

APPENDIX F

Background to Noise Survey

F. Background to Noise Survey

- F.1 A noise survey was undertaken in and around Maybole on 20th – 22nd July 2005 to establish existing ambient noise levels.
- F.2 Noise levels were recorded at a total of four positions along the existing A77 through Maybole (two on High St., one on Whitehall and one on Kirkoswald Road), at three positions to the south of Maybole and at four positions to the north.
- F.3 The noise measurement parameters recorded during the survey were L_{Aeq} , L_{Amax} , L_{A10} and L_{A90} levels.
- F.4 The L_{Aeq} , or equivalent continuous noise level, is a measure of the average acoustic energy over the measurement period. The logarithmic average of the measured L_{Aeq} values is shown for each measurement position.
- F.5 The L_{A10} is the noise level which is exceeded for 10% of the time in each measurement period. The L_{A90} is the noise level which is exceeded for 90% of the time in each measurement period and is usually described as the background noise level. The arithmetic mean for each of these parameters is shown for each measurement position.
- F.6 The L_{Amax} is the maximum short term noise level over the measurement period, which has been measured using a fast time weighting.
- F.7 The results of the survey on the existing A77 in and around the centre of Maybole on 20th July 2005 are shown in Table F.1. The dominant noise source for each of these positions was traffic on the A77. The distance from the measurement position to the nearside kerb is shown for each measurement.

Table F.1 – Noise Survey Results – A77, Maybole Centre

Position	Distance to Nearside Kerb (m)	Time	L_{Aeq} (dB)	L_{A10} (dB)	L_{A90} (dB)	L_{Amax} (dB)
Old Castle, High Street	15m	14:15 – 14:30	60.5	63.3	50.3	74.2
	15m	14:30 – 14:45	62.5	65.8	54.3	76.2
	5m	14:45 – 15:00	63.5	66.8	53.8	78.3
	Average			62.3	65.3	52.8
Town Hall, High Street	15m	15:15-15:30	57.8	60.8	49.3	72
	15m	15:30-15:45	60.8	63.8	50.8	73.9

	Average		59.6	62.3	50.1	-
Maybole Arms, Whitehall	2.5m	15:45-16:00	71.6	73.8	51.8	89.6
Carrick Academy, Kirkoswald Road.	5m	16:30-16:45	62.2	66.3	49.3	79
	5m	16:45-17:00	60.0	65.0	44.8	71.6
	Average		61.2	65.7	47.1	-

F.8 Details of the noise levels recorded at positions to the south and north of Maybole are shown in Table F.2 to Table F.8.

KIRKMICHAEL ROAD T-JUNCTION

F.9 Measurements were undertaken at Kirkmichael Road T junction on 21st July 2005 between 11:00 and 14:00. The approximate measurement position is represented by receiver i.d. number 10 on Figures 5028091_NOI_001 to 003. The results are presented in Table F.2 below.

Table F.2 - Measured Noise Levels at Kirkmichael Road T junction

Time	L _{Aeq} (dB)	L _{A10} (dB)	L _{A90} (dB)	L _{Amax} (dB)	Comments
11:00-11:15	64.5	55.3	44.8	90.5	Road traffic on A77 and occasional road traffic on Kirkmichael Road.
11:15-11:30	64.4	59.3	44.8	85.7	
11:30-11:45	62.3	55.3	43.8	86.2	
11:45-12:00	63.2	55.5	43.7	85.2	
12:00-12:15	64.1	56.8	43.8	84.1	
12:15-12:30	65.2	59.8	43.3	86.0	
12:30-12:45	60.4	54.3	43.8	87.1	
12:45-13:00	65.2	59.3	42.8	88.4	
13:00-13:15	65.1	58.8	45.8	86.8	
13:15-13:30	60.0	51.8	43.3	85.1	
13:30-13:45	62.1	52.6	44.8	86.1	
13:45-14:00	63.6	59.8	42.3	85.5	
Average	63.6	56.6	43.9		
Highest				90.5	

CROSSHILL ROAD

F.10 Measurements were undertaken at Crosshill Road next to the cemetery on 21st July 2005 between 11:00 and 14:00. The approximate measurement position is represented by receiver i.d. number 7 on Figures 5028091_NOI_001 to 003. The results are presented in Table F.3 below.

Table F.3 – Measured Noise Levels at Crosshill Road

Time	L _{Aeq} (dB)	L _{A10} (dB)	L _{A90} (dB)	L _{Amax} (dB)	Comments
11:00-11:15	56.4	58.2	44.6	78.9	Road traffic on A77 and Crosshill Road.
11:15-11:30	55.5	58.9	43.2	75.0	
11:30-11:45	53.9	58.2	42.7	69.3	
11:45-12:00	53.7	57.6	42.8	68.7	
12:00-12:15	54.0	56.8	43.5	70.9	
12:15-12:30	53.3	55.2	42.1	71.7	
12:30-12:45	54.0	57.6	41.9	69.5	
12:45-13:00	53.5	57.6	40.4	69.0	
13:00-13:15	48.9	50.4	41.7	62.5	
13:15-13:30	54.0	56.4	44.4	69.0	
13:30-13:45	53.3	57.3	40.4	70.5	
13:45-14:00	51.6	54.8	48.6	55.0	
Average	53.8	56.6	43.0		
Highest				78.9	

ALLAN'S HILL

F.11 Measurements were undertaken at Allan's Hill on 21st July 2005 between 15:00 and 17:00. The approximate measurement position is represented by receiver i.d. number 1 on Figures 5028091_NOI_001 to 003. The results are presented in Table F.4 below.

Table F.4 – Measured Noise Levels at Allan's Hill

Time	L _{Aeq} (dB)	L _{A10} (dB)	L _{A90} (dB)	L _{Amax} (dB)	Comments
15:00-15:30	53.9	52.8	35.8	76.1	Road traffic on A77, and Allan's Hill
15:30-16:00	60.0	53.3	35.3	86.9	
16:00-16:30	53.9	51.3	33.8	76.2	
16:30-17:00	57.8	49.3	34.3	87.8	
Average	57.2	51.7	34.8		
Highest				87.8	

B7024 OVERBRIDGE (NORTH MAYBOLE)

F.12 Measurements were undertaken at B7024 Overbridge on 21st July 2005 between 14:00 and 17:00. The approximate measurement position is represented by receiver i.d. number 11 on Figures 5028091_NOI_001 to 003. The results are presented in Table F.5 below.

Table F.5 – Measured Noise Levels at B7024 Overbridge

Time	L _{Aeq} (dB)	L _{A10} (dB)	L _{A90} (dB)	L _{Amax} (dB)	Comments
14:00-14:15	49.7	54.3	40.8	61.6	Road traffic

14:15-14:30	51.1	55.4	42.1	65.5	on B7024 & passenger rail traffic
14:30-14:45	50.3	54.1	41.7	64.4	
14:45-15:00	54.7	55.8	41.8	75.9	
15:00-15:15	50.6	55.2	41.8	62.5	
15:15-15:30	51.4	56.1	41.1	61.3	
15:30-15:45	53.6	55.5	42.3	72.7	
15:45-16:00	49.8	53.3	40.8	63.0	
16:00-16:15	51.6	56.6	40.9	70.0	
16:15-16:30	55.3	57.6	42.6	75.2	
16:30-16:45	54.3	58.4	46.2	64.7	
Average	52.5	55.7	42.0		
Highest				75.9	

KIRKLANDHILL PATH

F.13 Measurements were undertaken at Kirklandhill Path on 22nd July 2005 between 11:00 and 14:00. The approximate measurement position is represented by receiver i.d. number 13 on Figures 5028091_NOI_001 to 003. The results are presented in Table F.6 below.

Table F.6 - Measured Noise Levels at Kirklandhill Path

Time	L _{Aeq} (dB)	L _{A10} (dB)	L _{A90} (dB)	L _{Amax} (dB)	Comments
11:00-11:30	37.5	39.3	32.3	67.5	Occasional road traffic on Kirklandhill Path / cows
11:30-12:00	31.5	37.3	28.3	49.5	
12:00-12:30	39.6	36.3	29.8	63.2	
12:30-13:00	40.1	43.4	31.8	57.6	
13:00-13:30	37.9	44.3	31.8	56.0	
13:30-14:00	36.8	38.8	32.8	59.8	
Average	37.9	39.9	31.1		
Highest				63.2	

GARDENROSE PATH

F.14 Measurements were undertaken at Gardenrose Path on 22nd July 2005 between 11:45 and 14:00. The approximate measurement position is represented by receiver i.d. number 12 on Figure 5028091_NOI_001 to 003. The results are presented in Table F.7 below.

Table F.7 – Measured Noise Levels at Gardenrose Path

Time	L _{Aeq} (dB)	L _{A10} (dB)	L _{A90} (dB)	L _{Amax} (dB)	Comments
11:45-12:00	49.7	47.3	39.8	74.2	Occasional road traffic on Gardenrose Path/Culzean Road/cows.
12:00-12:15	51.6	43.5	33.1	74.8	
12:15-12:30	50.9	46.2	32.8	72.7	
12:30-12:45	45.6	43.8	32.6	68.7	
12:45-13:00	51.3	40.3	32.6	75.8	
13:00-13:15	48.2	45.2	32.6	71.5	

13:15-13:30	51.5	41.8	32.7	73.7	
13:30-13:45	53.5	46.7	36.7	75.4	
13:45-14:00	53.8	46.5	37.8	73.5	
Average	51.3	44.6	34.5		
Highest				75.8	

CULZEAN ROAD

F.15 Measurements were undertaken at Culzean Road on 22nd July 2005 between 14:30 and 16:45. The approximate measurement position is represented by receiver i.d. number 4 on Figures 5028091_NOI_001 to 003. The results are presented in Table F.8 below.

Table F.8 - Measured Noise Levels at Culzean Road

Time	L _{Aeq} (dB)	L _{A10} (dB)	L _{A90} (dB)	L _{Amax} (dB)	Comments
14:30-14:45	53.2	58.6	34.2	66.9	Road traffic on Culzean Rd / construction noise
14:45-15:00	55.3	60.1	37.3	70.9	
15:00-15:15	56.3	58.9	39.3	77.8	
15:15-15:30	56.1	60.1	34.7	75.5	
15:30-15:45	55.4	60.1	34.4	75.3	
15:45-16:00	54.2	59.6	36.0	65.6	
16:00-16:15	54.5	59.6	35.0	70.4	
16:15-16:30	53.5	59.0	36.5	64.3	
16:30-16:45	51.5	55.0	33.6	64.4	
Average	54.7	59.0	35.7		
Highest				77.8	

SURVEY PERSONNEL AND DATES

F.16 David Lee BEng (Hons) carried out the measurements between Wednesday 20th and Friday 22nd July 2005.

WEATHER CONDITIONS

F.17 The weather conditions during the survey were mixed, with showers and strong gusts of wind interspersed with sunny spells, and a maximum temperature of 19 °Celsius. Care was taken to exclude periods with high wind speeds from the measurements.

F.18 Some periods of rain were experienced, which may have increased the noise levels marginally from traffic on wet roads.

F.19 Instrumentation is presented in Table F.9

Table F.9 - Noise Measurement Instrumentation

Equipment	Type	Serial Number
Brüel & Kjaer 2231	Sound Level Meter	1735069
Brüel & Kjaer 4189	Microphone	2330741
Brüel & Kjaer 4230	Calibrator	1780754
Brüel & Kjaer 2143	Vibration Analyser	1847104
MMF VC10	Vibration Calibrator	005117
Brüel & Kjaer 4370	Accelerometer	1605257

F.20 Calibration of the sound level meter, microphone and calibrator used for the survey is traceable to UKAS accredited laboratories and all were within their respective calibration periods. Furthermore the sound level meter and microphone were calibrated to a level of 94 dB at 1 kHz before and after measurements. No significant drift in calibration was observed.

