) for common situations.

**Table A.1 Sound Levels for Common Situations**

Typical Sound Level, dB(A)	Example
0	Threshold of hearing
30	Rural area at night, still air
40	Public library, refrigerator humming at 2m
50	Quiet office, no machinery
60	Normal conversation
70	Telephone ringing at 2m
80	General factory sound level
90	Heavy goods vehicle from pavement
100	Pneumatic Drill at 5m
120	Discotheque – 1m in front of loud speaker
140	Threshold of pain

The sound level at a measurement point is rarely steady, even in rural areas, and varies over a range dependent upon the effects of local sound sources. Close to a busy motorway, the sound level may vary over a range of 5 dB(A), whereas in a suburban area this variation may be up to 40 dB(A) and more due to the multitude of sound sources in such areas (cars, dogs, aircraft etc.) and their variable operation. Furthermore, the range of night-time sound levels will often be smaller and the levels significantly reduced compared to daytime levels. When considering environmental sound, it is necessary to consider how to quantify the existing sound (the ambient sound) to account for these second to second variations.

### Statistical Sound Levels

The parameter which is widely accepted for the measurement of road traffic noise is the,  $L_{10}$ , this is usually A weighted and can be identified as  $L_{A10,T}$  (dB). This is the sound level exceeded for 10 % of the measurement period. Over a one hour period, the  $L_{A10}$  will be the sound level exceeded for 6 minutes.

- 12.5.3 Statistical descriptors of sound levels are often used to provide further description of the acoustic climate. For example, the  $L_{10,T}$  indicator gives the sound level which is exceeded for 10% of the time period T. The A weighted  $L_{A10,18\text{-hour}}$  parameter, over an 18-hour daytime period (06:00-00:00) is commonly used as an indicator of human response to road traffic noise.

## Annex B: Measurement Locations

### ML1 – Hampton Lane Farm





## ML2 – Oak Tree Lodge, Shadow Brooke Lane





### ML3 – Rustling Oaks, Bickenhill





### ML4 – Beech Cottage, Clock Lane





### ML5 – Rydal, Church Lane





## ML6 – Middle Beckenhill





### ML7a – Four Winds, Catherine-de-Barnes Lane (Front)





**ML7b – Four Winds, Catherine-de-Barnes Lane (Rear)**





### ML8 – Mayfield, Solihull Road

