



4.0 AIR QUALITY

4.1 INTRODUCTION

- 4.1.1 Clean air is a necessary component for a good quality of life. The Scottish Government is committed to meeting the air quality criteria for human health and for the protection of vegetation and ecosystems. Emissions of air pollutants can travel large distances and affect air quality across international boundaries so it is vital that European Union (EU) member states are also committed to reducing their national emissions. The Government also has targets in place to reduce emissions of greenhouse gases which are associated with climate change.
- 4.1.2 The process of the combustion of petrol or diesel fuel in road vehicles causes the emission of a number of pollutants, oxides of nitrogen, carbon monoxide, particulate matter and hydrocarbons (such as benzene and 1,3-butadiene). These pollutants become increasingly dispersed and diluted the further one moves from the road. Vehicle emissions contribute to a general degradation of air quality, both locally and regionally.
- 4.1.3 The realignment of the A737 at The Den will change the proximity of the road to local air quality receptors, which in this case comprise 15 domestic residences and one commercial property. There is thus some potential for the scheme to impact upon air quality during both the construction and operation of the scheme.
- 4.1.4 The Design Manual for Roads and Bridges (DMRB) air quality screening method was applied to determine if any changes to air quality would be significant. This procedure involved producing a model to compare existing concentrations of nitrogen dioxide (NO₂) and airborne particles of less than ten micrometers (PM₁₀) for the existing road layout as well as for the realigned road layout as it might be in 2014 (the planned opening year). It was also observed that the construction activity itself could impact upon air quality while it takes place. The duration of construction is expected to be 32 weeks and will be restricted to normal working hours.

4.2 METHODOLOGY

- 4.2.1 The air quality assessment has been carried out in accordance with the DMRB Volume 11 section 3 and used screening method V 1.03c, July 2007. Estimates of pollutant concentrations, including PM₁₀ and NO₂, are made for the base year, taken to be 2010 and the opening year, 2014. The DMRB requires that the worst future year in the first fifteen years following construction should be assessed.
- 4.2.2 As stated within DMRB “*the introduction of tighter European vehicle emission and fuel quality standards since 1993 has been the most important way of reducing vehicle emissions and improving air quality. Vehicle emission standards are tightened every five years or so resulting in a steady decrease in emissions of oxides of nitrogen, carbon monoxide, hydrocarbons and particles.*”
- 4.2.3 In view of this a future year assessment has not been undertaken as the opening year is considered to have the poorest air quality.



- 4.2.4 Chapter 5 - Updating and Screening Assessments, of the Local Air Quality Management Technical Guidance (LAQM TG 09), states that for roads the only relevant pollutants to assess are NO₂ and PM₁₀. Environmental Protection UK guidance, Development Control: Planning for Air Quality Update 2010, states that assessment for major road schemes is principally covered by DMRB.
- 4.2.5 Traffic count data has been obtained directly from Transport Scotland. All traffic speeds for the base and future assessment years were provided by Amey in consultation with Transport Scotland.
- 4.2.6 Background air values have been calculated using the latest national air quality background data obtained from Scottish Air Quality website Local Air Quality Management (LAQM) section¹. Future year (2014) traffic growth has been calculated using the Department of Transport National Road Traffic Forecast (NRTF), 1997. The 'worst case' scenario of high traffic growth has been used for the all calculations.

Planning Policy and Legislative Context

Planning policy

- 4.2.7 The main purpose of Planning Advice Note (PAN) 51 is to support existing policies within the planning system in relation to environmental protection regimes. It summarises the statutory responsibilities of the environmental protection bodies such as Scottish Environment Protection Agency (SEPA) and Scottish Natural Heritage (SNH) and informs these bodies about the planning system. This PAN details numerous environmental protection regimes including local air quality management.
- 4.2.8 The local air quality regime is based on domestic and European legislation which is detailed in paragraphs 4.2.15 to 4.2.16 below.
- 4.2.9 The National Planning Framework for Scotland 22 (NPF2) aims to guide Scotland's development to 2030, and sets out strategic development priorities to promote sustainable economic growth. The framework identifies key issues and drivers of change, and also sets out a vision to 2030. The framework identifies priorities and opportunities for each part of the country including Ayrshire and the South-West of Scotland.
- 4.2.10 Issues of national importance identified include improving air quality and implementing the Government's policy commitments on climate change.

Legislative Context

- 4.2.11 On the 1st July 1999 the newly established Scottish Parliament assumed responsibility for a large proportion of policy and legislative work, including responsibility for air quality policy. In September 2001 the Scottish Executive published a consultation paper proposing tighter objectives for a number of pollutants. These new objectives were incorporated in the Air Quality (Scotland) (Amendment) Regulations 2002, which came into force on 12 June 2002, (subsequently amended July, 2007).
- 4.2.12 Objective concentrations for various air pollutants are set out in the government publication "The Air Quality Strategy for England, Scotland,

¹ <http://www.scottishairquality.co.uk/Laqm.php> (accessed 21st December 2011)

² <http://www.scotland.gov.uk/Publications/2008/12/12093953/0> (accessed 16th March 2010)



Wales and Northern Ireland” (DETR, 2007). Within this publication, air quality objectives are defined (in paragraph 107) as follows:-

- 4.2.13 “Objectives are policy targets generally expressed as a maximum ambient concentration to be achieved, either with or without exception or with a permitted number of exceedances, within a specified timescale.”
- 4.2.14 The air quality objectives determine air quality policy and the Government’s and Local Authorities’ policies are directed at achieving them.
- 4.2.15 EU member states are required to incorporate the provisions of the Ambient Air Quality and Cleaner Air for Europe Directive 2008/50/EC adopted 21 May 2008 and entering into force 11 June 2008 into national legislation before 11 June 2010. This directive merges most of the existing legislation (Framework Directive 96/62/EC, 1-3 daughter Directives 1999/30/EC, 2000/69/EC, 2002/3/EC, and Decision on Exchange of Information 97/101/EC) into a single directive and identifies new objectives for fine particles (PM_{2.5}). Existing air quality limit values are retained.
- 4.2.16 The objectives relevant to this assessment are set out in Table 4.1 below. For all pollutants the objectives are taken from Chapter 2 of The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. The objectives are those set by the 2007 strategy document referred to in paragraph 4.2.12 above.

Table 4.1 – Objective Concentrations of Air Pollutants

Pollutant	Objective		Date By Which to be Achieved
	Concentration	Measured as	
Nitrogen dioxide	40 µg/m ³	Annual mean	31 December 2005
	200 µg/m ³ (not to be exceeded > 18 times a year)	1 hour mean	31 December 2005
Particles (PM ₁₀)	18 µg/m ³	Annual mean	31 December 2010
	50 µg/m ³ (not to be exceeded > 7 times a year)	24 hour mean	31 December 2010

Determination of Baseline Conditions

- 4.2.17 This assessment utilises the latest technical guidance issued by Defra in February 2009 Local Air Quality Management Technical Guidance (LAQM TG 09). This guidance features methodology for the calculation of Nitrogen Oxides, Nitrogen Dioxide and PM₁₀. The revised technical guidance also features background mapping data for these three pollutants.
- 4.2.18 This data is derived from a combination of rural and urban monitoring networks, supplemented by other monitoring data, and from pollutant estimates supplied by the National Atmospheric Emissions Inventory (NAEI). This information is provided at the centre of a series of 1km square grids that are based on Ordnance Survey coordinates.
- 4.2.19 This data is available for various years, but a list of correction factors are provided such that the estimates of background pollutant concentrations can be found for the years of interest.



4.2.20 In relation to the published data in rural areas, the DMRB assessment procedure (set out in Chapter 3 of the Air Quality section of Volume 11), suggests that the analysis of rural grid squares containing the road link under consideration may already be influenced by an existing road.

4.2.21 The DMRB advocates that to avoid this influence, which could result in an over prediction, the background data used in the assessment is that based on the average levels of background concentrations at locations up to four grid squares away on both sides of the road. For this assessment the grid square NS 235 515 has been used. This is the closest grid square to the scheme.

Determination of Impact Significance

4.2.22 To assess the potential effects on air quality associated with the proposed design options, the sensitivity of the receptor and the degree of change that any impact may have must be determined.

4.2.23 For the purpose of the DMRB screening method for Local Air Quality Assessment, all existing and planned properties where people might experience a change in local air quality, near the affected roads are identified as receptors. Designated Sites that should be considered for this assessment are those for which the designated features are sensitive to air pollutants, and which could be adversely affected by the effect of local air quality on vegetation.

4.2.24 DMRB states that particular attention should be given to properties where the young and elderly and other susceptible populations are located. For this reason schools, hospitals and nursing homes located within 200m of the route are considered to have a very high sensitivity. Also in accordance with Development Control: Planning for Air Quality 2010 Environmental Protection UK (EPUK), which states that pollutant concentrations fall off rapidly with distance from a road, the individual receptor sensitivity (Table 4.2) has been determined in relation to distance of the property from the road.

4.2.25 The sensitivity of all other properties has been considered using 50m distance banding.

Table 4.2 Determination of Receptor Sensitivity

Sensitivity	Typical Criteria Descriptors
Very High	Properties for the young, the elderly, schools and hospitals within 200m of the route alignment
High	Other properties within 50m of the route alignment
Medium	Other properties located 50-100m of the route alignment
Low	Other properties located 100-150m of the route alignment
Negligible	Other properties located 150- 200m of the route alignment



4.2.26 In accordance with Development Control: Planning for Air Quality 2010 (EPUK), the impact magnitude or degree of change experienced as a result of the route is assessed as a percentage of the objective concentration as shown in Table 4.3 below.

Table 4.3 Determination of Impact Magnitude (EPUK)

Impact Magnitude	Typical Criteria Descriptors
Large	An increase or decrease greater than 10% of the objective concentration
Medium	An increase or decrease of 5-10% of the objective concentration
Small	An increase or decrease of 1-5% of the objective concentration
Imperceptible	An increase or decrease of less than 1% of the objective concentration

4.2.27 DMRB utilises a five point scale to determine receptor sensitivity, impact magnitude and impact significance. Details of this are found within Chapter 3, Environmental Assessment Methods. Table 4.4 Determination of Impact Magnitude (DMRB) below, shows how the EPUK criteria descriptors have been allocated under the DMRB five point scale. The impact magnitude on air quality receptors has been determined using Table 4.4 to ensure a consistent assessment throughout this report. All impacts are considered negative unless otherwise stated.

Table 4.4 Determination of Impact Magnitude (DMRB)

Impact Magnitude	Typical Criteria Descriptors
Major	An increase or decrease greater than 10% of the objective concentration
Moderate	An increase or decrease of 5-10% of the objective concentration
Minor	An increase or decrease of 1-5% of the objective concentration
Negligible	An increase or decrease of less than 1% of the objective concentration
No Change	No changes in concentrations

4.3 BASELINE CONDITIONS

Study Area

4.3.1 The study area considered for the assessment of potential impacts on air quality extends 200m in each direction from the centre of the existing road and proposed route re-alignment.



Traffic Flow Data

4.3.2 Vehicle emissions were modelled for one road in the study area, the A737. Traffic data was not available for roads providing access to The Den and other minor roads in the study area. The lack of traffic data for these roads is a limitation for this assessment however, the majority of traffic in the area uses the A737. The effect of not modelling emissions from minor roads in the locality of the scheme is considered to be insignificant.

4.3.3 The AADT (Annual Average Daily Traffic flow) for this section of the A737 for 2011 is 9031 vehicles. The average speed of vehicles was also determined from data provided by Transport Scotland. The average speed within the scheme extents is 45mph (72kph). This may be attributed to the characteristics of the road. The current percentage of HGV's on this route is 1%.

Background Concentrations of Pollutants

4.3.4 Information obtained from the Local Air Quality Management web site³ and the North Ayrshire Council web site, indicates that North Ayrshire Council has not declared any Air Quality Management Areas within its boundary.

4.3.5 Table 4.5 shows the background concentrations in 2011 for the pollutants to be considered in the assessment. These concentrations were obtained from using the background concentrations at the grid coordinates 232500,651500. These were then corrected where appropriate.

Table 4.5 – Background Concentrations in 2011

Pollutant	Background Concentration $\mu\text{g}/\text{m}^3$
Nitrogen dioxide (NO ₂)	4.80
Particles (PM ₁₀)	8.05

4.3.6 There are 15 private residential properties within the scheme extents and one commercial property (The Graze Restaurant) within 200m of the scheme. The private residences are concentrated towards the centre of the scheme extents with the exception of No. 12 “Fernside” situated towards the western extent and Maulside Lodge which is situated to the eastern extent. The Graze Restaurant is situated towards the western scheme extents at the junction of Brownhill Road.

4.3.7 Two additional areas are associated with planned properties. One area is located directly adjacent to The Graze Restaurant, and the second is located directly opposite on Brownhill Road.

4.3.8 Table 4.6 - Properties within 200m of the existing Alignment, shows the number of existing properties within 200m of the scheme in distance bands of 50m. The locations of the identified properties are illustrated on Drawing 10/SW/0901/037/201 Rev A.

³ <http://www.airquality.co.uk> (Accessed 24th November 2011)



4.3.9 In accordance with Table 4.2 – Determination of Receptor Sensitivity, 12 properties are assessed as being of high sensitivity as they are located within 50m of the existing alignment. Two properties are assessed as being of medium sensitivity (No.s 22 and 24) as they are located between 50m and 100m of the existing alignment, and a further two properties are assessed as being of negligible sensitivity (No.s 25 and 25a), as they are located between 150m and 200m from the existing alignment.

Table 4.6 - Properties within 200m of the Existing Alignment

Distance Band	Number of properties
0-50m	12 plus 2 planned properties
50-100m	2
100-150m	0
150-200m	2

4.3.10 There are no designated sites that have features sensitive to air quality within 200m that require being considered for this assessment.

4.3.11 As the surrounding area is rural, vehicle exhaust emissions are considered to be the main source of NO₂ and PM₁₀ in the area.

4.4 IMPACT ASSESSMENT

During Construction

4.4.1 Construction activities have the potential for negative impact on the local air quality of the area through generation of dust on site and additional air pollution attributed to traffic management and plant activity. A qualitative assessment has been undertaken in accordance with Tables 2.2 and 2.4 Chapter 2.

Dust

4.4.2 Construction sites have the potential to generate significant volumes of dust through soil stripping and the associated movements of these materials to stockpiles or offsite. Additional dust can be generated through the delivery of materials.

4.4.3 Significant quantities of dust are considered a statutory nuisance under the Environmental Protection Act 1990 (as amended). The relevant local authority has a duty to uphold this legislation, and where deemed necessary, can serve an abatement notice on those responsible for the dust generation. The decision on whether a nuisance is present is a matter for the local authority's Environmental Health Officer.

4.4.4 It is not considered that dust will be generated in significant volumes on site to cause a statutory nuisance to those receptors outwith 100m of the site. However, there are a total of 13 properties within 100m of the proposed



scheme. Localised dust has the potential to cause a moderate impact to these dwellings.

Table 4.7 - Properties within 100m of the Proposed Alignment

Distance Band	Number of properties
0-50m	6 plus 2 planned properties
50-100m	7
100-150m	1
150-200m	2

Air pollutants

4.4.5 Construction of the proposed scheme has the potential to cause an increase in the levels of air pollutants associated with transport within the local area. This will be caused by the presence of HGV's delivering new material and removing the surplus. The traffic management installed during the project also has potential to contribute to increased air pollution if a steady flow of traffic is not maintained.

4.4.6 The results of the DMRB local air quality assessment (provided in Chapter 4 Air Quality) indicated that all air pollutant levels are comfortably within the guideline values presented in the National Air Quality Strategy 2007. It is not expected that the presence of plant, HGV's and traffic management will significantly impact on this.

4.4.7 During construction the impact magnitude is assessed as minor in accordance with Table 2.2 as there may be measurable changes in air quality. The sensitivity of receptors is assessed as high in accordance with the Table 4.2. The resulting impact significance during construction is therefore assessed as moderate in accordance with Table 2.4, as a reduction in air quality may increase the overall adverse impact on a particular receptor.

Post Construction

4.4.8 A total of ten representative properties have been selected for the assessment. The following detached properties will be considered in their own right. These are The Graze Restaurant, Fernside, No. 1, and Maulside Lodge. Two additional areas are associated with planned properties. One area is located directly adjacent to The Graze Restaurant, and the second is located directly opposite. For the purpose of this assessment The Graze Restaurant is considered representative of both these locations.

4.4.9 Numbers 17 and 19, 18 and 20 and 22 and 24 are semi-detached properties. Numbers 17, 18 and 22 are therefore considered to be representative of these.

4.4.10 Numbers 25 and 25a are located in close proximity to each other at Meadowhead Farm. Number 25 is therefore considered to be representative of this location.



- 4.4.11 Numbers 27 and 29 are located in close proximity to each other at the centre of the scheme. Number 27 is therefore considered to be representative of this location.
- 4.4.12 Nidaros and Dungoyle are located in close proximity to each other towards the eastern scheme extents. Dungoyle is considered to be representative of this location.
- 4.4.13 The ten representative properties considered within this assessment are detailed in Table 4.8 below.

Table 4.8 - Representative Properties

Representative Property	Distance from existing alignment (m)	Distance from proposed alignment (m)
The Graze Restaurant	24	23
Fernside	8	10
No. 1	27	19
Maulside Lodge	17	17
No.17	7	76
No. 18	8	97
No. 22	66	150
No. 25	156	70
No.27	31	40
Dungoyle	44	93

- 4.4.14 The results of the air quality assessment are detailed in Appendix C Air Quality Assessments.
- 4.4.15 Table 4.9 shows the existing and future year traffic flows and speeds.

Table 4.9 - Traffic Information

	2011		2014	
	Do-Minimum	Do-Something	Do-Minimum	Do-Something
Traffic Flow (AADT)	9031	9031	9167	9167
Traffic Speed (kph)	72	80	72	80

- 4.4.16 The results of the assessment are detailed in Table 4.10 below, which show the pollutant concentrations for both base and opening year with and without the scheme.

Table 4.10 Air Quality Assessment

Principal Receptors	Pollutant Concentration							
	NO ₂ (µg/m ³)				PM ₁₀ (µg/m ³)			
	Do- Minimum		Do- Something		Do- Minimum		Do- Something	
	2011	2014	2011	2014	2011	2014	2011	2014
The Graze Restaurant	6.34	5.71	6.38	5.81	8.38	8.19	8.39	8.23
Fernside	7.03	6.34	6.93	6.36	8.56	8.35	8.54	8.37
Maulside Lodge	6.24	5.61	6.53	5.96	8.36	8.17	8.43	8.26
No. 1	6.61	5.96	6.61	6.04	8.45	8.25	8.45	8.28
No.17	7.07	6.38	5.32	4.78	8.58	8.36	8.14	7.99
No. 18	7.03	6.34	5.13	4.60	8.56	8.35	8.11	7.95
No. 22	5.44	4.87	4.92	4.39	8.17	8.00	8.07	7.92
No. 25	4.91	4.38	5.39	4.85	8.07	7.91	8.16	8.00
No.27	6.12	5.50	5.89	5.34	8.33	8.14	8.27	8.11
Dungoyle	5.80	5.21	5.16	4.63	8.25	8.08	8.11	7.96

Table 4.11 Air Quality Assessment Summary (Do-Something 2014)

Principal Receptors	Change in Pollutant Concentration as % of Objective Limit	
	NO ₂	PM ₁₀
The Graze Restaurant	-1.33	-0.83
Fernside	-1.68	-1.05
Maulside Lodge	-0.70	-0.55
No. 1	-1.43	-0.94
No.17	-5.73	-3.27
No. 18	-6.08	-3.38
No. 22	-2.63	-1.38
No. 25	-0.14	-0.38
No.27	-1.95	-1.22
Dungoyle	-2.93	-1.61



4.4.17 The impact magnitude is assessed in accordance with Table 4.4 and is detailed in Table 4.12.

Table 4.12 Assessment of Impact Magnitude

Principal Receptors	Impact Magnitude	
	Pollutants	
	NO ₂	PM ₁₀
The Graze Restaurant	Minor Beneficial	Negligible Beneficial
Fernside	Minor Beneficial	Minor Beneficial
Maulside Lodge	Negligible Beneficial	Negligible Beneficial
No. 1	Minor Beneficial	Negligible Beneficial
No.17	Moderate Beneficial	Minor Beneficial
No. 18	Moderate Beneficial	Minor Beneficial
No. 22	Minor Beneficial	Minor Beneficial
No. 25	Negligible Beneficial	Negligible Beneficial
No.27	Minor Beneficial	Minor Beneficial
Dungoyle	Minor Beneficial	Minor Beneficial

4.4.18 The operational impacts for air quality (based on worst case scenario) at the representative locations are summarised in Table 4.13 below.

Table 4.13 Air Quality – Impact Significance

Principal Receptors	Sensitivity	Magnitude	Significance
The Graze Restaurant	High	Negligible Beneficial	Slight Beneficial
Fernside	High	Minor Beneficial	Moderate Beneficial
Maulside Lodge	High	Negligible Beneficial	Slight Beneficial
No. 1	High	Negligible Beneficial	Slight Beneficial
No.17	High	Minor Beneficial	Moderate Beneficial
No. 18	High	Minor Beneficial	Moderate Beneficial
No. 22	Medium	Minor Beneficial	Slight Beneficial
No. 25	Low	Negligible Beneficial	Neutral
No.27	High	Minor Beneficial	Slight Beneficial
Dungoyle	High	Minor Beneficial	Moderate Beneficial



Nitrogen dioxide

- 4.4.19 Predicted annual mean concentrations of NO₂ are anticipated as being well below the annual mean air quality objective (40µg/m³) at all receptor locations for both the existing and realigned road layouts.
- 4.4.20 All properties will experience a reduction in NO₂ concentrations with numbers 17 and 18 having the greatest reduction and experiencing a moderate beneficial impact.

Particulate Matter

- 4.4.21 Predicted annual mean concentrations of PM₁₀ are below the annual mean air quality objective at all receptor locations for both the existing and realigned road layouts.
- 4.4.22 All properties will experience a reduction in PM₁₀ concentrations with numbers 17 and 18 having the greatest reduction and experiencing a moderate beneficial impact.
- 4.4.23 Overall, there will be no change to the air quality of the general area as pollutant concentrations will remain well below the objective levels of The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007).

4.5 MITIGATION

During Construction

- 4.5.1 With the use of the appropriate mitigation measures listed below, impacts on air quality should not be evident within the scheme extents.
- 4.5.2 All exposed stockpiles likely to generate dust to be 'dampened down' on a regular basis depending on weather conditions i.e. during dry spells this will be required more often.
- 4.5.3 All vehicles carrying materials likely to generate dust on and off site should have covered or sheeted bodies.
- 4.5.4 A wheel wash facility will be located on site to remove any loose material before the vehicle goes back onto the road.
- 4.5.5 Site vehicles will utilise specific haul routes at all times, these routes to be dampened and swept down regularly.
- 4.5.6 Activities which have the potential to generate large volumes of dust to be avoided in weather conditions likely to generate dust.

Post Construction

- 4.5.7 The results of the assessment show that two properties will experience a slight increase in pollutant concentrations, but the remaining properties will experience a reduction in pollutant concentrations. The pollutant concentrations will remain well below the objective levels of The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007) at all properties. Therefore no post construction mitigation is proposed for the scheme.



4.6 SUMMARY OF PREDICTED RESIDUAL EFFECTS

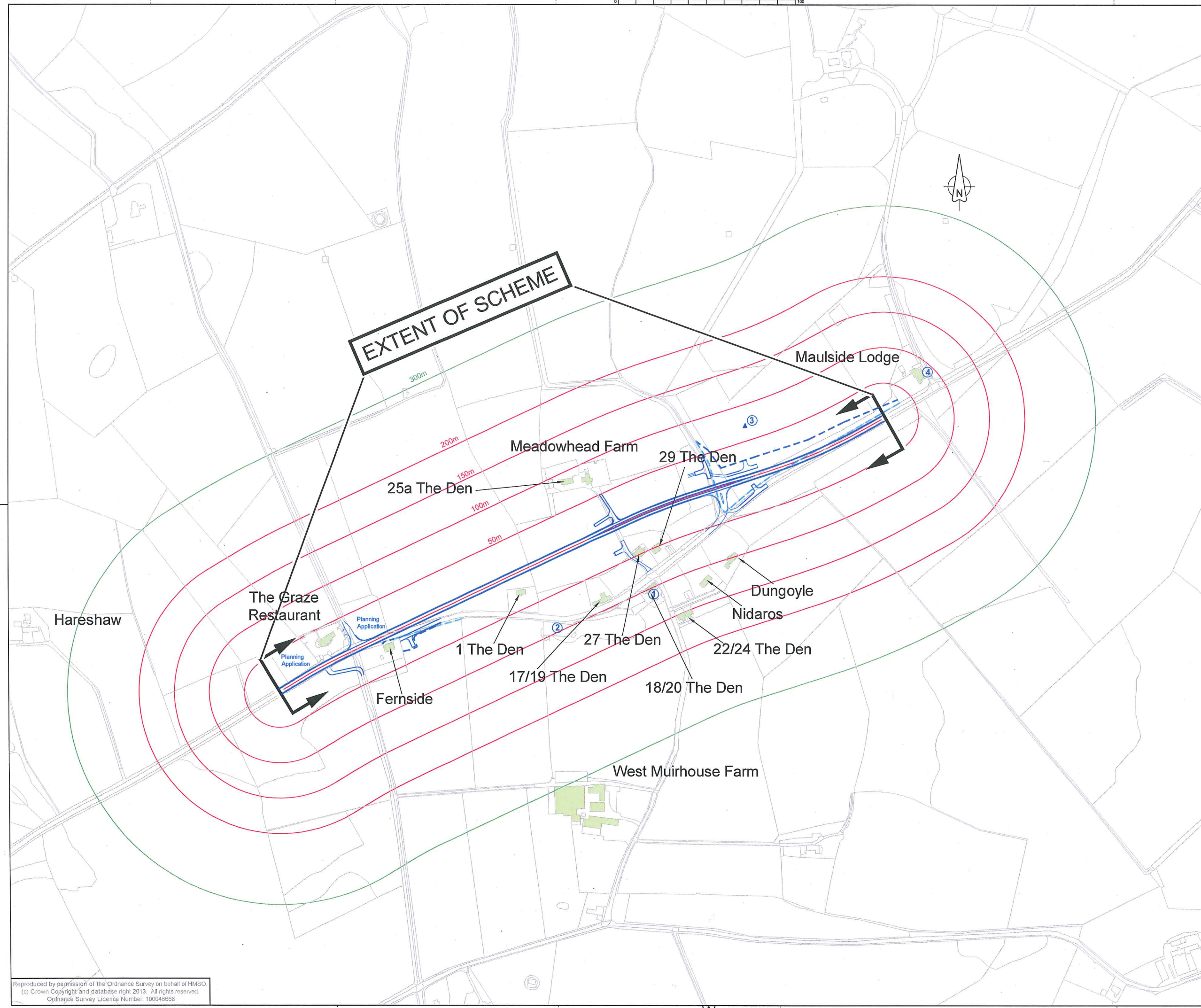
4.6.1 During construction the implementation of mitigation measures and controls described in paragraphs 4.5.1 to 4.5.6 above is considered to reduce the impact magnitude from minor to negligible. This results in the impact significance being reduced from moderate to slight. As no operational mitigation is proposed the residual impact significance will not change from the initial impact assessment.

4.6.2 The results of the assessment (Table 4.13) show that all properties will experience an increase in pollutant concentrations during operation. Overall the pollutant concentrations will remain well below the objective levels.

4.7 CONCLUSION

4.7.1 There are no significant adverse impacts predicted for air quality by the realignment of the A737 at The Den; therefore further detailed assessment is not required.

S:\SHARED\001 - MTRIPS\09007 - The Den, Dalry\003 Design\002 Drawings\Work Area\1 Live Drawings\Environmental\Post Ext Audit\10_SW_0901_037_201 Air Quality Bands Rev A.dwg, 25/01/2013 14:29:18, Itholland



- General Legend**
 [] Scheme Extent
- Air Quality Legend**
 [] Air Quality Zones
- Cultural Heritage Legend**
- ① Muirhouse (Farmstead)
 - ② Site of The Den/Kersland Barony School
 - ③ Maulside Lodge
 - ④ Glengarnock, Maulside Lodge
- 300m Buffer Zone
- Existing Dry Stone Wall
- Proposed Dry Stone Wall

Rev	Revision details	Chkd	Appd	Date
A	Minor changes to layout			15/01/2013

Drawn:	I.H.	Preliminary	✓
Design:	L.W. & H.F.	For comment	
Chkd:	N.C.	For tender	
Appd:	M.L.	For construction	
Date:	14/02/12	As constructed	



Project Name
**A737/A738 TRUNK ROAD
THE DEN, DALRY**

Drawing Title
**ENVIRONMENTAL
AIR QUALITY BANDS and
CULTURAL HERITAGE FEATURES**

Original Drawing Size : A1 Dimensions : -
 Scale : 1 in 2500 Copyright © Arney

Drawing No
10/SW/0901/037/201

Rev
A

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