

# 14. Baseline Noise Survey

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## Appendix 14 Baseline Noise Survey

### Survey Personnel and Dates

The baseline noise survey was carried out by Simon Moyes (MIOA) of Atkins between 25th March 2013 and 27th March 2013.

### Weather Conditions

During the survey period, weather conditions were mainly dry with very short spells of very light precipitation (snow). Temperatures ranged from -2° to 7°C. Wind speeds were typically under 3m/s from an easterly direction.

### Noise Measurement Methodology

The noise survey was carried out in general accordance with the comparative measurement procedure of CRTN. This methodology is suitable where the noise at each of the measuring positions is due to the same road carrying the same traffic under the same conditions. At one (control) position measurements of LA10 are taken over the full 18 hour period between 06:00 and 24:00 on a typical weekday. Relative measurements are then made at satellite positions for two sampling periods of not less than 15 minutes each and two hours apart during the 18 hour period.

A noise logger was set up at the entrance to Leault Farm at around 10m from the edge of the A9 carriageway. The logger was set to undertake repeated 15 minute measurements through the period from 16:45 on 25/03/2013 until 09:15 on 27/03/2013.

In addition to the LA10 value, the following noise level parameters were also recorded for each 15 minute sample:-

- LAeq
- LAmax
- LA1
- LA90
- LAmin

Two 15 minute sample measurements were then undertaken at the following locations during the 18 hour period between 06:00 and 24:00 on Tuesday 26th March 2013. The A9 was the dominant source of noise at the majority of locations. Where other sources of noise were significant these were recorded in the survey notes.

## Satellite Noise Measurement Positions

Position No.	Location	Approximate OS Co-ordinates
1	Alvie School	283513,806565
2	Hillview Cottage	283434,806467
3	Loch Insh	282197,804387
4	Wildlife Park	280882,803771
5	Dunachton Lodge	282122,804729
6	Upper Milehead	283977,806884
7	Kincaig House	282668,806306
8	Alvie House	284107,807491
9	Wester Dalraddy Cottage	285456,808754
10	Craigmount	282729,805431
11	No. 1 MacBean Road	283318,806179
12	Briarach Road	283453,805800

## Noise Measurement Instrumentation

Details of the noise measuring equipment are shown in the table below. The date of the last full UKAS calibration is shown. Field calibrations were also undertaken before and after each set of measurements with no significant drift in calibration found.

### Measuring Equipment

Item	Make & Model	Serial Number	Last UKAS Calibration
Sound level meter	B&K 2238	2381615	March 2013
Calibrator	Norsonic 1251	31007	March 2013
Sound level meter	Norsonic 118	31609	May 2012
Calibrator	Norsonic 1251	31227	May 2012

Throughout the survey the meters were set to A-weighting, and 'Fast' rms. At each position the sound level meter was mounted on a tripod with the microphone 1.5 m above local ground level in free-field conditions.

## Results

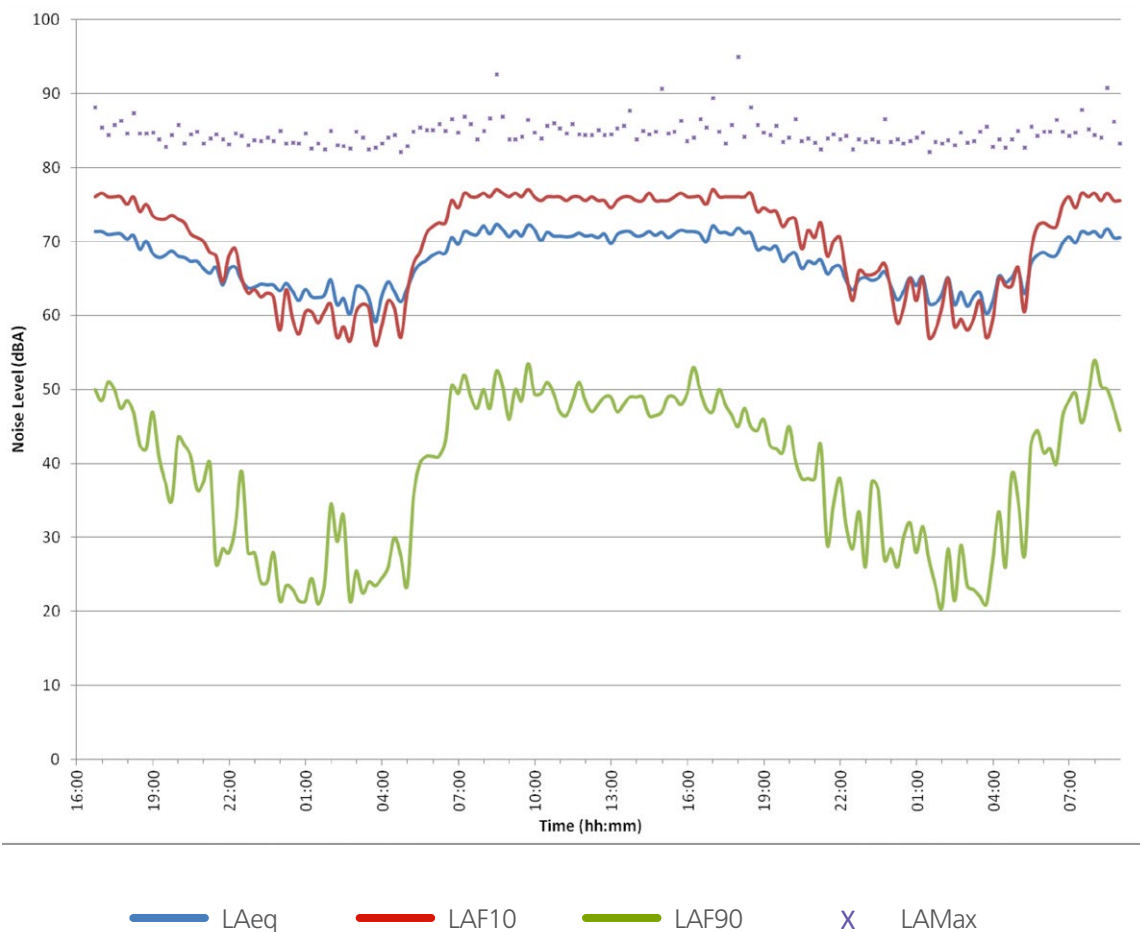
The summary results from the logger position are shown below.

### Noise Logger Summary Results

Time Period	Period Noise Level dB(A)		
	L <sub>Aeq</sub>	L <sub>A10</sub>	L <sub>A90</sub>
06:00 – 24:00 (CRTN Day)	70.1	74.0	45.0
08:00 – 19:00 (Construction Day)	71.1	75.9	49.0
23:00 – 07:00 (Night-time)	65.0	66.7	37.5

The results from the logger position are shown graphically in Figure 1 below

**Figure 1 Noise Logger Results**



The results from each satellite position are shown in the table below. Each measurement was 15 minutes long.

### Satellite Position Noise Levels

Posn No.	Time On	Location	Measured Noise Level dB(A)				Notes
			LAeq	LA,max	LA10	LA90	
1	10:45	Alvie School	56.1	67.5	59.6	47.7	Local school traffic, A9 visible but shielded, birdsong, school bell, children playing
1	16:45	Alvie School	54.9	64.0	59.2	42.9	Birdsong, A9 traffic
2	10:15	Hillview Cottage	55.1	64.8	58.8	44.5	Local traffic on B9152, A9 visible but shielded, birdsong
2	17:15	Hillview Cottage	56.2	67.0	60.5	41.5	
3	13:15	Loch Insh	69.4	96.8	58.9	43.0	A9 not visible, barely audible during quiet periods, local B9152 traffic, 13:20 train (MAX), birdsong
3	19:15	Loch Insh	71.6	98.8	53.3	37.3	A9 not visible, barely audible, local B9152 traffic, 19:22 train (MAX), duck skein
4	13:45	Wildlife Park	48.6	67.9	52.5	39.9	A9 not visible, audible, occasional distant lorry traffic into Meadowside Quarry, birdsong
4	19:45	Wildlife Park	40.7	67.4	42.9	31.9	A9 not visible, audible
5	14:15	Dunachton Lodge	53.6	62.7	57.4	45.0	A9 not visible, audible, birdsong
5	20:15	Dunachton Lodge	50.5	61.1	54.5	37.0	A9 not visible, audible
6	11:45	Upper Milehead	55.1	70.5	59.5	43.6	A9 elevated – audible but not visible, local traffic on B9152, distant Alvie Quarry, birdsong
6	16:15	Upper Milehead	55.3	74.6	58.3	41.6	
7	14:45	Kincaig House	50.4	60.0	53.3	44.2	A9 visible and audible, sheep, birdsong, crows
7	20:45	Kincaig House	47.1	60.6	51.0	33.5	A9 audible
8	15:15	Alvie House	42.3	58.5	45.0	37.7	A9 audible, not visible, birdsong
8	21:15	Alvie House	41.9	53.8	44.3	36.4	A9 audible

9	12:15	Wester Dalraddy Cottage	46.0	56.7	48.9	41.9	A9 visible but barely audible, exposed location – quite windy, sheep, distant voices
9	15:45	Wester Dalraddy Cottage	48.8	70.0	51.1	41.1	A9 visible, audible, occasional sheep and birdsong
10	12:45	Craigmount	54.4	74.3	55.3	37.0	A9 visible and audible, partly shielded, local B9152 traffic, sheep, whistling
10	18:45	Craigmount	53.5	73.7	56.2	36.2	A9 visible and audible, partly shielded, local B9152 traffic, pheasant (MAX)
11	09:15	No. 1 MacBean Road	57.4	73.5	61.5	45.3	Local traffic on B9152, cars/lorries on A9 partly visible but road surface not visible, occasional sheep
11	17:45	No. 1 MacBean Road	58.7	75.0	63.3	40.3	
12	11:15	Briarach Road	38.5	57.2	41.7	32.8	A9 barely audible, birdsong, crows, distant Alvie Quarry (very quiet location)
12	18:15	Briarach Road	35.6	57.4	37.5	32.0	

The 18 hour LA10 noise level, 11 hour (construction) daytime LAeq noise level and the 8 hour night-time LAeq noise levels have been calculated for each of the above satellite positions by applying the average noise level difference between each satellite position and the noise logger position to the overall logger position results. This methodology provides a reasonable estimate of the period noise levels at each satellite position except where local noise levels are significantly affected by noise from sources other than the A9. In particular, at Loch Insh, the satellite position was very close to the railway line and the passage of trains in each of the measurement periods at this location has had a

large effect on the recorded ambient LAeq noise level.

### Comparative Satellite Position Noise Levels

Position	Period Comparative Noise Level, dB(A)		
	LA10,(06:00 – 24:00)	LAeq,(08:00 – 19:00)	LAeq,(23:00 – 07:00)
1. Alvie School	60.4	56.2	50.2
2. Hillview Cottage	60.4	56.0	50.0
3. Loch Insh	55.4	71.6	65.6
4. Wildlife Park	47.7	46.4	40.4
5. Dunachton Lodge	58.2	53.5	47.5
6. Upper Milehead	59.4	55.0	49.0
7. Kincaig House	55.2	50.7	44.7
8. Alvie House	47.2	44.1	38.1
9. Wester Dalraddy Cottage	50.3	47.3	41.3
10. Craigmount	57.5	55.0	49.0
11. No. 1 MacBean Road	62.7	57.9	51.9
12. Briarach Road	40.4	37.2	31.2