



2012 Air Quality Updating and Screening Assessment for **Daventry District Council**

In fulfillment of Part IV of the
Environment Act 1995
Local Air Quality Management

September 2012



Local Authority Officer	Karen Pell and Nick Ravine
Department	Environmental Improvement
Address	Lodge Road Daventry Northamptonshire NN11 4FP
Telephone	01327 302260
e-mail	environmentalimprovement@daventrydc.gov.uk
Report Reference number	DAV/12/USA
Date	September 2012

Executive Summary

Part IV of the Environment Act 1995 places a statutory duty on local authorities to review and assess the air quality within their area and take account of Government guidance when undertaking such work. This Updating and Screening Assessment (USA) is a requirement of the third round of review and assessment for local authorities.

The Report has been undertaken in accordance with technical guidance note LAQM.TG(09) and the web based USA template on the Review and Assessment Report Submission Website.

This Updating and Screening Assessment has concluded that Daventry District Council is not required to carry out a Detailed Review and Assessment for carbon monoxide, benzene, 1,3-butadiene, lead, nitrogen dioxide, PM10 or sulphur dioxide.

The recent Progress Report 2011 was completed in December 2011. The data for NO₂ monitoring results in the vicinity of the M1 (the data included results to the end of 2010) concluded that there was no exceedance of the annual average at points representative of relevant exposure. Therefore no detailed assessments were recommended in the report.

The collective monitoring data for NO₂ across the district from the years preceding 2005 to date has been scrutinised and it appears that overall a small decreasing trend in levels is taking place.

Previously kerbside monitoring sites to the M1 have shown slight exceedances, however these are now within acceptable limits. Only two locations in Daventry District exceed the annual average limits. These monitoring locations are alongside the M1 at Lilbourne, and alongside the M1 at Crick. Neither has any appropriate receptors that exceed the annual average.

It is therefore not necessary to proceed to a detailed assessment for NO₂ in Daventry district, however diffusion tube monitoring throughout the district will continue and due regard given to the data obtained in relation to sensitive receptors.

A review of diffusion tube locations is planned before the next progress report is issued.

Please note: for formatting purposes NO₂ and PM₁₀ are reported as NO2 and PM10 respectively.

Table of contents

1	Introduction	7
1.1	Description of Local Authority Area	7
1.2	Purpose of Report.....	8
1.3	Air Quality Objectives	8
1.4	Summary of Previous Review and Assessments	9
2	New Monitoring Data	11
2.1	Summary of Monitoring Undertaken.....	11
2.1.1	Automatic Monitoring Sites	11
2.1.2	Non-Automatic Monitoring Sites	11
2.2	Comparison of Monitoring Results with AQ Objectives.....	13
2.2.1	Nitrogen Dioxide	13
2.2.2	PM ₁₀	19
2.2.3	Sulphur Dioxide.....	19
2.2.4	Benzene	19
2.2.5	Other pollutants monitored	19
2.2.6	Summary of Compliance with AQS Objectives	19
3	Road Traffic Sources.....	20
3.1	Narrow Congested Streets with Residential Properties Close to the Kerb	20
3.2	Busy Streets Where People May Spend 1-hour or More Close to Traffic.....	20
3.3	Roads with a High Flow of Buses and/or HGVs.	20
3.4	Junctions.....	20
3.5	New Roads Constructed or Proposed Since the Last Round of Review and Assessment	20
3.6	Roads with Significantly Changed Traffic Flows.....	20
3.7	Bus and Coach Stations	20
4	Other Transport Sources.....	21
4.1	Airports.....	21
4.2	Railways (Diesel and Steam Trains)	21
4.2.1	Stationary Trains	21
4.2.2	Moving Trains	21
4.3	Ports (Shipping)	21
5	Industrial Sources.....	22
5.1	Industrial Installations	22
5.1.1	New or Proposed Installations for which an Air Quality Assessment has been Carried Out	22
5.1.2	Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced	22
5.1.3	New or Significantly Changed Installations with No Previous Air Quality Assessment...	22

5.2	Major Fuel (Petrol) Storage Depots	22
5.3	Petrol Stations.....	22
5.4	Poultry Farms.....	23
6	Commercial and Domestic Sources	24
6.1	Biomass Combustion – Individual Installations	24
6.2	Biomass Combustion – Combined Impacts.....	24
6.3	Domestic Solid-Fuel Burning	24
7	Fugitive or Uncontrolled Sources.....	25
8	Conclusions and Proposed Actions.....	26
8.1	Conclusions from New Monitoring Data	26
8.2	Conclusions from Assessment of Sources	26
8.3	Proposed Actions.....	27
9	References.....	28

List of Tables

Table 1.1	Air Quality Objectives included in Regulations for the purpose of LAQM in England
Table 2.2.....	Details of Non-Automatic Monitoring Sites
Table 2.5	Results of Nitrogen Dioxide Diffusion Tubes in 2011
Table 2.6	Results of Nitrogen Dioxide Diffusion Tubes (2007 to 2011)

List of Figures

Map 1.0 – Daventry District

Appendices

Appendix A: QA/QC Data

Appendix B: Traffic data for Daventry District

Appendix C: Raw annual mean data (Nitrogen Dioxide) 2011

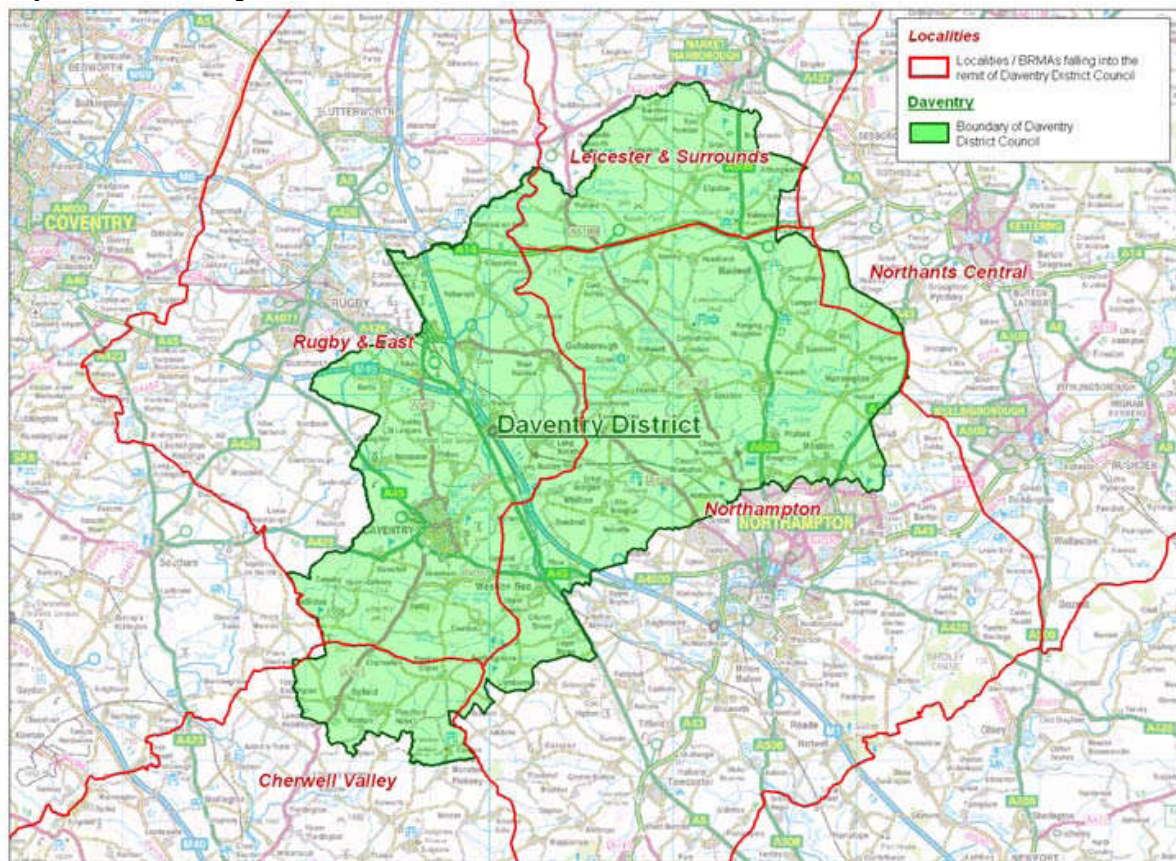
Appendix D: PPC permitted sites within Daventry District

1 Introduction

1.1 Description of Local Authority Area

Daventry District is a predominantly rural district with the larger and most northerly section occupying that part of the Northamptonshire Uplands lying to the east of the Watford Gap section of the M1 Motorway. This northern part of the district stretches from Northampton in the south to Market Harborough and the Leicestershire border in the north; from the Warwickshire town of Rugby in the west almost to Kettering and the A6 Towns in the east. A smaller part of the District is situated to the south west of the M1 Motorway, with its southernmost boundary coming to within 6 miles of the Oxfordshire border at Banbury.

Map 1.0 - Daventry District



The population of the District further to the 2011 census was estimated to number some 78,000 people. The administrative centre of the district is Daventry town itself, which is located within this southern area, some 8 miles from Junction 16 of the M1. The town has grown steadily since the early sixties, having been the subject of an expansion scheme designed to cater for Birmingham people needing alternative housing accommodation.

The population of Daventry Town at mid 1996 was approximately 20,000. The town is continuing to grow as an employment, shopping and recreational centre for the surrounding rural area, with a forecast that the population of the town will double by 2021.

Whilst the town has become well known as an ideal location for warehousing, not least as the home of Ford Motor Company's major distribution centre, it has gradually acquired a wide range of manufacturing and service industries, located on three industrial estates.

The district is home to a major distribution hub, the Daventry International Rail Freight Terminal (DIRFT), located to the North West of the district, close to the district boundary with Rugby. It is anticipated that DIRFT may expand further in the near future.

The district lies within the Milton Keynes/South Midlands Growth Area.

1.2 Purpose of Report

This report fulfils the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where exceedences are considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

The objective of this Updating and Screening Assessment is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report should provide an update of any outstanding information requested previously in Review and Assessment reports.

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM **in England** are set out in the Air Quality (England) Regulations 2000 (SI 928), The Air Quality (England) (Amendment) Regulations 2002 (SI 3043), and are shown in Table 1.1 overleaf. This table shows the objectives in units of microgrammes per cubic metre $\mu\text{g}/\text{m}^3$ (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

Table 1.1 Air Quality Objectives included in Regulations for the purpose of LAQM in England

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	5.00 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
	0.25 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2005
Particles (PM ₁₀) (gravimetric)	50 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

Between 1998 and 2000, Daventry District Council undertook its first round of review and assessments of air quality. The first round assessments concluded that pollutant concentrations were likely to meet the air quality objectives and it was not necessary for Daventry District Council to declare any AQMA's. The updating and screening assessment from 2003 concluded that some properties close to the M1 may exceed the objectives, however the monitoring data at locations close to the M1 was not

representative of relevant exposure. It was agreed after discussion between Daventry District Council and DEFRA that there was no need to proceed to a detailed assessment for NO₂. The 2005 progress report also reported that monitored NO₂ concentrations in the vicinity of the M1 were exceeding the objectives; however these locations were again not representative of relevant exposure as the monitoring tubes were located virtually next to the hard shoulder and not near any potential public exposure.

The 2006 Updating and Screening Assessment undertaken by Bureau Veritas concluded that the air quality objectives for benzene, 1,3-butadiene, carbon monoxide, lead, PM10 and sulphur dioxide will be met and there would be no requirement to undertake a detailed assessment of these pollutants. The predicted annual mean NO₂ concentrations for a number of monitoring sites had indicated that the annual mean would be exceeded. However the road traffic contribution to the predicted pollutant concentrations reported was doubled to compensate for restricted dispersion of vehicle emissions in street canyons which was described in LAQM.TG(03) at the time. The circumstances for relevant exposure at the monitored locations is that the canyon effect contains the pollutants at the carriageway and actually minimises the effect upon those properties located at the top of a sizeable embankment as the M1 travels through a cutting. The DMRB model is not able to take such topography conditions into consideration in its calculations. Bureau Veritas concluded that a detailed assessment is required based upon the predicted annual mean NO₂ concentrations exceeding the objective in the vicinity of the M1 at Haythog Farm, Yelvertoft Road and Greenhill Farm. However Bureau Veritas concluded that a cautious approach be taken of the NO₂ results as the data is based upon predictions with a street canyon effect and the monitored concentrations exceeding the AQS objective close to the M1, were not in the immediate vicinity of relevant receptors.

The 2009 Updating and Screening Assessment undertaken by Daventry District Council determined that the conclusions drawn in 2006 assessment remained current. There was no need for detailed assessments to be undertaken in any locations throughout the district and it was concluded that the Benzene monitoring cease.

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Daventry District Council does not operate any continuous monitoring sites.

2.1.2 Non-Automatic Monitoring Sites

There is a local monitoring scheme for NO₂ using passive diffusion tubes. Details of the site locations for NO₂ monitoring are detailed in table 2.2 below.

Within Daventry District nitrogen dioxide has been measured using diffusion tubes at 22 sites across the area. Since the 2009 Screening Assessment, some locations have been reviewed and some diffusion tubes relocated. The details within table 2.2 reflect the current monitoring locations.

Gradko Ltd supplies and analyses the diffusion tubes using the 20% TEA (Triethanolamine) in water method. Gradko participates in the UK National Diffusion Tube Network and the Workplace Analysis Scheme for Efficiency (WASP). They currently hold UKAS accreditation for analysis of diffusion tubes and consistently achieve the highest performance level in annual field inter-laboratory performance comparisons. The details of the monitoring locations for Nitrogen Dioxide are given in the table 2.2 overleaf.

Table 2.2 Details of Non-Automatic Monitoring Sites

Table 2.2 Details of Non-Automatic Monitoring Sites Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst- case Location?
A361 Roundabout, Byfield	Roadside	X 451734 Y 253421	NO ₂	N	Y (15M)	1m	Y
Church St Byfield	Urban background	X 451752 Y 253386	NO ₂	N	Y (10M)	1M	N/A
A361. Kilsby	Roadside	X 456213 Y 270717	NO ₂	N	N	1M	N/A no receptor
A428 Roundabout, West Haddon	Roadside	X 462960 Y 271794	NO ₂	N	Y(5M)	1M	Y
Watford Rd West Haddon	Suburban/ rural	X 462930 Y 271745	NO ₂	N	Y (1M)	.5M	N/A
Morrison Rd West Haddon	Rural	X 463424 Y 272119	NO ₂	N	Y (10M)	.5M	N/A
Post Office Moulton	Roadside	X 478300 Y 266200	NO ₂	N	Y(5M)	1M	Y
Church St Moulton	Suburban/ rural	X 478382 Y 266386	NO ₂	N	Y(1M)	.5M	N/A
New St Daventry	Roadside	X 457420 Y 262439	NO ₂	N	N	1M	Y
London Rd Daventry	Roadside	X 457592 Y 261745	NO ₂	N	N	1M	Y
Inlands Daventry	Suburban	X 457437 Y 262110	NO ₂	N	Y(10M)	1M	N/A
M1 Lilbourne	Roadside	X 456572 Y 276826	NO ₂	N	N	1M	N/A no receptor
Horsepool Lilbourne	Suburban/ rural	X 456217 Y 277049	NO ₂	N	Y(10M)	1M	Y
Haythog Farm Crick	Roadside to M1	X 457573 Y 273884	NO ₂	N	N	N/A	N/A no receptor
Haythog Farm Crick	Suburban/ Rural	X 457673 Y 273884	NO ₂	N	N	N/A	N/A no receptor
Haythog Farmhouse	Suburban/ Rural	X 457673 Y 273884	NO ₂	N	Y (1M)	N/A	Y
Buckby Wharf	Roadside to M1	X 461389 Y 265483	NO ₂	N	N	1M	N/A no receptor
Buckby Wharf	Suburban/ Rural	X 461358 Y 265469	NO ₂	N	Y(10M)	1M	N/A
School Lane Naseby	Rural	X 468834 Y 278099	NO ₂	N	Y (5M)	.5M	N/A
High St Welford	Rural	X 464240 Y 280355	NO ₂	N	Y (10M)	1M	N/A
A45, Windsor Close, Weedon	Roadside	X 462862 Y 259867	NO ₂	N	Y (10M)	5M	N/A
A45, Spring Lane, Flore	Roadside	X 464353 Y 260282	NO ₂	N	Y (5M)	.5M	N/A

2.2 Comparison of Monitoring Results with AQ Objectives

2.2.1 Nitrogen Dioxide

The annual mean concentration exceeds $40\mu\text{g}/\text{m}^3$ in two locations; the M1 at Lilbourne, and the M1 at Haythog Farm (Kerbside). Neither of these locations hosts a sensitive receptor.

Additional monitoring is undertaken in the village of Lilbourne and at Haythog Farmhouse because these locations are the nearest sensitive receptors to the exceedences. No excessive levels have been recorded at these representative locations.

The results shown in Table 2.6 overleaf demonstrate through diffusion tube monitoring that overall there is very little change in the monitoring results obtained in 2011 when compared to those from 2010. The results show a general decrease in levels across the district over a five year period since 2007. In comparison to the results from 2011, when 25 sites were measured, there has been a decrease in levels at 14 sites, a slight increase at 8 sites and 3 sites have no previous data for comparison.

The site which records the highest difference in levels between those years, is the M1 location, which has significantly reduced since the 2009 records. This site shows a reduction of around 30% since the 2007 monitoring was carried out.

There are two locations that show results in excess of the relevant levels, both of which are kerbside monitors at the M1 with no relevant receptors. The continued monitoring at these locations will be considered at the next review of diffusion tubes, due to take place shortly.

A slight increase is noted at Haythog Farm and Farmhouse, although the overall figures are reduced from the 2007 results. The figures are still below the threshold level.

Data for other locations throughout the district remains close to previously reported figures, with no clear increase or decrease overall. The diffusion tube locations will be reviewed prior to the next progress report. Levels will continue to be scrutinised on a monthly basis then reviewed in the 2013 Progress Report.

Please note that the numbering of the diffusion tubes has changed, due to the relocation of 3 tubes since the last screening assessment.

-N3 was previously Boddington Road, Byfield, this changed in July 2011 to A361, Kilsby

- N18 was formerly Watford Gap Services, M1 (kerbside), but changed in May 2009 to A45, Weedon.

Daventry District Council

- N19 was formerly Watford Gap Services, M1 (background), but changed in May 2009 to A45, Flore.

All results for the previous locations are noted in Table 2.5 and 2.6 below, along with the results for the new locations from the dates the diffusion tubes were moved.

Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes in 2011

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2011 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.89)
								2011 ($\mu\text{g}/\text{m}^3$)
N1	A361 Roundabout, Byfield	K	N	N	11	N/A	N	21.72
N2	Church Street, Byfield	UB	N	N	11	N/A	N	15.55
N3	Boddington Road, Byfield	B	N	N	6	Y	N	19.41
N3	A361, Kilsby	K	N	N	6	Y	N	27.09
N4	A428, Roundabout, West Haddon	K	N	N	12	N/A	N	20.99
N5	Watford Road, West Haddon	S/R	N	N	12	N/A	N	22.65
N6	Morrison Road, West Haddon	B	N	N	12	N/A	N	15.58
N7	Post Office, Moulton	K	N	N	11	N/A	N	30.26
N8	Church Street, Moulton	B	N	N	10	N/A	N	21.68
N9	New Street, Daventry	K	N	N	11	N/A	N	28.06
N10	London Road, Daventry	K	N	N	12	N/A	N	18.14
N11	Inlands, Daventry	S	N	N	12	N/A	N	15.77

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2011 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.89)
								2011 ($\mu\text{g}/\text{m}^3$)
N12	M1 Lilbourne	K	N	N	11	N/A	N	63.67
N13	Horsepool, Lilbourne	B	N	N	11	N/A	N	26.61
N14	M1, nr Haythog Farm, Crick	K	N	N	11	N/A	N	40.91
N15	Haythog Farm, Crick	B	N	N	12	N/A	N	30.95
N16	Haythog Farmhouse		N	N	12	N/A	N	30.90
N17	Buckby Wharf , Kerbside	K	N	N	12	N/A	N	33.92
N18	Buckby Wharf , Background	B	N	N	12	N/A	N	24.71
N19	School Lane, Naseby	B	N	N	12	N/A	N	11.96
N20	39 High Street, Welford	B	N	N	12	N/A	N	23.86
N21	A45, Windsor Close, Weedon	K	N	N	12	N/A	N	17.93
N22	A45, Spring Lane, Flore	K	N	N	8	Y	N	21.95

^a i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

^b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)

^c Means should be “annualised” as in Box 3.2 of TG(09), if monitoring was not carried out for the full year.

The highlighted data shows where results which have been bias adjusted have exceeded the $40\mu\text{g}/\text{m}^3$ threshold.

Table 2.6 Results of Nitrogen Dioxide Diffusion Tubes (2007 to 2011)

Site ID	Site Type	Within AQMA ?	Annual mean concentration (adjusted for bias) $\mu\text{g}/\text{m}^3$				
			2007* (Bias Adjustment Factor = XX)	2008* (Bias Adjustment Factor = XX)	2009* (Bias Adjustment Factor = XX)	2010* (Bias Adjustment Factor = XX)	2011 (Bias Adjustment Factor = 0.89)
N1	A361 Roundabout Byfield K	N	25.3	22.0	20.9	20.6	21.72
N2	Church Street, Byfield UB	N	18.5	16.2	16.2	18.9	15.55
N3 – UNTIL JULY 2011	Boddington Road, Byfield B	N	18.2	17.8	17.9	19.1	19.41
N3 – FROM JULY 2011	A361, Kilsby	N	N/A	N/A	N/A	N/A	27.09
N4	A428, Roundabout, West Haddon K	N	26.1	22.7	24.0	24.4	20.99
N5	Watford Road, West Haddon S/R	N	25.2	23.0	21.5	25.5	22.65
N6	Morrison Road, West Haddon B	N	20.1	17.7	18.8	17.8	15.58
N7	Post Office, Moulton K	N	30.3	24.7	26.0	29.3	30.26
N8	Church Street, Moulton B	N	20.4	17.7	18.8	19.1	21.68
N9	New Street, Daventry K	N	31.1	30.4	29.4	28.9	28.06
N10	London Road, Daventry K	N	23.8	19.5	20.9	22.7	18.14
N11	Inlands, Daventry S	N	20.7	18.3	18.2	21.5	15.77
N12	M1 Lilbourne (Kerbside to M1)	N	98.2	88.1	80.3	74.0	63.67
N13	Horsepool, Lilbourne (Background to M1)	N	25.1	23.1	21.5	25.4	26.61

Site ID	Site Type	Within AQMA ?	Annual mean concentration (adjusted for bias) $\mu\text{g}/\text{m}^3$				
			2007* (Bias Adjustment Factor = XX)	2008* (Bias Adjustment Factor = XX)	2009* (Bias Adjustment Factor = XX)	2010* (Bias Adjustment Factor = XX)	2011 (Bias Adjustment Factor = 0.89)
N14	Haythog Farm, Crick (kerbside to M1)	N	48.2	47.1	36.7	37.7	40.91
N15	Haythog Farm Crick (Background to M1)	N	37.0	35.9	32.3	30.3	30.95
N16	Haythog Farmhouse	N	41.0	40.3	34.0	29.5	30.90
N17 - until April 2009	Watford Gap Service M1 (Kerbside to M1)	N	66	61.4	70.3	N/A	33.92
N17 – From May 2009	Buckby Wharf (Kerbside to M1)	N	39.8	35.9	31.7	40.7	24.71
N18 – until April 2009	Watford Gap Services M1 B/ground	N	28.7	27.9	32.96	N/A	11.96
N18 –from May 2009	Buckby Wharf (Background to M1)	N	35.1	32.5	28.3	29.6	23.86
N19	School Lane, Naseby B	N	18.6	15.9	17.3	18.5	17.93
N20	39 High Street Welford B	N	24.7	22.3	22.0	27.8	21.95
N21	A45, Windsor Close, Weedon	N	N/A	N/A	19.2	25.0	20.15
N22	A45, Spring Lane, Flore	N	N/A	N/A	20.4	24.4	21.21

2.2.2 PM10

There is currently no monitoring of PM10 within Daventry District. There were no reported exceedences of the 15-minute, hourly or daily AQS objectives at sites within the East Midlands, and therefore it is likely that there would be no measured exceedences of PM10 objectives in Daventry district.

2.2.3 Sulphur Dioxide

There is currently no continuous or indicative monitoring of sulphur dioxide within Daventry district. Sulphur Dioxide concentrations measured during 2008 at all sites within the UK automatic monitoring network, including busy roadside sites, met the AQS objective for 2008. There were no reported exceedences of the 15-minute, hourly or daily AQS objectives at sites within the East Midlands http://www.airquality.co.uk/data_and_statistics.php.

Daventry District does not have any history of coal mining where solid fuel usage would have been likely to be used as a means of heating rather than natural gas.

2.2.4 Benzene

There is currently no monitoring of Benzene undertaken within Daventry District, as previously monitored levels were consistently significantly below the threshold of 5 $\mu\text{g}/\text{m}^3$. Monitoring of Benzene is therefore no longer undertaken by this Authority.

2.2.5 Other pollutants monitored

Daventry District Council does not monitor any other pollutants.

2.2.6 Summary of Compliance with AQS Objectives

Daventry District Council has examined the results from monitoring in the district. Concentrations are all below the objectives at relevant locations; therefore there is no need to proceed to a Detailed Assessment.

3 Road Traffic Sources

Transport statistics produced by Northamptonshire County Council and the Highways Agency indicate that on the M1, traffic flows exceed 100,000 AADT between the junction 16-17 and 18-19. The flows along the A classified roads in the district have been assessed and traffic data (ADT) obtained for 2011 which has been compared with traffic data from the previous two years. This is detailed in Appendix B with the traffic monitoring locations shown in the respective map.

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Daventry District Council confirms that there are no new/newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, that have not been adequately considered in previous rounds of Review and Assessment.

3.2 Busy Streets Where People May Spend 1-hour or More Close to Traffic

Daventry District Council confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

3.3 Roads with a High Flow of Buses and/or HGVs.

Daventry District Council confirms that there are no new/newly identified roads with high flows of buses/HGVs

3.4 Junctions

Daventry District Council confirms that there are no new/newly identified busy junctions/busy roads.

3.5 New Roads Constructed or Proposed Since the Last Round of Review and Assessment

Daventry District Council confirms that there are no new/proposed roads.

3.6 Roads with Significantly Changed Traffic Flows

Daventry District Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

3.7 Bus and Coach Stations

Daventry District Council confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

Daventry District Council confirms that there are no airports in the Local Authority area.

4.2 Railways (Diesel and Steam Trains)

4.2.1 Stationary Trains

Daventry District Council confirms that there are no locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.

4.2.2 Moving Trains

Daventry District Council confirms that there are no locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.

4.3 Ports (Shipping)

Daventry District Council confirms that there are no ports or shipping that meet the specified criteria within the Local Authority area.

5 Industrial Sources

5.1 Industrial Installations

The district has a small number of industrial processes (Part B), which are regulated under the Pollution Prevention and Control Act 1999, through the Local Authority Pollution Prevention & Control (LAPPC) regime. A list of the prescribed processes is detailed in Appendix D. There are no Part A2 or Environment Agency controlled Part A processes in the district.

There have been no new applications for substantial regulated processes since the 2006 USA report. Petrol stations are a regulated process and the only parameter within which the guidance requires attention is if a station is dispensing more than 2 million litres per year, is situated near to a busy road (>30,000 AADT), and there is relevant exposure within 10 meters of the petrol pumps. The only road with traffic flows greater than 30,000 ADT in Daventry District is the M1 alongside the service stations at Watford Gap Services. However, there is no relevant exposure within 10 meters of the pumps at these petrol stations.

5.1.1 New or Proposed Installations for which an Air Quality Assessment has been Carried Out

Daventry District Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.1.2 Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced

Daventry District Council confirms that there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area or nearby in a neighbouring authority.

5.1.3 New or Significantly Changed Installations with No Previous Air Quality Assessment

Daventry District Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.2 Major Fuel (Petrol) Storage Depots

There are no major fuel (petrol) storage depots within the Local Authority area.

5.3 Petrol Stations

Daventry District Council confirms that there are no petrol stations within the district meeting the specified criteria.

5.4 Poultry Farms

Daventry District Council confirms that there are no poultry farms within the district meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

Daventry District Council confirms that there are no biomass combustion plants in the Local Authority area.

6.2 Biomass Combustion – Combined Impacts

Daventry District Council confirms that there are no biomass combustion plants in the Local Authority area.

6.3 Domestic Solid-Fuel Burning

Daventry District Council is not an area where mining has taken place and where concessionary solid fuel would still be used. The majority of properties in Daventry utilise natural gas for heating. For the more rural areas there is a mixture of liquefied propane gas (LPG) and oil fired central heating systems. Again burning solid fuel from a legacy of mining activity is not an activity undertaken in the rural areas of Daventry district. Domestic solid fuel burning therefore does not have an effect upon air quality in Daventry district.

Daventry District Council confirms that there are no areas of significant domestic fuel use in the Local Authority area.

7 Fugitive or Uncontrolled Sources

Daventry District Council confirms that there are no sources of fugitive or uncontrolled sources within the district such as quarrying, mineral extraction or open cast operations. The district does not have specific mineral deposits that would actively be quarried. No planning applications have been made for such operations in the future.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

The Report has compared new monitoring data and data from 2009 onwards against the relevant Air Quality Objectives, and concludes that no further investigation is required for the following:

- Nitrogen Dioxide
- Carbon Monoxide
- Benzene
- 1,3-Butadiene
- Lead
- Sulphur Dioxide
- Fine Particles – PM₁₀

Further monitoring will be continued for Nitrogen Dioxide at key locations in the district. Haythog Farm will continue to be closely monitored by Daventry District Council as the most sensitive receptor in the district close to the M1 motorway. Consideration for the location of additional NO₂ tubes will be investigated in the context of the proposed growth agenda for the district over the next 10 to 15 years. This has already begun with two tubes previously located at the Watford Gap motorway services being redeployed to the villages of Weedon and Flore adjacent to the A45. These two sites will be intermediary and reflect relevant exposure to the villages from the road traffic source. The A45 takes traffic from junction 16 of the M1, and during peak hours congestion is experienced through the village of Weedon and sometimes Flore. The A45 will become a key route to serve the proposed growth of Daventry in the future. Further consideration to the air quality impacts of any proposed developments will be made once Environmental Impact Assessments (EIA) have been received from developers.

The slight overall decrease in NO₂ annual mean concentrations could be as a result of improved vehicle technology and tighter fuel standards over recent years, however the proposed growth of Daventry could present new challenges for maintaining air quality at below threshold levels.

8.2 Conclusions from Assessment of Sources

The report concludes that since the 2009 USA report there has been no change to the likely impacts from local developments, road transport, industrial installations, commercial/domestic sources and fugitive emissions. No major residential developments have taken place and neither has any significant commercial development/expansion occurred to date.

The Milton Keynes and South Midlands Sub-Regional Strategy published by the Department for Communities and Local Government covers the alterations to the Regional Spatial Strategies covering the East of England, East Midlands and South

East of England. This provides an ongoing framework for the development of residential and employment land in which to meet development targets up until 2021. Daventry has been set specific development growth targets and is currently developing a Core Strategy as part of its new Local Development Framework for the district. This sets out the key issues raised by the Regional Spatial Strategy, including the development growth targets and possible options for its delivery.

The Milton Keynes and South Midlands Sub-Regional Strategy specifically states that “ *Daventry will grow towards a population of about 40,000 by 2021, seeking to consolidate and extend its role by revitalising and extending the role of the town centre as a Sub-Regional Centre offering improved shopping facilities and a wider range of jobs and services. Sustainable growth will take place both by means of intensification within present built-up area and expanding onto Greenfield sites through one or more sustainable urban extensions*”

Previously proposed developments involving 10,000 houses were the three sites of Danetree, Churchfields and Monksmoor, all located to the east of Daventry. Monksmoor, which is a scheme for around 1,000 houses is the only one of these three which has been progressed to date. Permission has been granted, on appeal for this development. Daventry District Council will consider relocating a diffusion tube to monitor the impact of this development once construction is complete. In the current economic climate development of such a scheme may be somewhat off.

8.3 Proposed Actions

The Updating and Screening Assessment has not identified the need for Daventry District Council to proceed to a detailed assessment for any of the pollutants prescribed in the regulations.

The extensive NO₂ diffusion tube monitoring locations in the district generally remain the same. The only change since the last screening assessment is the relocation of the NO₂ diffusion tube from Boddington Road at Byfield to Kilsby. Consideration was given to the fact that the Byfield location was a background indicator only, and there are two other more relevant tubes located in this area. The A361 at Kilsby was selected as a required location to measure any additional levels of NO₂ potentially caused by the additional HGV traffic servicing the development at DIRFT. The results from this diffusion tube have shown that there are no significant issues in this area from any additional traffic to date, although there is a limited period of monitoring to date. The monitoring began in July 2011.

There has been no requirement to declare any AQMA's in the district in the past. The results of this USA report confirm that there is no evidence that Daventry District Council will need to proceed to declare any AQMA's now or in the proceeding future.

Daventry District Council is currently reviewing locations used across the diffusion tube network. Some amendments may be made in future to reflect additional development (ie the Monksmoor development mentioned above), these will be reported in any future progress reports. A further progress report will be submitted by this Authority as required in 2013.

9 References

1. Northamptonshire County Council – Road Traffic Data
2. Part IV of the Environment Act 1995, Local Air Quality Management. Technical Guidance LAQM. TG (09)
3. The Air Quality Regulations (2000) and the Air Quality (England) Amendment Regulations 2002
4. Local Air Quality Management Policy Guidance LAQM. PG (09)
5. Part IV of the Environment Act 1995. Local Air Quality Management. Progress Report Guidance.
6. Updating and Screening Assessment – Daventry District Council 2009. Martin Glossop.
7. Ordnance Survey Land ranger Maps
8. UK Air Quality Archive <http://uk-air.defra.gov.uk/data/>
9. Transport Statistics Division
<http://www.dft.gov.uk/traffic-counts/area.php?region=East+Midlands>
10. Daventry District Council website, A view of Daventry District
<http://www.daventrydc.gov.uk/your-council/about-us/about-daventry-district/?locale=en>

Appendices

Appendix A: QA/QC Data

Appendix B: Traffic data for Daventry District

Appendix C: Raw annual mean data (Nitrogen Dioxide) 2011

Appendix D: PPC permitted sites within Daventry District

Appendix A: QA:QC Data

Factor from Local Co-location Studies (if available)

Daventry District Council has not carried out any co-location studies.

Diffusion Tube Bias Adjustment Factors

Diffusion tubes require a bias factor to be determined to ensure the accuracy of the measurements. This is done by co-location of tubes with a continuous analyser or that tubes are in triplicate at the measurement location so to improve precision and accuracy in the results. However bias of diffusion tubes is largely associated with the laboratory and preparation method used. The bias correction factor for monthly exposure of Gradko tubes made up with 20% TEA in water is calculated each year available at the UWE helpdesk web site

<http://www.uwe.ac.uk/aqm/review/R&Asupport/diffusiontube050509.xls>

The bias adjustment factors used for the NO₂ diffusion tube results are listed below

Year	Bias adjustment factor
2009	Unknown
2010	Unknown
2011	0.89

Factor from Local Co-location Studies (if available)

Daventry District Council do not co locate any of its diffusion tubes.

Discussion of Choice of Factor to Use

The national bias adjustment factors have been used. The 0.89 bias figure was derived from the table below:

Changes to Diffusion Tube Bias Adjustment Factors with 03/12 Issue of the Spreadsheet							
Laboratory	Method	Year	Previous Number of Studies	New (03/12) Update			Change in Factor
				No. Studies Added	Total No. of Studies	Factor	
Edinburgh Scientific Services	50% TEA in Acetone	2010	2	4	6	0.9	-0.12
Aberdeen CC	20% TEA in water	2011	0	1	1	0.85	
Bristol Scientific Services	20% TEA in water	2011	0	8	8	0.83	
Bristol Scientific Services	50% TEA in acetone	2011	0	1	1	0.71	
Cardiff Scientific Services	50% TEA in acetone	2011	0	3	3	0.82	
Edinburgh Scientific Services	50% TEA in acetone	2011	0	2	2	1.01	
Environmental Scientific Groups	20% TEA in water	2011	0	5	5	0.82	
Environmental Scientific Groups	50% TEA in acetone	2011	0	22	22	0.88	
Exova	20% TEA in water	2011	0	1	1	0.78	
Glasgow Scientific Services	20% TEA in water	2011	0	7	7	0.94	
Gradko	20% TEA in water	2011	0	26	26	0.89	
Gradko	50% TEA in acetone	2011	0	20	20	0.94	
Harwell Scientific Services	20% TEA in water	2011	0	1	1	0.77	
Harwell Scientific Services	50% TEA in acetone	2011	0	18	18	0.84	
Kent Scientific Services	20% TEA in water	2011	0	1	1	0.77	
Kirklees Council	50% TEA in acetone	2011	0	5	5	0.75	
Lambeth Scientific Services	50% TEA in acetone	2011	0	6	6	1.06	
Milton Keynes Council	20% TEA in water	2011	0	1	1	0.82	
Northampton BC	20% TEA in water	2011	0	3	3	0.71	
South Yorkshire Air Quality Samplers	50% TEA in acetone	2011	0	4	4	0.79	
Staffordshire Scientific Services	20% TEA in water	2011	0	11	11	0.88	
Tayside Scientific Services	20% TEA in water	2011	0	8	8	0.78	
West Yorkshire Analytical Services	50% TEA in acetone	2011	0	12	12	0.84	
Number of Studies Included			2	170	172		

PM Monitoring Adjustment

No PM10 monitoring is undertaken by Daventry District Council.

Short-term to Long-term Data adjustment

On the advice of Defra, we selected two permanent monitoring stations as detailed below in order to calculate the bias adjustment required for calculation of annual mean data where there was less than 12 months exposure. As there were diffusion tubes which had been exposed for various lengths of time, calculations were required for 6, 8, 10 and 11 months exposure, detailed below.

Site	Site Type	Annual Mean	Period Mean (6 monthly)	Ratio	Period Mean (8 monthly)	Ratio	Period Mean (10 monthly)	Ratio	Period Mean (11 monthly)	Ratio
Leamington Spa	Unknown	21	21.83	0.962	20.38	1.03	20	1.05	20.8	1.009
Northampton	Unknown	18	18.66	0.965	17.25	1.04	17.2	1.04	18	1.00
			Average	0.964		1.035		1.045		1.0045

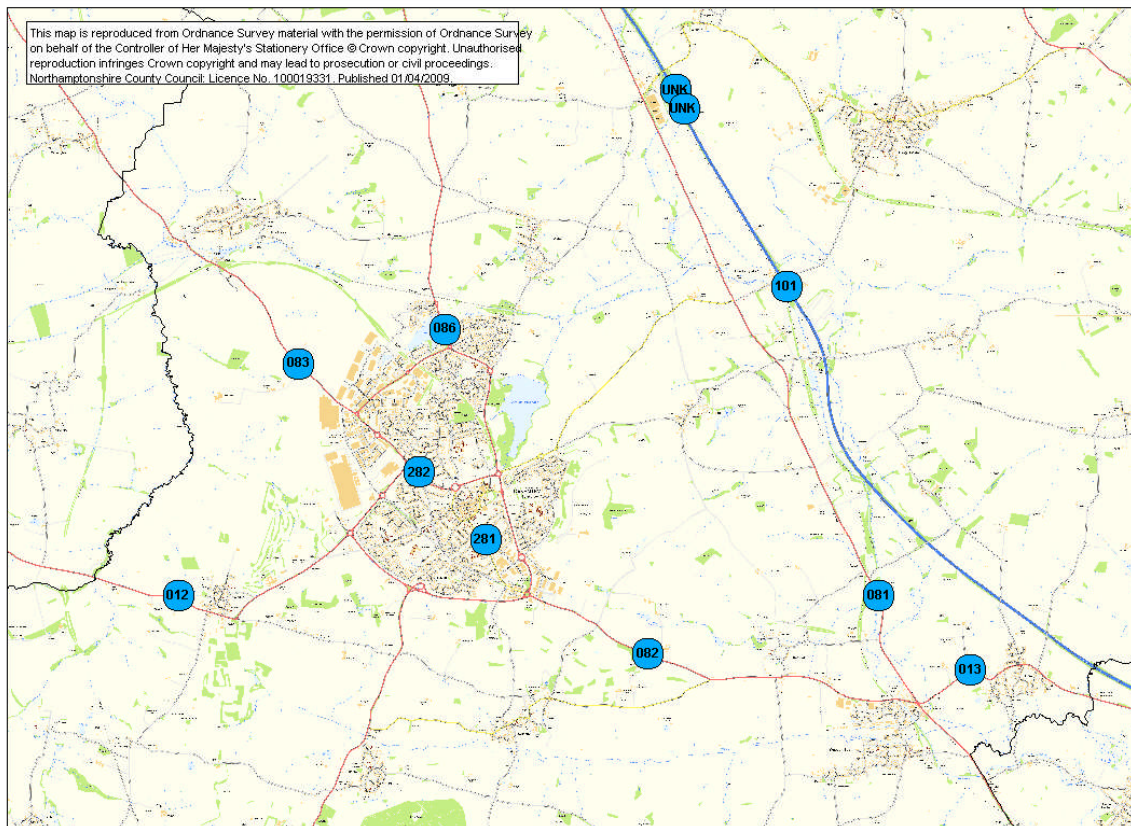
QA/QC of diffusion tube monitoring

Gradko Ltd supplies and analyses the diffusion tubes using the 20% TEA (Triethanolamine) in water method. Gradko participates in the UK National Diffusion Tube Network and the Workplace Analysis Scheme for Efficiency WASP). They currently hold UKAS accreditation for analysis of diffusion tubes and consistently achieve the highest performance level in annual field inter-laboratory performance comparisons.

Appendix B - Road Traffic Data

Road Name	Count Point No.	AADT (2009)	AADT (2010)	AADT (2011)
M1 Jnt 16 to 17	56000	336,157	352,219	322,693
M1 Jnt 17 to 18	6004	68,009	74,044	69,562
M1 Jnt 18 to 19	36004	118,807	121,880	117,023
A45 (East of Daventry)	6473	20,930	20,797	20,727
A45 (West of Daventry)	99112	8,695	8,918	9,017
A5 (North of Weedon)	36143	19,025	18,799	19,051
M45	6043	18,967	18,732	19,038
A14	29033	84,688	87,617	87,321

Map 1.3 - Traffic monitoring points



Appendix C

Nitrogen Dioxide Data un-biased results (raw annual mean data 2011)

Site ID	Location	Month												Annual mean concentration
		J	F	M	A	M	J	J	A	S	O	N	D	
N1	A361 Roundabout, Byfield	21.63	27.14	24.42	19.36	18.28	20.90	20.56	X	19.51	22.59	26.15	17.38	21.63
N2	Church Street, Byfield	24.73	23.07	17.86	X	9.50	12.00	11.28	11.23	7.77	15.86	23.30	13.68	15.48
N3	Boddington Road, Byfield	29.24	26.81	21.27	15.15	12.87	15.57	X	X	X	X	X	X	20.15
N3	A361, Kilsby	X	X	X	X	X	X	25.14	26.06	30.60	27.60	36.40	22.85	28.11
N4	A428, Roundabout, West Haddon	30.50	26.97	22.70	21.06	20.05	24.37	16.85	22.34	20.80	26.37	29.11	22.01	23.59
N5	Watford Road, West Haddon	30.42	36.23	24.72	24.04	19.90	22.75	22.26	22.65	22.65	29.56	31.87	18.31	25.45
N6	Morrison Road, West Haddon	23.93	21.40	17.95	12.98	12.69	13.50	13.57	14.57	15.76	19.98	25.35	18.35	17.50
N7	Post Office, Moulton	35.39	34.59	30.69	22.66	28.27	29.55	X	25.54	34.44	33.17	34.11	22.98	30.13
N8	Church Street, Moulton	21.17	26.04	19.60	29.43	13.88	17.51	X	14.27	21.43	X	26.85	16.99	20.75
N9	New Street, Daventry	35.31	X	33.77	22.47	24.70	27.59	13.62	26.85	28.27	31.42	35.21	28.07	27.93
N10	London Road, Daventry	26.26	27.93	22.56	22.72	12.96	17.11	16.42	15.48	17.12	22.38	30.96	12.68	20.38
N11	Inlands, Daventry	22.74	22.03	17.52	17.58	12.56	15.48	14.27	14.23	16.13	20.96	21.47	17.66	17.72
N12	M1 Lilbourne	74.11	85.83	40.45	62.60	66.93	71.38	78.70	X	50.88	53.17	68.51	44.57	63.38
N13	Horsepool, Lilbourne	30.88	35.11	27.05	26.22	X	52.74	21.23	19.04	20.14	21.02	26.88	15.09	26.85
N14	M1, nr Haythog Farm Crick	48.96	38.08	36.28	24.73	49.30	33.36	40.21	X	48.24	47.52	39.76	41.56	40.73

Daventry District Council

N15	Haythog Farm Crick	32.26	34.56	32.82	21.14	41.85	38.43	12.61	37.44	44.72	32.15	40.02	49.34	34.78
N16	Haythog Farmhouse	33.75	30.03	30.67	20.60	42.23	42.35	30.92	35.43	39.14	36.95	35.50	39.02	34.72
N17	Buckby Wharf (kerbside)	40.97	51.41	31.30	48.58	34.94	38.17	39.52	37.84	34.71	38.56	39.65	21.62	38.11
N18	Buckby Wharf (background)	28.21	44.03	37.43	32.03	22.37	22.60	26.29	24.39	21.07	25.86	31.29	17.59	27.76
N19	School Lane, Naseby	30.31	17.44	15.43	14.27	9.63	10.06	14.13	0.67	11.27	16.43	23.09	11.58	13.44
N20	39 High Street, Welford	30.19	26.67	28.09	20.66	21.42	27.74	26.33	24.75	25.22	29.13	32.34	29.12	26.81
N21	A45, Windsor Close, Weedon	26.94	16.16	22.86	22.36	15.97	15.96	21.83	18.11	17.85	19.85	25.46	18.41	20.15
N22	A45, Spring Lane, Flore	28.01	22.30	21.36	20.71	X	X	X	X	15.22	19.19	26.61	16.28	21.21

Appendix D: PPC permitted sites within Daventry District

Category	Name	Address	Premises Usage and PG Note	Permit Reference
Coating and SED	Cummins Engines Co Ltd	Royal Oak Way South Daventry	Coating metal	PPC/10/1B
	Metakote	Long March Industrial Estate Daventry	Coating Metal	PPC/10/3
Cement & Lime	Lafarge	High March Close Daventry	Bulk cement Ready Mix Concrete	PPC/09/4B
	Haddonstone	Harborough Road Brixworth	Bulk cement	PPC/09/5
Mineral Process	Boddington Demolition	Oak Farm Upper Boddington NN11 6DW	Mobile Crusher	PPC/09/6
Vehicle Respraying	Nationwide Crash Repairs Centres Ltd	London Road Daventry NN11 4NR	Respraying of road vehicles	PPC/09/8
	Normandale Products	38 Lanchester Way Daventry	Respraying of road vehicles	PPC/09/9
Combustion	Time Right Ltd	West Lodge Farm West Haddon Road Guilsborough NN6 8QE	Pet Crematoria PG 5/3(04)	PPC/10/10

Daventry District Council

Waste Oil Burner	P J Green	81 High Street Flore NN7 4LW	Waste Oil Burner PG 1/1(04)	PPC/WOB/10/1
	Newnham Grange Farm	London Road Newnham Daventry District Council NN11 4NQ	Waste Oil Burner PG 1/1(04)	PPC/WOB/09/2
	Long March	13 Low March Daventry District Council NN11 4SE	Waste Oil Burner PG 1/1(04)	PPC/WOB/09/3
	Truckeast Ltd	17 & 18 Eldon Way Crick NN11 7SL	Waste Oil Burner PG 1/1(04)	PPC/EP/053
Dry Cleaners	Daventry Dry Cleaners	42 High Street Daventry District Council NN11 4HU	Dry Cleaners	PPC/DC/09/1
	Mr Clean	18 Sheaf Street Daventry District Council NN11 4AB	Dry Cleaners	PPC/DC/09/2
Filling Stations	Maple Leaf Garage	Braunston Road Daventry NN11 4DY	Petrol Filling Station PG 1/14(06)	PPC/09/PFS/1
	Blasons Garage	Northampton Road Brixworth NN6 9DY	Petrol Filling Station PG 1/14(04)	PPC/10/PFS/3

Daventry District Council

	G Hamsons & Sons	12 Harborough Road Brixworth NN6 9BX	Petrol Filling Station	TBC
	Moulton Service Station (Shell UK)	Kettering Road Moulton NN3 7XA	Petrol Filling Station	PPC/PFS/09/4
	Shell Oils, High March	High March Daventry NN11 4QB	Petrol Filling Station	PPC/PFS/09/5
	BP Shopping Express	M1 Service Area, Southbound Watford Gap NN6 7UZ	Petrol Filling Station	PPC/PFS/09/6
	BP Shopping Express	M1 Service Area, Northbound Watford Gap NN6 7UZ	Petrol Filling Station	PPC/PFS/09/7
	Shell UK Junction Services	London Road Daventry NN11 4EA	Petrol Filling Station	PPC/PFS/10/8
	SJS Garages Ltd	Watling Street Weedon NN7 4PX	Petrol Filling Station	PPC/PFS/9/9
	Rontec Watford, Daventry Service Station	Vicar Lane Daventry District Council NN11 5AA	Petrol Filling Station	PPC/PFS/09/10