

# Aberdeen Western Peripheral Route / Balmedie to Tipperty

Noise Insulation (Scotland) Regulations  
Assessment

AWPR/B-T CJV

29 January 2021

# Notice

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# 1. Introduction

Atkins/CH2M DJV are contracted to provide specialist advice with regard to Traffic Noise and Vibration and the design of Aberdeen Western Peripheral Route / Balmedie-Tipperty (AWPR/B-T). This report outlines the methodology used and provides an assessment of properties likely to qualify for noise insulation.

## 2. Methodology

This assessment identifies noise insulation requirements for dwellings alongside the AWPR/B-T and follows the procedures described in the Noise Insulation (Scotland) Regulations 1975 and the Memorandum on the Noise Insulation (Scotland) Regulations 1975 – Regulations 3 and 6.

### 2.1. The Noise Insulation (Scotland) Regulations 1975

Under the circumstances specified in The Noise Insulation (Scotland) Regulations (NISR) 1975, residential properties may qualify for an offer of noise insulation. In respect of road traffic noise, properties may qualify if all of the following conditions are satisfied:

- the property must be within 300m of the nearest point on the carriageway and within 50m of the end of the Scheme;
- the property must have a direct line of sight to the carriageway;
- the façade noise level due to road traffic on any highway (the 'relevant' noise level) for the design year, or for any intervening year if noisier, must equal or exceed 68 dBL<sub>A10, 18 hour</sub>, (the 'specified' level), with levels of 67.5 dBL<sub>A10, 18 hour</sub> being rounded upwards;
- the 'relevant' noise level in the first, fifth, tenth or fifteenth year must be at least 1 dBL<sub>A10, 18 hour</sub> higher than the pre-construction year road traffic noise level;
- noise from the new or altered road must contribute at least 1 dBL<sub>A10, 18 hour</sub> to the 'relevant' noise level.

The highway authority has a duty under Regulation 3 of the NISR to make an offer of insulation to residential properties with respect to noise from a new road, and discretionary powers under Regulation 4 in respect to altered roads. The authority also has the discretionary power to offer insulation against construction noise. The Regulations apply to living rooms and bedrooms and so exclude bathrooms, toilets, halls and other rooms.

The Regulations prescribe that noise levels should be calculated except in marginal cases or cases where calculation is not straightforward. A memorandum of Advice and Instruction is to be construed as one with the Regulations. The Memorandum defines a noise calculation method for use in determining noise levels which is based on the method published in BRE Digest 153. There is no commercially available software which allows noise predictions to be made using the method of calculation described in the Memorandum.

### 2.2. Calculation Method

The following describes the calculation method used for the NISR assessment. Section 5 of the Memorandum provides the principal stages of the calculation, and these are divided into 16 stages, labelled (a) through to (p). Each of the paragraphs below gives the relevant stages for cross-referencing.

#### 2.2.1. Roadside Noise Levels

The assessment uses the 16hour daily traffic flow, and the higher value of the flows for the months of May and August is used. The traffic flow is then increased by 5% for the assessment (a). Traffic counts may be used (b and c).

The traffic flow is used to establish a noise level at 30m from the edge of the carriageway (d). The 'roadside' noise levels are then adjusted for vehicle speed (e), proportion of heavy vehicles (g) and road gradient (h).

## 2.2.2. Propagation

Noise propagation between the road and the property is then taken into account, considering distance (f), ground attenuation (i) and screening from barriers (j, k, l, m and o).

## 2.2.3. Overall Noise Level

The overall noise level is rounded (p) and contributions from more than road can be added together (n). It should be noted that this method does not take account of the angle of view for a road, and therefore each calculation is completed for the road as a whole.

## 2.3. AWPR Specifics

This assessment considers each section of the Scheme as an individual large section, and these have not been divided down into smaller segments.

The assessment considers the noise from the mainline AWPR alignment as the primary source of noise. On sections of AWPR with grade separated junctions the traffic through junctions is taken to be the same as traffic either side of the junction.

# 3. Data Sources

## 3.1. Traffic

As noted above, the assessment requires the highest 16 hour traffic flow from May or August. The AWPR scheme has a number of traffic count loops along the length of the new A90 where this data has been measured. In order to establish the traffic flow on other roads, the traffic flows used in the ES noise models have been used and factored to reflect the known differences between those flows in the ES noise models and the measured flows where there are traffic count loops.

Some of the loops did not start recording data until after August 2019, and a different approach has been used for those locations on the A90. A factor has been determined from the sections of the A90 where loops were operational prior to August 2019 and used to convert the measured traffic from later months back into a figure for August 2019.

At two locations along the scheme, Maryculter and Balmedie, weigh in motion sensors have been operational since prior to May 2019. The traffic data for these has been extracted for May and August 2019:

Site	16hr total flow
Maryculter, May 2019	12,406
Balmedie, May 2019	17,621
Maryculter, August 2019	13,119
Balmedie, August 2019	18,794

The table shows that the August traffic flows are higher than the May traffic flows, so the August flows are used in this assessment.

The method requires the flows to be multiplied by 5%, giving the following traffic data for these sections of the Scheme:

Site	16hr total flow + 5%	Proportion of heavy vehicles
Maryculter, August 2019	13,775	9.8%
Balmedie, August 2019	19,734	7.4%

This data has been compared with the Do Something traffic data from the noise model.

Site	18hr total flow	Proportion of heavy vehicles
Maryculter, ES Traffic	12,852	12%
Balmedie, ES Traffic	22,560	14%

A comparison of these datasets allows factors to be calculated to convert traffic from the ES noise model into August 2019 traffic in line with the method given in the Regulations.

Site	Maryculter	Balmedie	Average
ES traffic flow	12,852	22,560	
Observed flow + 5%	13,775	19,734	
Ratio Observed to ES	1.07	0.87	0.97
ES HGV percentage	12%	14%	
Observed HGV percentage	9.8%	7.4%	
Ratio Observed to ES	0.81	0.53	0.67

In order to convert traffic flows for links where observed data is not available, the ES flow is left unchanged (i.e. multiplied by 1.00) and the proportion of heavy vehicles is multiplied by 0.66.

Additional traffic count loops have come on-stream after August 2019, which gives another set of traffic counts which can be used. Across all loop sites there is a seven day period where traffic counts have been successfully measured – The 14<sup>th</sup> to the 20<sup>th</sup> October 2019. The counts for the two weigh in motion sensors for this period can be compared with the average flows for August in order to establish a October to August conversion factor, although for Balmedie this factor can only be undertaken for the northbound carriageway as there was a fault which produced an error in the southbound data for the October period.

Site	Maryculter	Balmedie
14-20 Oct 2019	12,950	9,321 (NB)
August 2019	13,119	10,078 (NB)
Ratio October to August	1.10	1.08

For sections of road where there are observed traffic flows in October, these can be converted to August traffic flows by multiplying by 1.09. There is loop data for most sections of the AWPR scheme. In order for the observed data to play more of an influence on the noise assessment, sections of the AWPR scheme which do not have loop data have their flow determined by looking at the ratio between ES factored flows and observed flows on adjacent sections with loops.

All observed flows need to be multiplied by 5% to be used in the noise calculations.

The traffic data used in the noise assessment is shown in Appendix C:

## 3.2. Barriers

The calculations use the details provided on the landscape drawings (reference AWPR-DJV-EN3000-ZZ00-DR-C-0001 to 0090) and the noise barrier drawings (reference AWPR-DJV-EN3000-ZZ00-DR-C-0201 to 0290) for the position and height of the noise barriers in the Scheme.

## 3.3. Alignment

The distances between the properties being considered and the scheme alignment has been digitally measured from scheme drawings.

### 3.4. Average Height of Propagation

A combination of the barrier drawings, the alignment drawings and the topographical data from the noise model has been used to estimate the average height of propagation for the receptors.

### 3.5. Buildings

The main data source for the locations of buildings in the assessment is the noise receptor lists from the noise model used in the 2016 detailed design work. Details of all buildings considered is given in Appendix A. The scheme has also been inspected using on-line mapping tools and further properties have been identified which were not considered in the earlier stages of the Scheme work and when identified these are included in Appendix A.

## 4. Calculations

### 4.1. Overview

The calculations show that noise levels are below 68dB at distances beyond around 80m, depending on traffic flows. Therefore, the focus is principally on properties that are closer to the scheme than this distance. All properties within 100m of the alignment have been assessed.

Where properties are affected by noise from a road of a similar standard before the Scheme was built, for example properties in Balmedie, these are generally shown not to qualify as the change in noise with the scheme is frequently smaller than 1dB.

Where properties are shown to have noise levels above 68dB and prevailing noise levels were significantly below 68dB, the assessment considers if there would be any attenuation from screening/barriers included in the Scheme or from the edges of cuttings and embankments.

In each case the calculations consider if there would be sufficient barrier attenuation to bring the noise levels below 68dB.

Overall, the noise levels at 295 properties have been considered in this assessment.

### 4.2. Properties meeting NISR criteria

The calculations undertaken identify that 6 properties may meet the requirements for noise insulation subject to confirmation that there are eligible rooms with windows or doors on facades which are shown to meet the noise criteria.

Section	Address
Cleanhill to Charleston	
Milltimber to South Kingswells	
Milltimber to South Kingswells	
Milltimber to South Kingswells	
South Kingswells to North Kingswells	
Craibstone to Goval	

[redacted]

### 4.3. Properties identified in Environmental Statements

It must be noted that the text within the ESs describes more properties than shown above which potentially meet the requirements for Noise Insulation, as summarised below. The ESs were undertaken using the CRTN methodology, and assumptions then made on what the noise levels would have been under the NISR methodology. However, no assessment was made under the NISR in the ESs.

- Northern section ES – 7 properties
- Southern section ES – 51 properties
- Fastlink section ES – 2 properties
- Balmedie to Tippetty ES – 45 properties

For the Northern, Southern and Fastlink legs, the ES includes the individual properties which have been identified as potentially meeting the requirements for Noise Insulation. For Balmedie to Tippetty the number of properties is identified, but no details are given as to the specific location of these properties. Appendix B gives the extracts from the Environmental Statements calculated noise levels for all properties considered in this assessment.

All of the properties listed in the three sections of the AWPR Environmental Statement have been included in this assessment. Without the specifics of which properties potentially met the requirements for noise insulation, the same cannot be said for Balmedie to Tippetty.

## 4.4. Additional Properties

The 2016 detailed design assessment also considered buildings which had not been considered as receptors in the Environmental Statements, and a few further properties have been identified during this assessment. Appendix A gives calculated noise levels for all properties considered in this assessment.

## 4.5. Properties built or initially occupied after 2016

This report is principally based on the results at properties identified during detailed design work undertaken in 2016. There have been some additional properties which have been newly built, extended, or converted into residential uses since the 2016 work was completed. Properties like this have been identified through on-line mapping and are included in the assessment. Appendix A gives calculated noise levels for all properties considered in this assessment.

# 5. Subsequent Stages

## 5.1. Now

The next stage in this assessment would be to visit each of these properties and verify if there are bedrooms and/or living rooms with windows or doors on those facades which qualify.

An offer of noise insulation would need to be made where there are facades on properties which qualify which have windows or doors to eligible rooms.

Should a property be shown in this report to qualify, but it is shown that those facades which qualify do not have any doors or windows to eligible rooms, no offer of insulation would need to be made.

## 5.2. In the Future

The assessment presented in this report needs to be repeated with updated traffic details five, ten and fifteen years after opening, as required by Section 5c in the memorandum accompanying the regulations.

# 6. Conclusions

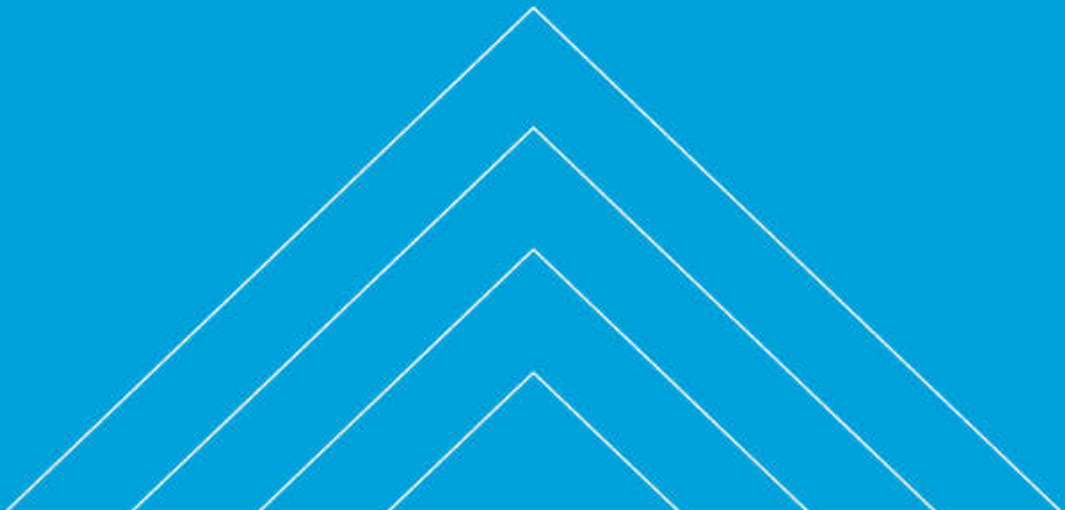
Atkins/CH2M DJV were commissioned to complete a report identifying properties eligible for statutory noise insulation under the Noise Insulation Regulations (Scotland).

Reference has been made to the noise calculations undertaken in 2016 during the detailed design of the Scheme, available data for traffic flows, the Scheme design and the locations of dwellings near the Scheme.

Six properties have been identified which may qualify for noise insulation.



# Appendices



# Appendix A. Noise Calculations

The results used for this assessment are shown the table below.

The columns shown are:

- Section – which section the property is in.
- Address, Postcode – the address details of the property.
- Prevailing – the noise level expected from roads prior to the Scheme being built.
- Relevant – the noise level expected from roads after the Scheme has been built.
- Change – the change in noise from Prevailing to Relevant.
- At least 67.5 – Is the Relevant noise at least 67.5dB, Yes or No.
- Increase >=1 – Is the change in noise from Prevailing to Relevant at least 1dB, Yes or No.
- Qualify? – Does the property qualify for Noise Insulation – Yes if both the Relevant is at least 67.5dB and the change is at least 1dB.
- ES Qualify – Did the property potentially qualify for noise insulation in the Environmental Statements, Yes or No or blank if not mentioned in the ES.

A number of properties were found to be non-residential. In these cases, the property is outside the scope of the Regulations. The noise levels are set to 0 and the property is identified as “NonResi”.

Section	Address	Postcode	Prevailing	Relevant	Change	At least 67.5	Increase >=1	Qualify?	ES Qualify
Nigg			73.9	73.5	-0.4	Yes	No	No	Yes
Nigg			72.3	71.9	-0.4	Yes	No	No	Yes
Nigg			70.6	70.2	-0.4	Yes	No	No	Yes
Nigg			70.1	69.7	-0.4	Yes	No	No	Yes
Nigg			69.2	68.8	-0.4	Yes	No	No	Yes
Nigg			68.5	68.1	-0.4	Yes	No	No	Yes
Nigg			71.1	70.7	-0.4	Yes	No	No	Yes
Nigg			69.6	69.2	-0.4	Yes	No	No	Yes
Nigg			71.7	71.3	-0.4	Yes	No	No	Yes
Nigg			68.5	68.1	-0.4	Yes	No	No	Yes
Nigg			71.1	70.7	-0.4	Yes	No	No	

[redacted]

Section	Address	Postcode	Prevailing	Relevant	Change	At least 67.5	Increase >=1	Quality?	ES Quality
Nigg			71.1	70.7	-0.4	Yes	No	No	
Nigg			74.8	74.4	-0.4	Yes	No	No	Yes
Nigg			66.1	65.7	-0.4	No	No	No	Yes
Nigg			70.6	70.2	-0.4	Yes	No	No	Yes
Nigg			70.6	70.2	-0.4	Yes	No	No	Yes
Nigg			70.6	70.2	-0.4	Yes	No	No	Yes
Nigg			73.9	73.5	-0.4	Yes	No	No	
Kincorth			70.7	68.9	-1.8	Yes	No	No	Yes
Kincorth			68.2	66.4	-1.8	No	No	No	
Charlestown			58.8	58.5	-0.3	No	No	No	Yes
Charlestown			79.2	78.9	-0.3	Yes	No	No	Yes
Charlestown			69.4	69.1	-0.3	Yes	No	No	Yes
Charlestown			58.2	57.9	-0.3	No	No	No	Yes
Charlestown			67.3	67.0	-0.3	No	No	No	Yes
Charlestown			67.8	67.5	-0.3	Yes	No	No	Yes
Charlestown			62.3	62.0	-0.3	No	No	No	
Charlestown			66.5	66.2	-0.3	No	No	No	Yes
Charlestown			68.3	68.0	-0.3	Yes	No	No	Yes
Charlestown			66.2	65.9	-0.3	No	No	No	Yes
Charlestown			61.6	61.3	-0.3	No	No	No	Yes
Charlestown			79.2	78.9	-0.3	Yes	No	No	
Charlestown			70.3	70.0	-0.3	Yes	No	No	

Section	Address	Postcode	Prevailing	Relevant	Change	At least 67.5	Increase >=1	Quality?	ES Quality
Charlestown			69.7	69.4	-0.3	Yes	No	No	
Charlestown			68.8	68.5	-0.3	Yes	No	No	
Charlestown			67.9	67.6	-0.3	Yes	No	No	
Charlestown			67.5	67.2	-0.3	No	No	No	
Charlestown			67.1	66.8	-0.3	No	No	No	
Charlestown			66.7	66.4	-0.3	No	No	No	
Charlestown			66.1	65.8	-0.3	No	No	No	
Charlestown			66.0	65.7	-0.3	No	No	No	
Charlestown			65.5	65.2	-0.3	No	No	No	
Cleanhill to Charleston			-	60.6	60.6	No	Yes	No	
Cleanhill to Charleston			-	65.8	65.8	No	Yes	No	
Cleanhill to Charleston			-	64.0	64.0	No	Yes	No	
Cleanhill to Charleston			-	67.5	67.5	Yes	Yes	Yes	
Cleanhill to Charleston			-	65.8	65.8	No	Yes	No	
Cleanhill to Charleston			-	59.1	59.1	No	Yes	No	
Cleanhill to Charleston			-	65.9	65.9	No	Yes	No	
Cleanhill to Charleston			-	63.5	63.5	No	Yes	No	
Cleanhill to Charleston			-	63.5	63.5	No	Yes	No	
Cleanhill to Charleston			-	63.2	63.2	No	Yes	No	
Cleanhill to Charleston			-	63.1	63.1	No	Yes	No	
Cleanhill to Charleston			-	63.1	63.1	No	Yes	No	
Stonehaven to Cleanhill			-	65.9	65.9	No	Yes	No	Yes

[redacted]

[redacted]

Section	Address	Postcode	Prevailing	Relevant	Change	At least 67.5	Increase >=1	Quality?	ES Quality
Stonehaven to Cleanhill			-	65.9	65.9	No	Yes	No	Yes
Stonehaven to Cleanhill			-	58.3	58.3	No	Yes	No	
Stonehaven to Cleanhill			-	62.4	62.4	No	Yes	No	
Stonehaven to Cleanhill			-	66.1	66.1	No	Yes	No	
Stonehaven to Cleanhill			-	63.6	63.6	No	Yes	No	
Stonehaven to Cleanhill			-	64.3	64.3	No	Yes	No	
Stonehaven to Cleanhill			-	64.4	64.4	No	Yes	No	
Stonehaven to Cleanhill			-	62.7	62.7	No	Yes	No	
Stonehaven West			72.5	72.6	0.1	Yes	No	No	
Stonehaven West			70.8	70.9	0.1	Yes	No	No	
Stonehaven West			65.2	65.3	0.1	No	No	No	
Stonehaven East			63.9	63.0	-0.9	No	No	No	
Cleanhill to Milltimber			65.1	66.5	1.4	No	Yes	No	
Cleanhill to Milltimber			-	65.4	65.4	No	Yes	No	Yes
Cleanhill to Milltimber			-	65.7	65.7	No	Yes	No	
Cleanhill to Milltimber			-	65.3	65.3	No	Yes	No	
Cleanhill to Milltimber			52.8	65.9	13.1	No	Yes	No	
Cleanhill to Milltimber			56.8	65.9	9.1	No	Yes	No	
Cleanhill to Milltimber			68.2	68.3	0.1	Yes	No	No	
Cleanhill to Milltimber			-	65.7	65.7	No	Yes	No	
Cleanhill to Milltimber			-	65.8	65.8	No	Yes	No	
Cleanhill to Milltimber			-	0.0	0.0	No	0.0	NonResi	

[redacted]

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Section	Address	Postcode	Prevailing	Relevant	Change	At least 67.5	Increase >=1	Quality?	ES Quality
Cleanhill to Milltimber			-	65.4	65.4	No	Yes	No	Yes
Cleanhill to Milltimber			-	66.2	66.2	No	Yes	No	Yes
Cleanhill to Milltimber			-	65.7	65.7	No	Yes	No	Yes
Cleanhill to Milltimber			64.1	65.6	1.5	No	Yes	No	Yes
Cleanhill to Milltimber			65.1	66.9	1.8	No	Yes	No	Yes
Cleanhill to Milltimber			-	65.3	65.3	No	Yes	No	Yes
Cleanhill to Milltimber			65.1	64.1	-1.0	No	No	No	Yes
Cleanhill to Milltimber			63.1	62.1	-1.0	No	No	No	Yes
Cleanhill to Milltimber			75.9	76.6	0.7	Yes	No	No	Yes
Cleanhill to Milltimber			75.9	76.4	0.5	Yes	No	No	Yes
Cleanhill to Milltimber			75.9	76.3	0.4	Yes	No	No	Yes
Cleanhill to Milltimber			71.7	71.9	0.2	Yes	No	No	Yes
Cleanhill to Milltimber			71.7	71.9	0.2	Yes	No	No	Yes
Cleanhill to Milltimber			75.9	76.1	0.2	Yes	No	No	Yes
Milltimber to S. Kingswells			-	69.6	69.6	Yes	Yes	Yes	
Milltimber to S. Kingswells			-	66.1	66.1	No	Yes	No	
Milltimber to S. Kingswells			-	65.3	65.3	No	Yes	No	
Milltimber to S. Kingswells			-	65.7	65.7	No	Yes	No	Yes
Milltimber to S. Kingswells			-	65.3	65.3	No	Yes	No	Yes
Milltimber to S. Kingswells			-	67.5	67.5	Yes	Yes	Yes	
Milltimber to S. Kingswells			-	71.8	71.8	Yes	Yes	Yes	Yes
Milltimber to S. Kingswells			-	66.0	66.0	No	Yes	No	Yes

[redacted]

[redacted]

Section	Address	Postcode	Prevailing	Relevant	Change	At least 67.5	Increase >=1	Quality?	ES Quality
Milltimber to S. Kingswells			-	65.8	65.8	No	Yes	No	
Milltimber to S. Kingswells			-	65.3	65.3	No	Yes	No	
Milltimber to S. Kingswells			-	65.6	65.6	No	Yes	No	
Kingswells			74.8	74.8	0.0	Yes	No	No	Yes
Kingswells			66.4	66.4	0.0	No	No	No	Yes
Westhill			70.5	71.0	0.5	Yes	No	No	Yes
S. to N. Kingswells			-	66.0	66.0	No	Yes	No	
S. to N. Kingswells			-	65.9	65.9	No	Yes	No	
S. to N. Kingswells			-	66.9	66.9	No	Yes	No	
S. to N. Kingswells			-	0.0	0.0	No	0.0	NonResi	
S. to N. Kingswells			-	65.7	65.7	No	Yes	No	
S. to N. Kingswells			-	69.5	69.5	Yes	Yes	Yes	
S. to N. Kingswells			-	65.2	65.2	No	Yes	No	
S. to N. Kingswells			-	65.6	65.6	No	Yes	No	Yes
S. to N. Kingswells			-	65.6	65.6	No	Yes	No	
S. to N. Kingswells			-	65.7	65.7	No	Yes	No	
S. to N. Kingswells			-	57.9	57.9	No	Yes	No	Yes
N. Kingswells to Craibstone			-	64.8	64.8	No	Yes	No	



Section	Address	Postcode	Prevailing	Relevant	Change	At least 67.5	Increase >=1	Quality?	ES Quality
N. Kingswells to Craibstone			-	64.3	64.3	No	Yes	No	
Craibstone to Goval			-	63.9	63.9	No	Yes	No	
Craibstone to Goval			-	64.5	64.5	No	Yes	No	
Craibstone to Goval			-	69.3	69.3	Yes	Yes	Yes	
Craibstone to Goval			-	63.5	63.5	No	Yes	No	
Craibstone to Goval			-	62.3	62.3	No	Yes	No	
Craibstone to Goval			-	66.0	66.0	No	Yes	No	
Craibstone to Goval			-	65.6	65.6	No	Yes	No	
Craibstone to Goval			-	64.8	64.8	No	Yes	No	
Craibstone to Goval			-	64.3	64.3	No	Yes	No	
Craibstone to Goval			-	66.1	66.1	No	Yes	No	
Goval to Blackdog			-	60.8	60.8	No	Yes	No	
Goval to Blackdog			-	59.5	59.5	No	Yes	No	
Goval to Blackdog			-	65.8	65.8	No	Yes	No	
Goval to Blackdog			-	67.2	67.2	No	Yes	No	
Goval to Blackdog			-	62.4	62.4	No	Yes	No	
Goval to Blackdog			-	66.0	66.0	No	Yes	No	
Goval to Blackdog			-	64.1	64.1	No	Yes	No	

[redacted]

[redacted]

Section	Address	Postcode	Prevailing	Relevant	Change	At least 67.5	Increase >=1	Quality?	ES Quality
Blackdog			83.6	83.0	-0.6	Yes	No	No	
Blackdog			67.5	66.9	-0.6	No	No	No	
Blackdog			72.7	72.1	-0.6	Yes	No	No	
Blackdog to Balmedie			-	61.5	61.5	No	Yes	No	
Blackdog to Balmedie			-	64.6	64.6	No	Yes	No	
Blackdog to Balmedie			-	65.1	65.1	No	Yes	No	
Blackdog to Balmedie			73.8	74.1	0.3	Yes	No	No	
Blackdog to Balmedie			73.8	74.1	0.3	Yes	No	No	
Blackdog to Balmedie			71.0	71.3	0.3	Yes	No	No	
Blackdog to Balmedie			71.4	71.7	0.3	Yes	No	No	
Blackdog to Balmedie			-	0.0	0.0	No	0.0	NonResi	
Blackdog to Balmedie			-	0.0	0.0	No	0.0	NonResi	
Blackdog to Balmedie			67.1	67.4	0.3	No	No	No	
Blackdog to Balmedie			67.5	67.8	0.3	Yes	No	No	
Blackdog to Balmedie			67.9	68.2	0.3	Yes	No	No	
Blackdog to Balmedie			65.5	65.8	0.3	No	No	No	
Blackdog to Balmedie			69.6	69.9	0.3	Yes	No	No	
Blackdog to Balmedie			68.5	68.8	0.3	Yes	No	No	
Blackdog to Balmedie			68.5	68.8	0.3	Yes	No	No	
Blackdog to Balmedie			65.5	65.8	0.3	No	No	No	
Blackdog to Balmedie			69.7	70.0	0.3	Yes	No	No	
Blackdog to Balmedie			69.4	69.7	0.3	Yes	No	No	

Section	Address	Postcode	Prevailing	Relevant	Change	At least 67.5	Increase >=1	Quality?	ES Quality
Blackdog to Balmedie			67.0	67.3	0.3	No	No	No	
Blackdog to Balmedie			71.0	71.3	0.3	Yes	No	No	
Balmedie to Newburgh Rd			71.0	71.3	0.3	Yes	No	No	
Balmedie to Newburgh Rd			75.9	75.9	0.0	Yes	No	No	
Balmedie to Newburgh Rd			75.9	75.9	0.0	Yes	No	No	
Balmedie to Newburgh Rd			72.8	72.8	0.0	Yes	No	No	
Balmedie to Newburgh Rd			72.8	72.8	0.0	Yes	No	No	
Balmedie to Newburgh Rd			71.4	71.4	0.0	Yes	No	No	
Balmedie to Newburgh Rd			75.9	75.9	0.0	Yes	No	No	
Balmedie to Newburgh Rd			75.9	75.9	0.0	Yes	No	No	
Balmedie to Newburgh Rd			74.3	74.3	0.0	Yes	No	No	
Balmedie to Newburgh Rd			74.2	74.2	0.0	Yes	No	No	
Balmedie to Newburgh Rd			74.1	74.1	0.0	Yes	No	No	
Balmedie to Newburgh Rd			74.1	74.1	0.0	Yes	No	No	
Balmedie to Newburgh Rd			73.7	73.7	0.0	Yes	No	No	
Balmedie to Newburgh Rd			73.7	73.7	0.0	Yes	No	No	
Balmedie to Newburgh Rd			73.4	73.4	0.0	Yes	No	No	
Balmedie to Newburgh Rd			73.2	73.2	0.0	Yes	No	No	
Balmedie to Newburgh Rd			73.2	73.2	0.0	Yes	No	No	
Balmedie to Newburgh Rd			72.9	72.9	0.0	Yes	No	No	
Balmedie to Newburgh Rd			72.8	72.8	0.0	Yes	No	No	

[redacted]

[redacted]

Section	Address	Postcode	Prevailing	Relevant	Change	At least 67.5	Increase >=1	Quality?	ES Quality
Balmedie to Newburgh Rd			72.8	72.8	0.0	Yes	No	No	
Balmedie to Newburgh Rd			72.1	72.1	0.0	Yes	No	No	
Balmedie to Newburgh Rd			72.0	72.0	0.0	Yes	No	No	
Balmedie to Newburgh Rd			71.7	71.7	0.0	Yes	No	No	
Balmedie to Newburgh Rd			71.6	71.6	0.0	Yes	No	No	
Balmedie to Newburgh Rd			71.6	71.6	0.0	Yes	No	No	
Balmedie to Newburgh Rd			71.6	71.6	0.0	Yes	No	No	
Balmedie to Newburgh Rd			71.2	71.2	0.0	Yes	No	No	
Balmedie to Newburgh Rd			70.9	70.9	0.0	Yes	No	No	
Balmedie to Newburgh Rd			70.7	70.7	0.0	Yes	No	No	
Balmedie to Newburgh Rd			70.7	70.7	0.0	Yes	No	No	
Balmedie to Newburgh Rd			70.7	70.7	0.0	Yes	No	No	
Balmedie to Newburgh Rd			70.5	70.5	0.0	Yes	No	No	
Balmedie to Newburgh Rd			70.5	70.5	0.0	Yes	No	No	
Balmedie to Newburgh Rd			70.3	70.3	0.0	Yes	No	No	
Balmedie to Newburgh Rd			70.3	70.3	0.0	Yes	No	No	
Balmedie to Newburgh Rd			70.2	70.2	0.0	Yes	No	No	
Balmedie to Newburgh Rd			70.1	70.1	0.0	Yes	No	No	
Balmedie to Newburgh Rd			69.9	69.9	0.0	Yes	No	No	
Balmedie to Newburgh Rd			69.7	69.7	0.0	Yes	No	No	
Balmedie to Newburgh Rd			69.6	69.6	0.0	Yes	No	No	
Balmedie to Newburgh Rd			69.5	69.5	0.0	Yes	No	No	

[redacted]

[redacted]

Section	Address	Postcode	Prevailing	Relevant	Change	At least 67.5	Increase >=1	Quality?	ES Quality
Balmedie to Newburgh Rd			69.4	69.4	0.0	Yes	No	No	
Balmedie to Newburgh Rd			69.3	69.3	0.0	Yes	No	No	
Balmedie to Newburgh Rd			69.2	69.2	0.0	Yes	No	No	
Balmedie to Newburgh Rd			69.2	69.2	0.0	Yes	No	No	
Balmedie to Newburgh Rd			69.1	69.1	0.0	Yes	No	No	
Balmedie to Newburgh Rd			68.8	68.8	0.0	Yes	No	No	
Balmedie to Newburgh Rd			68.7	68.7	0.0	Yes	No	No	
Balmedie to Newburgh Rd			68.6	68.6	0.0	Yes	No	No	
Balmedie to Newburgh Rd			68.5	68.5	0.0	Yes	No	No	
Balmedie to Newburgh Rd			68.5	68.5	0.0	Yes	No	No	
Balmedie to Newburgh Rd			68.4	68.4	0.0	Yes	No	No	
Balmedie to Newburgh Rd			68.4	68.4	0.0	Yes	No	No	
Balmedie to Newburgh Rd			68.3	68.3	0.0	Yes	No	No	
Balmedie to Newburgh Rd			68.3	68.3	0.0	Yes	No	No	
Balmedie to Newburgh Rd			68.3	68.3	0.0	Yes	No	No	
Balmedie to Newburgh Rd			68.2	68.2	0.0	Yes	No	No	
Balmedie to Newburgh Rd			68.2	68.2	0.0	Yes	No	No	
Balmedie to Newburgh Rd			68.1	68.1	0.0	Yes	No	No	
Balmedie to Newburgh Rd			68.1	68.1	0.0	Yes	No	No	
Balmedie to Newburgh Rd			67.8	67.8	0.0	Yes	No	No	
Balmedie to Newburgh Rd			67.4	67.4	0.0	No	No	No	
Balmedie to Newburgh Rd			67.3	67.3	0.0	No	No	No	

[redacted]

[redacted]

Section	Address	Postcode	Prevailing	Relevant	Change	At least 67.5	Increase >=1	Quality?	ES Quality
Balmedie to Newburgh Rd			67.3	67.3	0.0	No	No	No	
Balmedie to Newburgh Rd			67.1	67.1	0.0	No	No	No	
Balmedie to Newburgh Rd			66.9	66.9	0.0	No	No	No	
Balmedie to Newburgh Rd			66.8	66.8	0.0	No	No	No	
Balmedie to Newburgh Rd			66.8	66.8	0.0	No	No	No	
Balmedie to Newburgh Rd			66.7	66.7	0.0	No	No	No	
Balmedie to Newburgh Rd			66.7	66.7	0.0	No	No	No	
Balmedie to Newburgh Rd			66.6	66.6	0.0	No	No	No	
Balmedie to Newburgh Rd			66.0	66.0	0.0	No	No	No	
Balmedie to Newburgh Rd			65.8	65.8	0.0	No	No	No	
Balmedie to Newburgh Rd			65.8	65.8	0.0	No	No	No	
Balmedie to Newburgh Rd			65.6	65.6	0.0	No	No	No	
Balmedie to Newburgh Rd			65.5	65.5	0.0	No	No	No	
Balmedie to Newburgh Rd			65.5	65.5	0.0	No	No	No	
Balmedie to Newburgh Rd			65.4	65.4	0.0	No	No	No	
Balmedie to Newburgh Rd			65.4	65.4	0.0	No	No	No	
Balmedie to Newburgh Rd			65.4	65.4	0.0	No	No	No	
Balmedie to Newburgh Rd			65.3	65.3	0.0	No	No	No	
Balmedie to Newburgh Rd			65.3	65.3	0.0	No	No	No	
Balmedie to Newburgh Rd			65.2	65.2	0.0	No	No	No	
Balmedie to Newburgh Rd			65.1	65.1	0.0	No	No	No	

[redacted]

[redacted]

Section	Address	Postcode	Prevailing	Relevant	Change	At least 67.5	Increase >=1	Quality?	ES Quality
Balmedie to Newburgh Rd			64.9	64.9	0.0	No	No	No	
Balmedie to Newburgh Rd			64.9	64.9	0.0	No	No	No	
Balmedie to Newburgh Rd			64.9	64.9	0.0	No	No	No	
Balmedie to Newburgh Rd			64.8	64.8	0.0	No	No	No	
Balmedie to Newburgh Rd			71.7	64.7	-7.0	No	No	No	
Balmedie to Newburgh Rd			64.6	64.6	0.0	No	No	No	
Balmedie to Newburgh Rd			64.6	64.6	0.0	No	No	No	
Tipperty to Ellon			64.6	64.6	0.0	No	No	No	
Tipperty to Ellon			73.8	73.8	0.0	Yes	No	No	
Tipperty to Ellon			71.2	71.2	0.0	Yes	No	No	
Tipperty to Ellon			69.5	69.5	0.0	Yes	No	No	
Tipperty to Ellon			68.7	68.7	0.0	Yes	No	No	
Tipperty to Ellon			68.6	68.6	0.0	Yes	No	No	
Tipperty to Ellon			68.6	68.6	0.0	Yes	No	No	
Tipperty to Ellon			68.5	68.5	0.0	Yes	No	No	
Tipperty to Ellon			67.9	67.9	0.0	Yes	No	No	
Tipperty to Ellon			67.8	67.8	0.0	Yes	No	No	
Tipperty to Ellon			67.2	67.2	0.0	No	No	No	
Tipperty to Ellon			67.1	67.1	0.0	No	No	No	
Tipperty to Ellon			66.6	66.6	0.0	No	No	No	
Tipperty to Ellon			66.5	66.5	0.0	No	No	No	

[redacted]

[redacted]

Section	Address	Postcode	Prevailing	Relevant	Change	At least 67.5	Increase >=1	Quality?	ES Quality
Tipperty to Ellon			66.1	66.1	0.0	No	No	No	
Tipperty to Ellon			66.1	66.1	0.0	No	No	No	
Tipperty to Ellon			65.8	65.8	0.0	No	No	No	
Tipperty to Ellon			65.4	65.4	0.0	No	No	No	
Tipperty to Ellon			65.1	65.1	0.0	No	No	No	
Tipperty to Ellon			65.1	65.1	0.0	No	No	No	
Tipperty to Ellon			65.0	65.0	0.0	No	No	No	
Tipperty to Ellon			64.8	64.8	0.0	No	No	No	
Tipperty to Ellon			64.7	64.7	0.0	No	No	No	
Tipperty to Ellon			73.8	64.0	-9.8	No	No	No	
Tipperty to Ellon			67.2	67.2	0.0	No	No	No	
Goval Junction			74.4	74.4	0.0	Yes	No	No	
Dyce			67.7	66.8	-0.9	No	No	No	
Dyce			67.7	68.6	0.9	Yes	No	No	
Goval Junction			71.9	69.7	-2.2	Yes	No	No	
Dyce			-	59.0	59.0	No	Yes	No	
Kincorth			66.0	66.8	0.8	No	No	No	
Kincorth			65.9	64.1	-1.8	No	No	No	
Kincorth			67.8	66.0	-1.8	No	No	No	
Kincorth			68.2	66.4	-1.8	No	No	No	
Kincorth			70.7	68.9	-1.8	Yes	No	No	
Kincorth			72.1	70.3	-1.8	Yes	No	No	



Section	Address	Postcode	Prevailing	Relevant	Change	At least 67.5	Increase >=1	Quality?	ES Quality
Craibstone	[redacted]			66.0	-1.8	No	No	No	
Craibstone			64.1	64.1	No	Yes	No		
B977 By Holdings			64.4	64.4	No	Yes	No		
Newburgh Rd to Tipperty			56.0	56.0	No	Yes	No		
Newburgh Rd to Tipperty			64.9	64.9	No	Yes	No		
Newburgh Rd to Tipperty			62.9	62.9	No	Yes	No		
Newburgh Rd to Tipperty			63.2	63.2	No	Yes	No		
Newburgh Rd to Tipperty			60.7	60.7	No	Yes	No		
Newburgh Rd to Tipperty			64.0	64.0	No	Yes	No		

[redacted]

# Appendix B. Environmental Statements

This appendix contains the information presented in the Scheme Environmental Statements regarding noise insulation, for reference purposes only.

## B.1. AWPR – Northern Section

Noise insulation is reported in paragraphs 15.5.8 to 15.5.10:

15.5.8 As noted in paragraph 15.2.29, Regulation 3 of the Noise Insulation (Scotland) Regulations 1975 (NISR), confers a duty on the roads authorities in certain instances to offer insulation to eligible residential properties affected by noise.

15.5.9 The results of this noise assessment indicate that with receptor specific mitigation measures in place the following properties may qualify in terms of the NISR due to noise level exceedance at ground floor level:

[redacted]

15.5.10 At the first floor level the following properties may qualify:

[redacted]

## B.2. AWPR – Southern Section

Noise insulation is reported in paragraphs 30.5.8 to 30.5.10:

30.5.8 As noted in paragraph 30.2.28, Regulation 3 of the Noise Insulation (Scotland) Regulations 1975 (NISR), confers a duty on the roads authorities in certain instances to offer insulation to eligible residential properties affected by noise.

30.5.9 The results of this noise assessment indicate that, at ground floor, with receptor specific mitigation measures in place the following properties may qualify in terms of the NISR:

[redacted]

30.5.10 At the first floor, with receptor specific mitigation measures in place, the following properties may qualify in terms of the NISR:

[redacted]

### B.3. AWPR – Fastlink

Noise insulation is reported in paragraphs 45.5.8 and 45.5.9:

45.5.8 As noted in paragraph 45.2.28, Regulation 3 of the Noise Insulation (Scotland) Regulations 1975 (NISR), confers a duty on the roads authorities in certain instances to offer insulation to eligible residential properties affected by noise.

45.5.9 The results of this noise assessment indicate that with receptor specific mitigation measures in place the following two properties at first floor may qualify in terms of the NISR (due to noise level exceedance at first floor level only) for both the Year of Opening and the Design Year:

[redacted]

### B.4. Balmedie to Tipperty

Noise insulation is reported in section 14.8.3.7

Under the Noise Insulation (Scotland) Regulations 1975 some properties may be eligible for noise insulation measures, or a grant in respect thereof, in order to further mitigate the impact of road traffic noise due in part to the scheme. Under these regulations, only residential properties would qualify for such benefits, subject to the qualifying criteria set out in the Section 14.2.

This section highlights that strictly, the noise prediction method to be adopted when determining eligibility is that presented within the Memorandum on the Noise Insulation (Scotland) Regulations 1975 (NISR), regulations 3 and 6. This method has been improved over the years, and the methodology contained with CRTN, as adopted in this assessment is more accurate and detailed. As CRTN has been adopted for this assessment, the determined number of qualifying receptors should be considered indicative.

A review of the 2025DS noise model has identified that approximately 45 properties meet the absolute 68dB LA10 18hour criteria, are located within 300m of the new or altered highway, have an unobstructed line of sight to the highway, and are predicted subject to an increase in noise level of greater than 1dB.

Approximately this number of properties could therefore qualify for eligibility through the Noise Insulation (Scotland) Regulations as a result of future road traffic noise levels.

## Appendix C. Traffic Data

The table on the following pages shows the traffic data used in the noise assessment, with the sections numbered as in this figure, showing the Scheme alignment;



In the table overleaf, the flow and the proportion of heavy vehicles is given. Data is given for both the do minimum situation (shown as DM) representing the prevailing situation and the do something situation (shown as DS) representing the relevant situation. The source for the data is given, as described in Section 2.

- ES Factored – the traffic flows from the ES have been factored up based on the weigh in motion sensors data.
- Direct – traffic data from the weigh in motion sensors.
- Loops – data from loops factored up based on the weigh in motion sensors data.
- Interpolate – based on differences from ES Factored data and observed data in adjacent sections.

Section	Name	DM Flow	DM HGV%	Source	ES Flow	DS Flow	DS HGV%	Flow Source	HGV Source
1	Tipperty to Ellon	20790	8.0	ES Factored	20710	20710	7.99	ES Factored	ES Factored
2	Newburgh Rd to Tipperty	-	-		18300	19215	7.99	Loops	ES Factored
3	Balmedie to Newburgh Rd	-	-		22560	19734	7.99	Direct	ES Factored
4	Blackdog to Balmedie	19620	8.0	ES Factored	33788	29555	6.66	Interpolate	ES Factored
5	Blackdog	26445	6.7	ES Factored	22044	22044	5.31	ES Factored	ES Factored
6	Goval to Blackdog	-	-		19737	10557	4.95	Loops	ES Factored
7	Newmachar	-	-		-	-	-		
8	Dyce	-	-		19454	19454	4.00	ES Factored	ES Factored
9	Craibstone to Goval	-	-		17808	12499	4.98	Loops	ES Factored
10	Blackburn	-	-		-	-	-		
11	Craibstone	-	-		26908	26908	4.66	ES Factored	ES Factored
12	N. Kingswells to Craibstone	-	-		46926	42097	4.31	Interpolate	ES Factored
13	S. Kingswells to N. Kingswells	-	-		39303	35258	4.60	Interpolate	ES Factored
14	Westhill	29626	2.7	ES Factored	34269	34269	3.33	ES Factored	ES Factored
15	Kingswells	30252	2.7	ES Factored	30118	30118	2.31	ES Factored	ES Factored
16	Milltimber to S. Kingswells	-	-		36051	32341	5.33	Interpolate	ES Factored
17	Peterculter	15773	4.0	ES Factored	17053	17053	2.66	ES Factored	ES Factored
18	Milltimber	11554	2.7	ES Factored	8533	8533	1.33	ES Factored	ES Factored
19	Cleanhill to Milltimber	-	-		27210	24493	5.65	Loops	ES Factored
20	Cleanhill to Charleston	-	-		14401	15686	1.65	Interpolate	ES Factored
21	Stonehaven to Cleanhill	-	-		12852	13999	9.32	Loops	ES Factored
22	Charlestown	24882	6.8	ES Factored	23235	23235	6.30	ES Factored	ES Factored
23	Kincorth	37799	5.3	ES Factored	29158	29158	4.66	ES Factored	ES Factored
24	Nigg	50874	7.3	ES Factored	45042	45042	5.99	ES Factored	ES Factored

Section	Name	DM Flow	DM HGV%	Source	ES Flow	DS Flow	DS HGV%	Flow Source	HGV Source
25	Stonehaven East	27441	8.6	ES Factored	20946	20946	7.99	ES Factored	ES Factored
26	Stonehaven West	25232	9.7	ES Factored	25990	25990	9.99	ES Factored	ES Factored
27	Foveran	19170	8.0	ES Factored	-	-	-		
28	Near Milltimber	8663	6.7	ES Factored	-	-	-		
29	Goval junction	-	-		11197	11197	2.66	ES Factored	ES Factored
30	Goval junction	14486	4.0	ES Factored	14301	14301	4.00	ES Factored	ES Factored
31	B977 By Holdings	-	-		4160	4160	3.33	ES Factored	ES Factored

