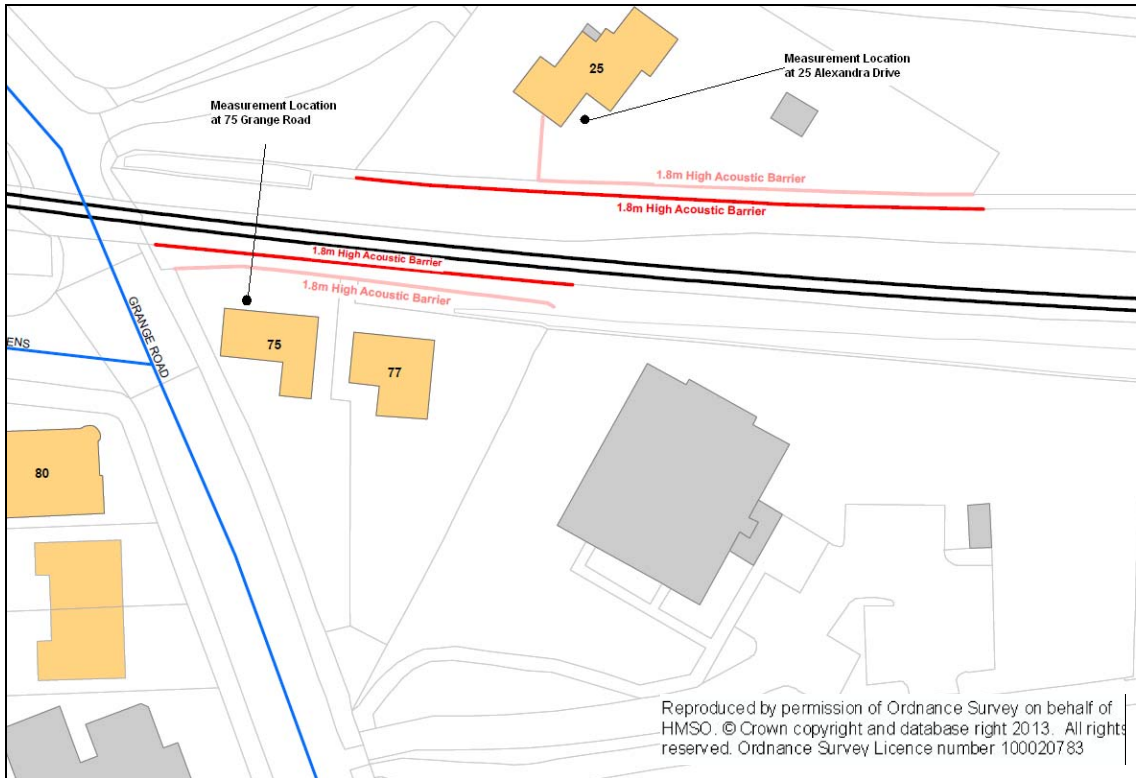


Figure A.8: Measurement Location at 25 Alexandra Drive



Location 9: Ochilview, Clackmannan

The measurement position was located 1m from the south-eastern facing façade, within the rear garden area of the property. This position in turn was approximately 10m from edge of the railway line as shown in Figure A.9. The Rion NL-52/Brüel & Kjær 2250 sound level meter was secured within a weatherproof box with the microphone positioned 1.5m above the ground, see Photograph A.9. The noise monitoring equipment was calibrated both before and after each measurement period using an acoustic calibrator, which has itself been calibrated against a reference set traceable to National and International Standards. There was no shift greater than 0.2 dB in the observed calibration level. The sound level meter was secured at the property and left continuously logging throughout the measurement period.

The dominant noise at this location, excluding rail traffic movements, was road traffic noise from the A907, birdsong and occasional noise from people and dogs in the garden area of the property. During the monitoring period on 02/08/2012 continuous intermittent noise, from dogs barking throughout the day was adversely impacting on the background noise level in the absence of train noise, which in turn raised the overall ambient noise level with the train noise included on this day.

The Brüel & Kjær 2250/2260 sound level meter was secured to a tripod with the microphone 1.5m above the ground, adjacent to the Rion NL-52/Brüel & Kjær 2250 sound level meter. The monitoring equipment was calibrated both before and after the measurement period using an acoustic calibrator, which has itself been calibrated against a reference set traceable to National and International Standards. There was no shift greater than 0.2 dB in the observed calibration level. Fifteen minute snapshot noise level measurements were undertaken with the Brüel & Kjær 2250 throughout the measurement procedure and are shown in Table A.9.

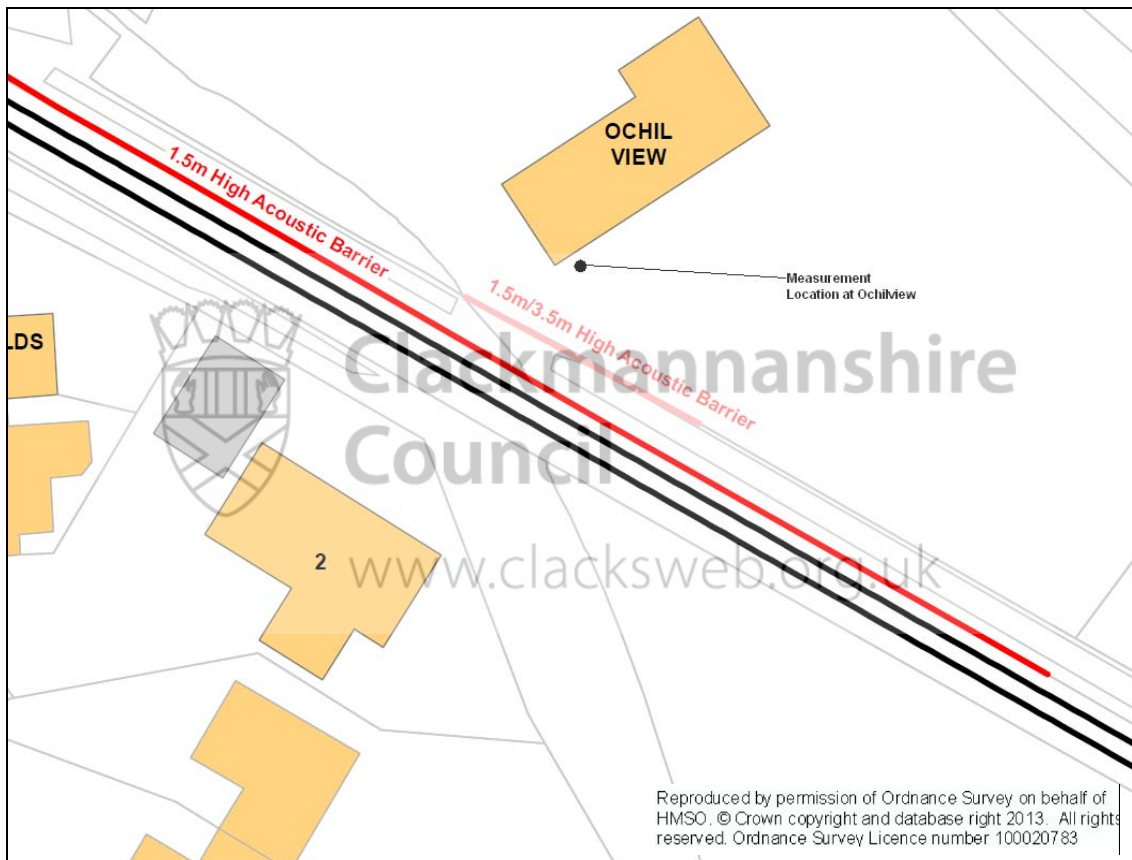
Table A.9: Measured Results – Ochilview, Clackmannan

Period	Date	Start Time (hh:mm)	Duration (hh:mm)	Noise Level (Db)			Weather		Comments
				L _{Aeq,T}	L _{A90}	L _{A10}	Wind Speed (m/s) & Direction	Conditions	
May Monitoring Period									
Brüel & Kjær 2250									
	23/05/12	16:16	00:15	72.4	49.8	59.6	Light Breeze	Clear & Dry	
	24/05/12	09:56	00:15	53.7	42.0	57.1	Calm	Hazy Sunshine & Dry	
	24/05/12	15:47	00:15	55.8	50.2	58.5	Light Breeze	Clear & Dry	
	24/05/12	18:42	00:15	56.6	49.6	58.9	Calm	Clear & Dry	
	24/05/12	18:57	00:15	55.1	46.3	58.2	Calm	Clear & Dry	
August Monitoring Period									
Brüel & Kjær 2260									
	02/08/12	10:14	00:15	55.7	42.8	59.2	Calm	Slightly Overcast	
	02/08/12	16:22	00:15	65.1	42.6	60.8	Light Breeze	Overcast	

Photograph A.9: Measurement Location at Ochilview



Figure A.9: Measurement Location at Ochilview



Location 10: 16 Ochilview, Kincardine

The measurement position was located 1m from the southern facing façade, within the rear garden area of the property. This position in turn was approximately 6m from edge of the railway line as shown in Figure A.10. The Rion NL-52/Brüel & Kjær 2250 sound level meter was secured within a weatherproof box with the microphone positioned 1.5m above the ground, see Photograph A.10. The noise monitoring equipment was calibrated both before and after each measurement period using an acoustic calibrator, which has itself been calibrated against a reference set traceable to National and International Standards. There was no shift greater than 0.2 dB in the observed calibration level. The sound level meter was secured at the property and left continuously logging throughout the measurement period.

The dominant noise at this location, excluding rail traffic movements, was distant road traffic noise, birdsong occasional noise from people in the garden area of the property and surrounding properties and people using the level crossing adjacent to the railway line.

The Brüel & Kjær 2250/2260 sound level meter was secured to a tripod with the microphone 1.5m above the ground, adjacent to the Rion NL-52/Brüel & Kjær 2250 sound level meter. The monitoring equipment was calibrated both before and after the measurement period using an acoustic calibrator, which has itself been calibrated against a reference set traceable to National and International Standards. There was no shift greater than 0.2 dB in the observed calibration level. Fifteen minute snapshot noise level measurements were undertaken with the Brüel & Kjær 2250 throughout the measurement procedure and are shown in Table A.10.

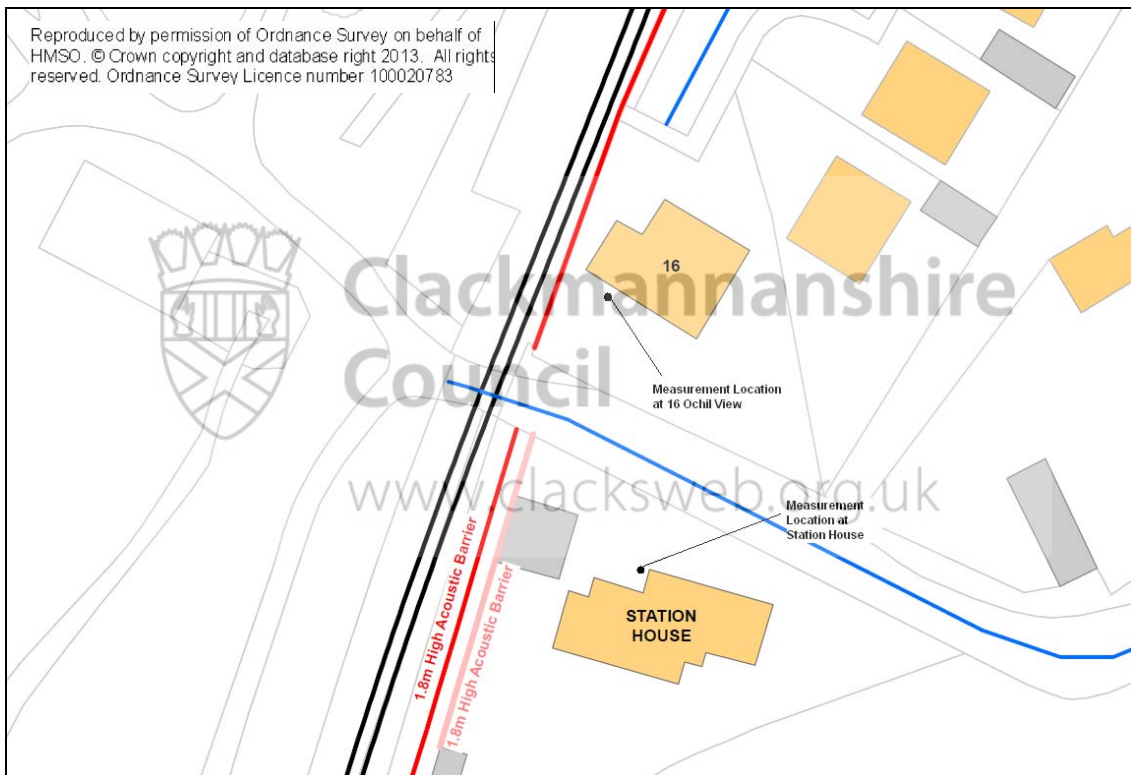
Table A.10: Measured Results – 16 Ochilview, Kincardine

Period	Date	Start Time (hh:mm)	Duration (hh:mm)	Noise Level (Db)			Weather		Comments
				L _{Aeq,T}	L _{A90}	L _{A10}	Wind Speed (m/s) & Direction	Conditions	
May Monitoring Period									
Brüel & Kjær 2250									
	23/05/12	17:07	00:15	48.4	45.2	50.8	Easterly ^3.0m/s ≈1.8m/s	Clear & Dry	
	24/05/12	09:26	00:15	63.2	42.8	54.7	Calm	Hazy Sunshine & Dry	23C EWS Westbound
	24/05/12	15:16	00:15	65.2	43.2	53.5	Easterly ^3.2m/s ≈1.5m/s	Clear & Dry	23C EWS Eastbound
August Monitoring Period									
Brüel & Kjær 2260									
	02/08/12	09:42	00:15	44.7	41.3	46.8	Calm	Slightly Overcast	
	02/08/12	15:52	00:15	52.8	50.5	54.3	Light Breeze	Slightly Overcast	

Photograph A.10: Measurement Location at 16 Ochil View



Figure A.10: Measurement Location at 16 Ochil View



Location 11: Station House, Kincardine

The measurement position was located 1m from the southern facing façade, within the rear garden area of the property. This position in turn was approximately 18m from edge of the railway line as shown in Figure A.11. The Rion NL-52/Brüel & Kjær 2250 sound level meter was secured within a weatherproof box with the microphone positioned 1.5m above the ground, see Photograph A.11. The noise monitoring equipment was calibrated both before and after each measurement period using an acoustic calibrator, which has itself been calibrated against a reference set traceable to National and International Standards. There was no shift greater than 0.2 dB in the observed calibration level. The sound level meter was secured at the property and left continuously logging throughout the measurement period.

The dominant noise at this location, excluding rail traffic movements, was distant road traffic noise from the A907, birdsong and occasional noise from people in the garden area of the property.

The Brüel & Kjær 2250/2260 sound level meter was secured to a tripod with the microphone 1.5m above the ground, adjacent to the Rion NL-52/Brüel & Kjær 2250 sound level meter. The monitoring equipment was calibrated both before and after the measurement period using an acoustic calibrator, which has itself been calibrated against a reference set traceable to National and International Standards. There was no shift greater than 0.2 dB in the observed calibration level. Fifteen minute snapshot noise level measurements were undertaken with the Brüel & Kjær 2250 throughout the measurement procedure and are shown in Table A.11.

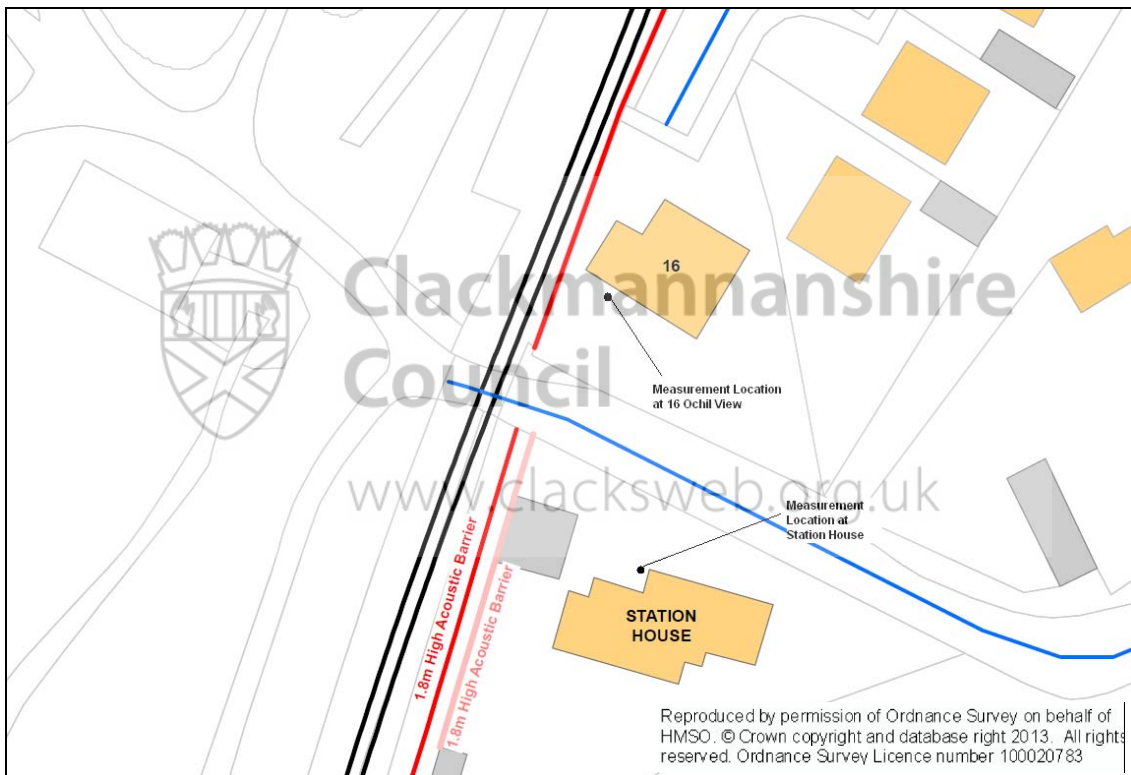
Table A.11: Measured Results – Station House Kincardine

Period	Date	Start Time (hh:mm)	Duration (hh:mm)	Noise Level (dB)			Weather		Comments
				L _{Aeq,T}	L _{A90}	L _{A10}	Wind Speed (m/s) & Direction	Conditions	
May Monitoring Period									
Brüel & Kjær 2250									
	23/05/12	16:47	00:15	43.3	41.0	44.9	Easterly ^3.0m/s ≈1.8m/s	Clear & Dry	
	24/05/12	09:07	00:15	59.7	42.1	55.5	Calm	Hazy Sunshine & Dry	23C EWS Eastbound
	24/05/12	14:57	00:15	43.9	38.1	45.7	Easterly ^1.2m/s ≈0.2m/s	Clear & Dry	
August Monitoring Period									
Brüel & Kjær 2260									
	02/08/12	09:24	00:15	43.2	40.3	44.5	Calm	Slightly Overcast	
	02/08/12	15:35	00:15	57.3	46.7	54.0	Light Breeze	Slightly Overcast	23C EWS Westbound

Photograph A.11: Measurement Location at Station House



Figure A.11: Measurement Location at Station House



Appendix 4 – Maps of Acoustic Mitigation as Provided to Network Rail