2012 Air Quality Updating and Screening Assessment for Rushcliffe Borough Council

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

April 2012

Local Authority Officer	Martin Hickey
Department	Environment & Waste Management Service
Address	Civic Centre, Pavilion Road West Bridgford Nottingham NG2 5FE
Telephone	01159148486
e-mail	mhickey@rushcliffe.gov.uk
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Executive Summary

Traffic levels in the Rushcliffe area have, in general fallen in recent years although there still exist significant traffic flows on main routes within the borough. Since the last USA a further AQMA has been declared at the Stragglethorpe Road/A52 Junction. Being identified as a hotspot via an air quality assessment produced for a planning application; this site has undergone a detailed assessment by Rushcliffe, an AQMA declaration has taken place and a further assessment report is imminent. This service is awaiting the conclusions of the further assessment prior to developing an AQAP with the Highways Agency although discussion and meetings have already taken place with the Highways Agency.

The A46 is now operational in part through the borough but construction work, road restrictions and diversions are still taking place. The new road will change traffic flows at various points in the borough, however, it is still too early to determine if these impacts are as predicted. The A46 duelling was subject to a public enquiry, EIA and has been reported on in previous R&A reports by Rushcliffe. The new route is not expected to result in adverse air quality issues and does not require any detailed assessments to take place. Discussions with the HA & the County Council indicates that traffic data will be updated a year after the final completion of the A46 and a more accurate picture of the traffic changes can take place at this time to see if any unforeseen impacts have taken place that warrant investigation for impacts due to air quality.

Due to planning applications submitted regarding land north of Bingham, Rushcliffe has placed diffusion tubes in the Bingham area to ascertain current levels and enable better decision making for any future proposals that may arise. One of these tubes has resulted in a bias adjusted value of 40.6 μgm^{-3} for NO2. A further analysis of this site indicates that it is closer than recommended to a domestic flue outlet and may be affected by this emission point. Secondly, the A46 work has led to local traffic „rat running' through Bingham and this may be temporarily affecting NO2 in this area. As such, Rushcliffe are of the opinion that this result does not, at this time warrant a detailed assessment taking place, but has taken action to assess this area in better detail. From January 2012 the tube in question has been relocated to a more satisfactory position on the same building and a number of other tubes have been located in the same vicinity to give a better spatial awareness of NO2 levels in this

area. If the AQS is subsequently exceeded within the next 9-12 months (from January 2012) a detailed assessment will take place. There is further comment in the report on this issue.

Levels of NO2 in the AQMA 1 area have all for the first time fallen below the AQS for the annual mean at relevant receptor locations. Roadside levels are still high and caution should be taken to ensure development does not take place to undermine these improvements. The highest tube result (in aqma1) is the Trent Bridge Inn diffusion tube which produces levels that are at 47.6 μgm^{-3} , but this tube site should be compare to the 1 hour surrogate level of 60 μgm^{-3} as this site is a commercial premises. The Trent House flats are residential and have remained above the AQS consistently, but have fallen to 38.8 μgm^{-3} this year. Levels will need to consistently be below the AQS for several years to recommend a revocation, as such the recommendation is to leave the AQMA 1 boundary unchanged.

Levels of NO2 in AQMA 2 have all shown to be below the AQS's for NO2, although levels at the Windy Wayes site and the Nottingham Knight (NK) site have increased from last year. The house known as Windy Wayes is not occupied and is in a dilapidated state although lawful occupation could take place at any time. The NK site is a roadside site and predicts exposure to patrons using the garden area at this site some distance from the tube. It is Rushcliffe's view that relevant receptors at other points in AQMA 2 are not likely to be experiencing NO2 levels above the AQS but the upward changes to the WW and NK mean that that there is still uncertainty about this AQMA and as such it will not be revoked at this time.

Levels in the new AQMA 4 indicate it was correct to declare this AQMA.

PM10 levels at this same site indicate compliance with the AQS although early results in 2012 indicate concerns. This will be reported on in the next R&A report.

The USA has not identified the need to proceed to a detailed assessment at any site in the borough although there is a commitment to do so should the Bingham tubes indicate a likely exceedance of the AQS.

Development has taken place at the former RAF Newton site, however, this is not likely to result in any air quality problems due to the distance of the site from the main Nottingham conurbation; this applies also to other committed development not yet begun at Cotgrave. The Sharphill development has not begun construction but has retained the permission by building a nominal number of properties only. As such traffic flows remain unaltered in this area.

Recommendations have been made to the sampling programme in this USA with details in Chapter 8. In addition RBC propose to place a second NO2 monitor at AQMA4 (AQMA 1, 20011) following the successful grant bid application to Defra. This monitoring was a recommendation from Defra last year. Planning applications should continue to be assessed for air quality impacts and ensure they are compatible with the AQAP in Rushcliffe.

A progress report for the AQAP is submitted along with this report and a Further Assessment has been produced by UWE for the AQMA4 to confirm the continuance of the AQMA and to undertake source apportionment for this site. An AQAP will be required for this site with consultation with the Highways Agency.

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1 Introduction

1.1 Description of Local Authority Area

The borough of Rushcliffe lies to the south of Nottingham City and the river Trent in Nottinghamshire and covers 157 square miles (around 400 sq km) and has a population of 112,800 (2010). It stretches from the River Trent to the Leicestershire borders and eastwards along the Trent Valley, to within a few miles of Newark.

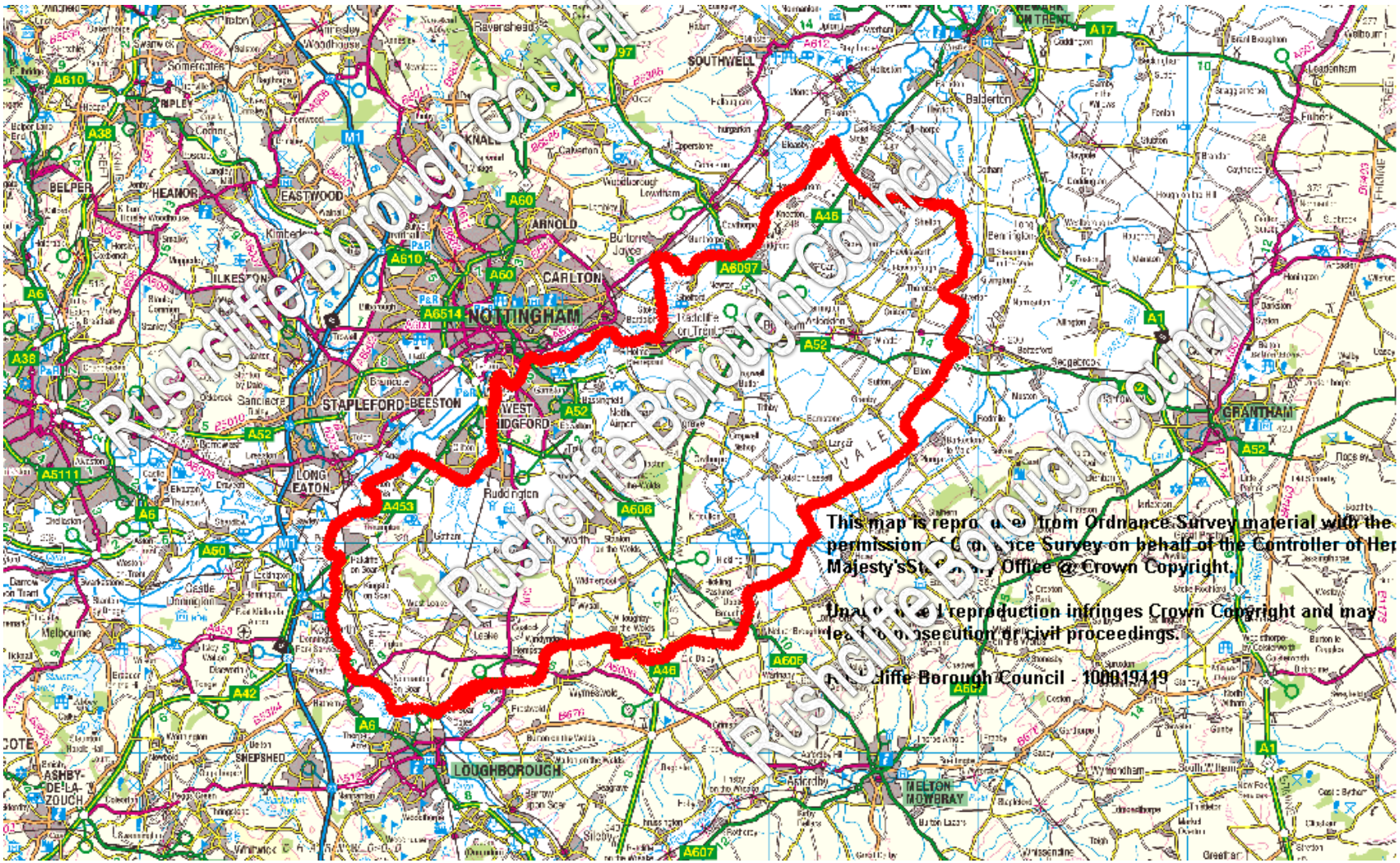
The largest town is West Bridgford, with a population of about 36,000. This is part of the Greater Nottingham conurbation, being separated from the City of Nottingham by the River Trent. The other major settlements within the borough are Bingham, Cotgrave, East Leake, Keyworth, Ruddington and Radcliffe-on-Trent. A plan of the borough area is shown in Figure 1.1.

Several major roads cross the borough, linking the borough with both the M1 and the A1. Principally this is the A52 but recently the A46 has been duelled with parts of the new road now open but with some parts still being completed. There are also high daily traffic flows in West Bridgford, from the major arterial routes into the Nottingham city centre. Although the borough is predominantly rural in nature, it also contains some significant industrial processes. These include Ratcliffe-on-Soar power station and the British Gypsum plasterboard factory at East Leake.

Nottingham East Midlands Airport (NEMA) lies immediately to the south west of Rushcliffe, within the district of North West Leicestershire District Council. Although the flight paths for both approaching and departing aircraft pass directly over the borough, the air quality impacts of the airport itself do not affect Rushcliffe residents.

The major sources of pollution are derived from commuter traffic moving in and out of Nottingham.

Figure 1.1: Map of Rushcliffe borough 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. This table shows the objectives in units of micrograms per cubic metre μgm^{-3} (milligrams per cubic metre, mgm^{-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 μgm^{-3}	Running annual mean	31.12.2003
	5.00 μgm^{-3}	Running annual mean	31.12.2010
1,3-Butadiene	2.25 μgm^{-3}	Running annual mean	31.12.2003
Carbon monoxide	10.0 mgm^{-3}	Running 8-hour mean	31.12.2003
Lead	0.5 μgm^{-3}	Annual mean	31.12.2004
	0.25 μgm^{-3}	Annual mean	31.12.2008
Nitrogen dioxide	200 μgm^{-3} not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 μgm^{-3}	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 μgm^{-3} , not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 μgm^{-3}	Annual mean	31.12.2004
Sulphur dioxide	350 μgm^{-3} , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 μgm^{-3} , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 μgm^{-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

Rushcliffe has declared AQMA's in previous review and assessment rounds in several areas in the district. These areas are principally associated with NO2 exceedences of the annual mean associated with traffic but have in the past been for SO2 exceedance of the AQS at an industry process in Barnstone.

The detailed assessment undertaken in 2005 concluded that the annual mean objective for NO2 would be exceeded. As a result, two AQMA's were declared on 1st September 2005 and remain in force today AQMA1 included the areas around Wilford Lane, Trent Bridge and Lady Bay; AQMA2 included the area around A52/Botany Close (see Figure 1.2 to Figure 1.5).

The AQS objectives were also found to have been exceeded in respect of SO2 in the vicinity of Lafarge UK Ltd. cement plant at Barnstone and as a result, AQMA 3 was declared on 1st September 2005. Following the closure of the kiln, which was the source of the exceedence, the AQMA3 was revoked on 27th April 2007.

The 2010 Progress Report concluded that within AQMA 2 receptor sites have all been below the AQS but recommended further monitoring prior to any decision to remove the AQMA. The 2010 report also recommended the completion of a DA at the A52 at the Junction of Stragglethorpe Road as a result of elevated levels of NO2 when compared to the annual mean objective. Levels in AQMA 1 continued to be above the AQS at relevant receptors.

Monitoring along roadside sites outside of AQMA's indicates exceedances of annual mean for NO2, however when adjusted for distance to receptors previous reports have indicated AQS are not being exceeded.

The progress report 2011 recommended the creation of further AQMA for the exceedance of the annual mean NO2 level following the completion of the detailed assessment for the Stragglethorpe Junction area.

Consequently on 1st October 2011 a forth AQMA area was declared in Rushcliffe. This aqma is refered to as AQMA 4 although the official order names the site as „AQMA1 order 2011'.

Currently a further assessment is in the process of being prepared and work is being undertaken to develop and AQAP for AQMA 4 which is in the early stages at this point. With the A52 being the cause of the exceedance it is anticipated that the Highways Agency will have a significant input into the measures that can be adopted.

At this time Rushcliffe are up date with the review and assessment reporting timetable.

Table 1.1 below provides a list of submitted reports to date.

Table 1.1 Showing previous review and assessment reports

Report title	Date Produced
2011 Air Quality Progress Report	May 2011
Detailed assessment of NO2 at A52/Stragglethorpe Road	May 2011 (concluded AQMA to be declared)
Air quality & Air quality action plan Progress report 2010	March 2010
Air Quality Action Plan 2009 Progress Report	July 2009
Updating and Screening Assessment Review and Assessment of Local Air Quality (2009)	July 2009
Air Quality Progress Report 2008	June 2008
Air Quality Review: Assessment Progress Report June 2007	June 2007
Air Quality Action Plan: May 2007	May 2007
Air Quality Management No 3 Order Revocation order (2007)	April 2007
Updating and Screening Assessment, Review and Assessment of Local Air Quality 2006	April 2006
Progress report 2005	April 2005
Detailed assessment of Sulphur dioxide and nitrogen dioxide	February 2005
Updating and Screening Assessment Review and Assessment of Local Air Quality (May 2003)	May 2003
Annual Report on Air Quality (2002)	2002
Air Quality Review and Assessment (2000)	December 2000

Figure 1.2: Map of AQMA Boundaries

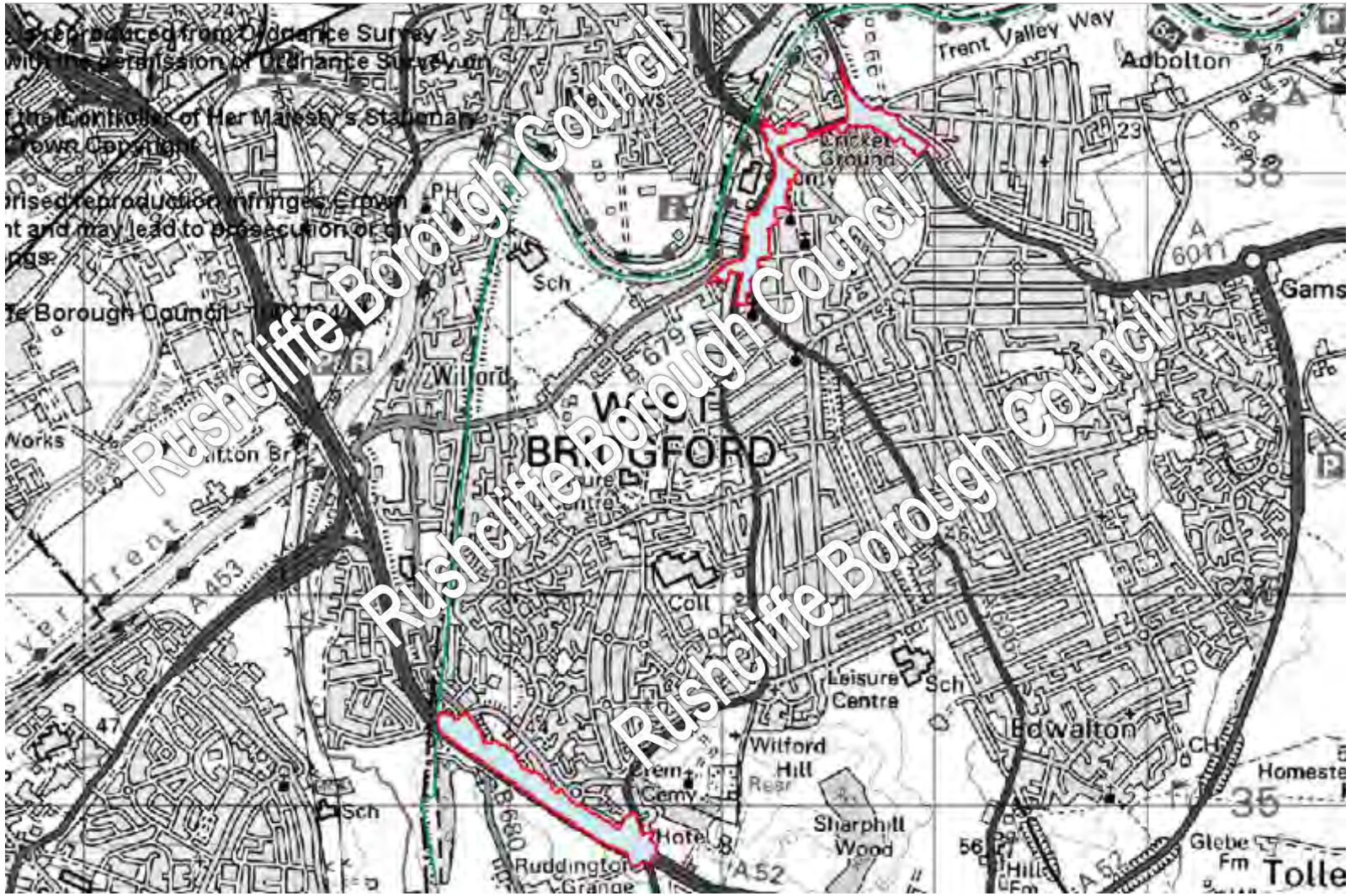


Figure 1.3: Map of AQMA Boundaries

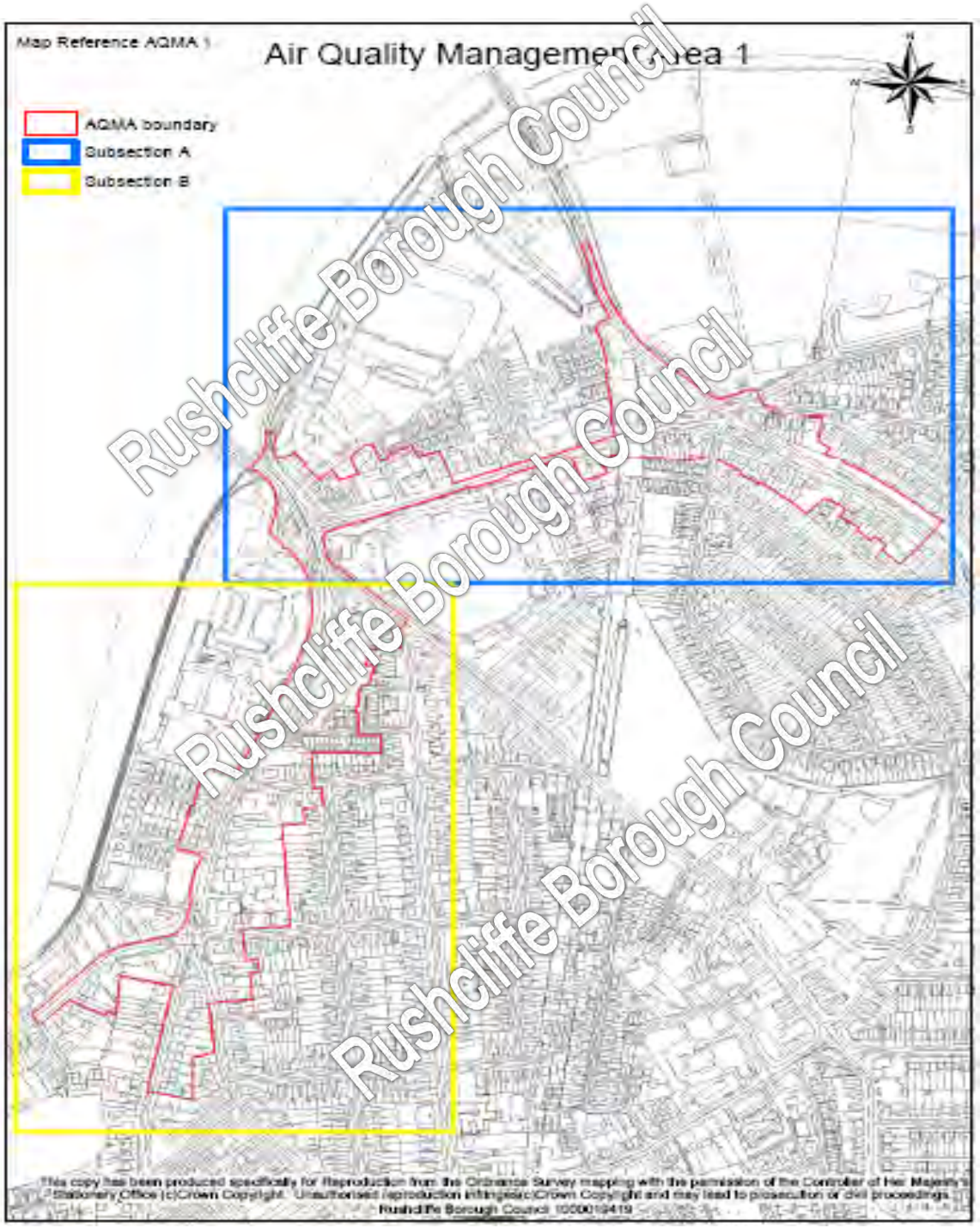
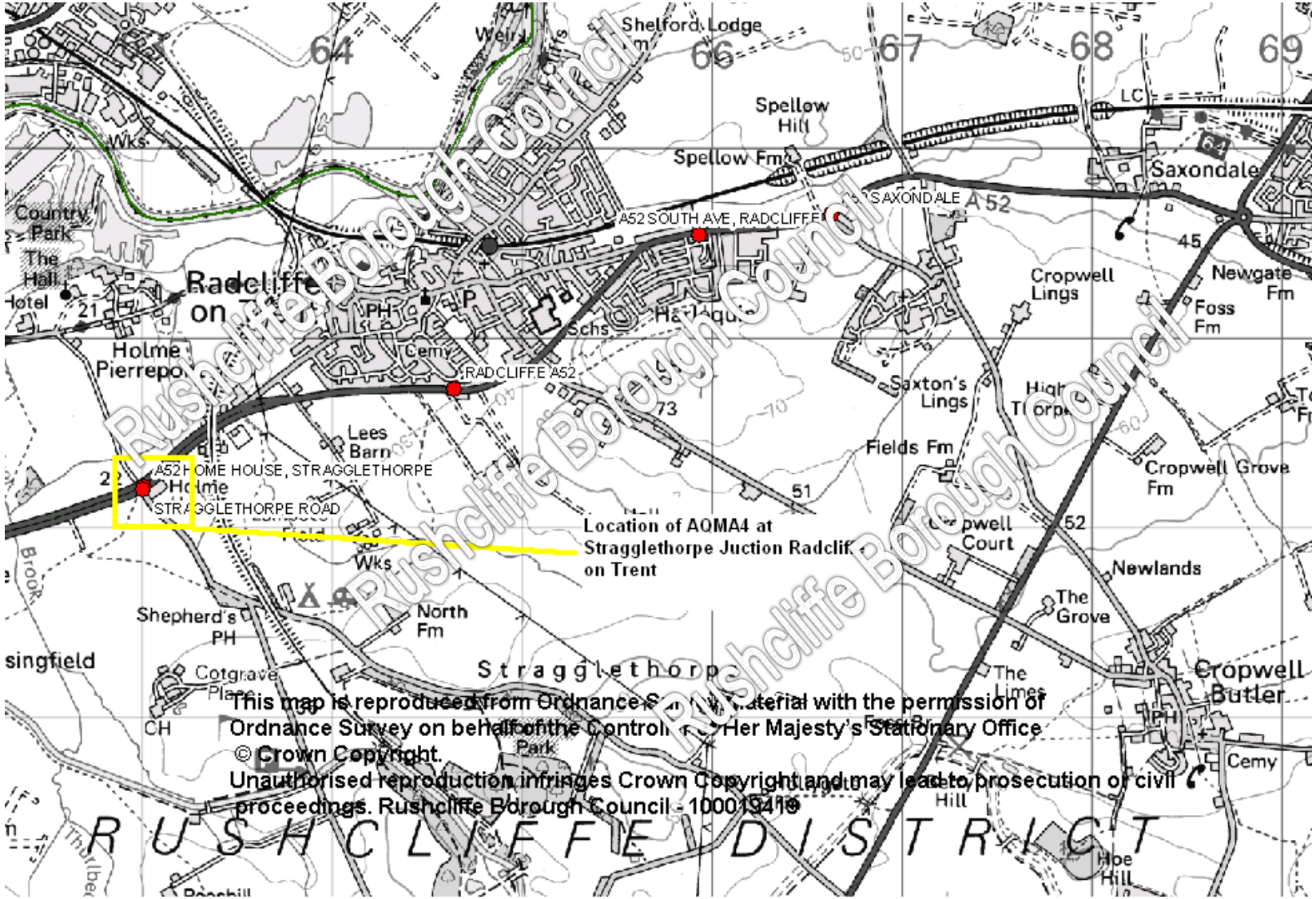


Figure 1.4: Map of AQMA Boundaries (detailed plan of AQMA4, Stragglethorpe Junction, A52 Radcliffe on Trent)

Figure 1.5: Map of AQMA Boundaries (location plan of AQMA4, Stragglethorpe Junction, A52 Radcliffe on Trent)



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Rushcliffe undertakes automatic monitoring for PM10 and NO2/NOx at two locations within the borough.

The NO2 monitor location is a longstanding monitoring point at which monitoring has taken place over a number of years now, although this monitor and enclosure was renewed in February 2010. The site lies within AQMA 1 and aims to indicate the rise or fall of NO2 at this location.

The particulate monitor has been relocated from the Centenary House site in AQMA1 in October 2010 following last years' progress report which concluded the site is unlikely to have a PM10 exceedance at this site after a number of years of sampling and a falling trend indicated. The monitor was moved to the Stragglethorpe Junction which is now AQMA4 and commenced monitoring in April 2011 following difficulties getting power to the site. This site was chosen due to the high traffic flows, the proximity of receptors to the road and the high NO2 levels from diffusion tube sampling undertaken by Rushcliffe.

The locations and details of the 2 operational monitors in the district covering 2011 period are shown in

Figure 2.1 to Figure 2.5 and shown below in Table 2.1 confirms the grid references for the monitor locations in the borough.

Monitoring for PM10 is undertaken with Sven Leckel Particulate monitor with a 10 microgram selective head fitted. This monitor does not require any bias adjustment and the daily values produced can be used directly following the screening of the data for quality assessment purposes.

The NO2 analyser is a Monitor Labs 9841 contained in an air conditioned enclosure. The monitor is operated by Rushcliffe personal but servicing and maintenance takes place under contract with SupportingU and previously under Casella. Data for NO2 is scaled and quality checked prior to reporting. Details of QA/QC procedures are contained in the appendices.

Figure 2.1 Map(s) of Automatic Monitoring Sites (NO2 monitor for 2011)

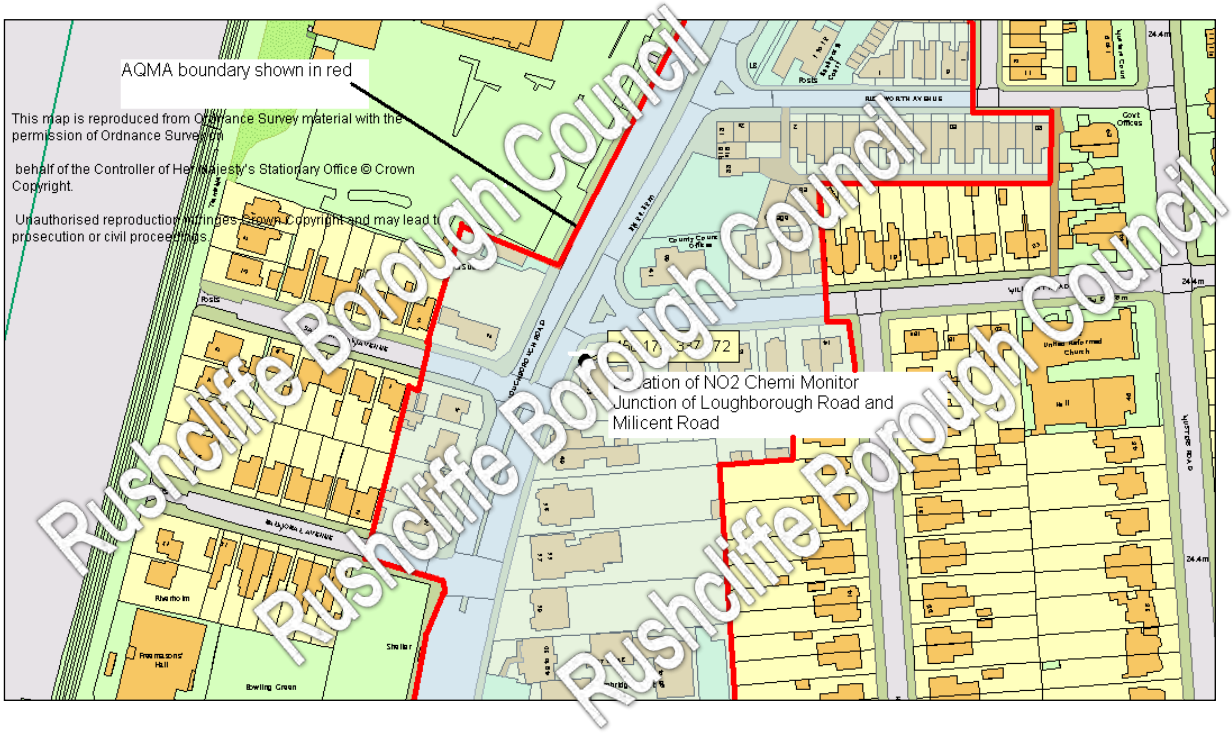


Figure 2.2 Photograph of NOx Monitor (2011)

Figure 2.3 Map(s) of Automatic Monitoring Sites (OLD location of PM10 monitor, ceased in 2010)

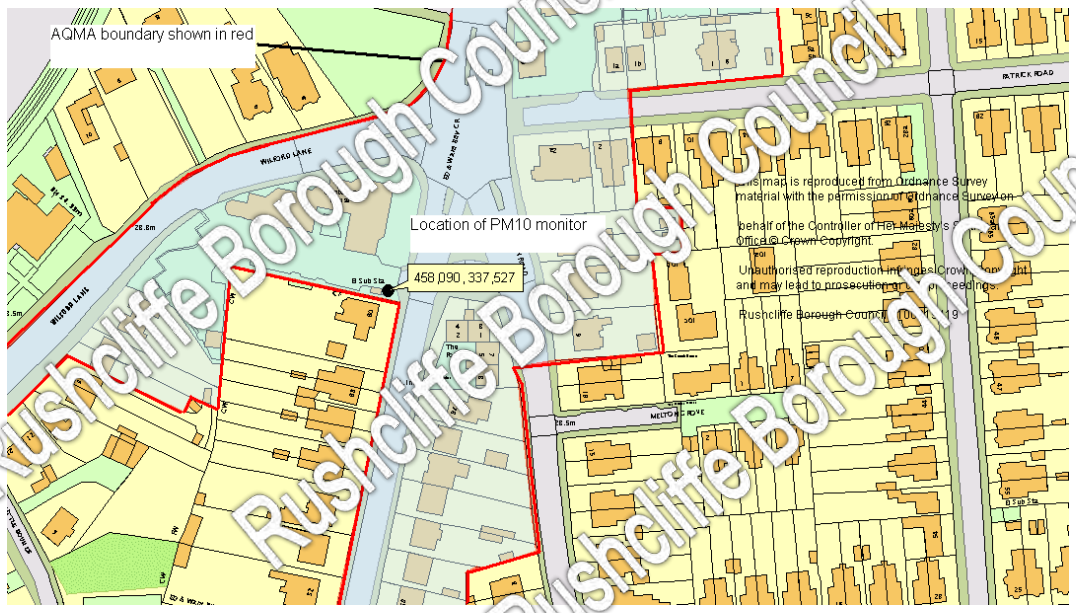


Figure 2.4 Map(s) of Automatic Monitoring Sites (new location of PM monitor for 2011)

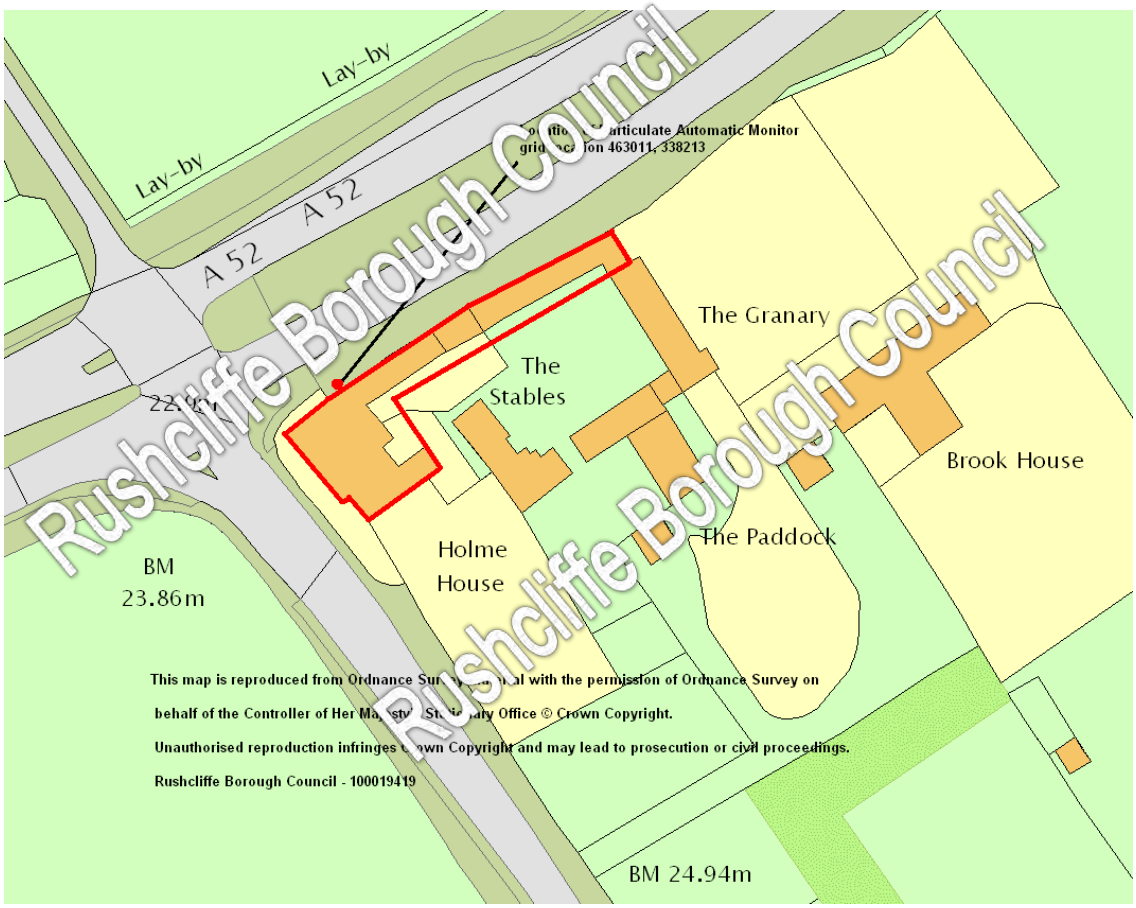


Figure 2.5 Photos of Automatic Monitoring Sites (PM10 monitor for 2011)

Table 2.1 Details of Automatic Monitoring Sites

Site Name	**Site Type**	**X OS GridRef**	**Y OS Grid Ref**	**Pollutants Monitored**	**In AQMA ?**	**Monitoring Technique**	**Relevant Exposure?** *(Y/N with distance (m) to relevant exposure)*	**Distance to kerb of nearest road** *(N/A if not applicable)*	**Does this location represent worst-case exposure ?**
Loughborough Road/Milicent Road, West Bridgford	Road side	458174,	337772	NO_2	Y(AQMA 1)	Chemi-luminescence	Y (0m)	5m	Y
Holme House, A52 Straggletherpe Junction, Radcliffe on Trent	Road Side	463011	338213	PM10	Y (AQMA4)	Gravimetric	Y(0.5m)	5.5m	Y

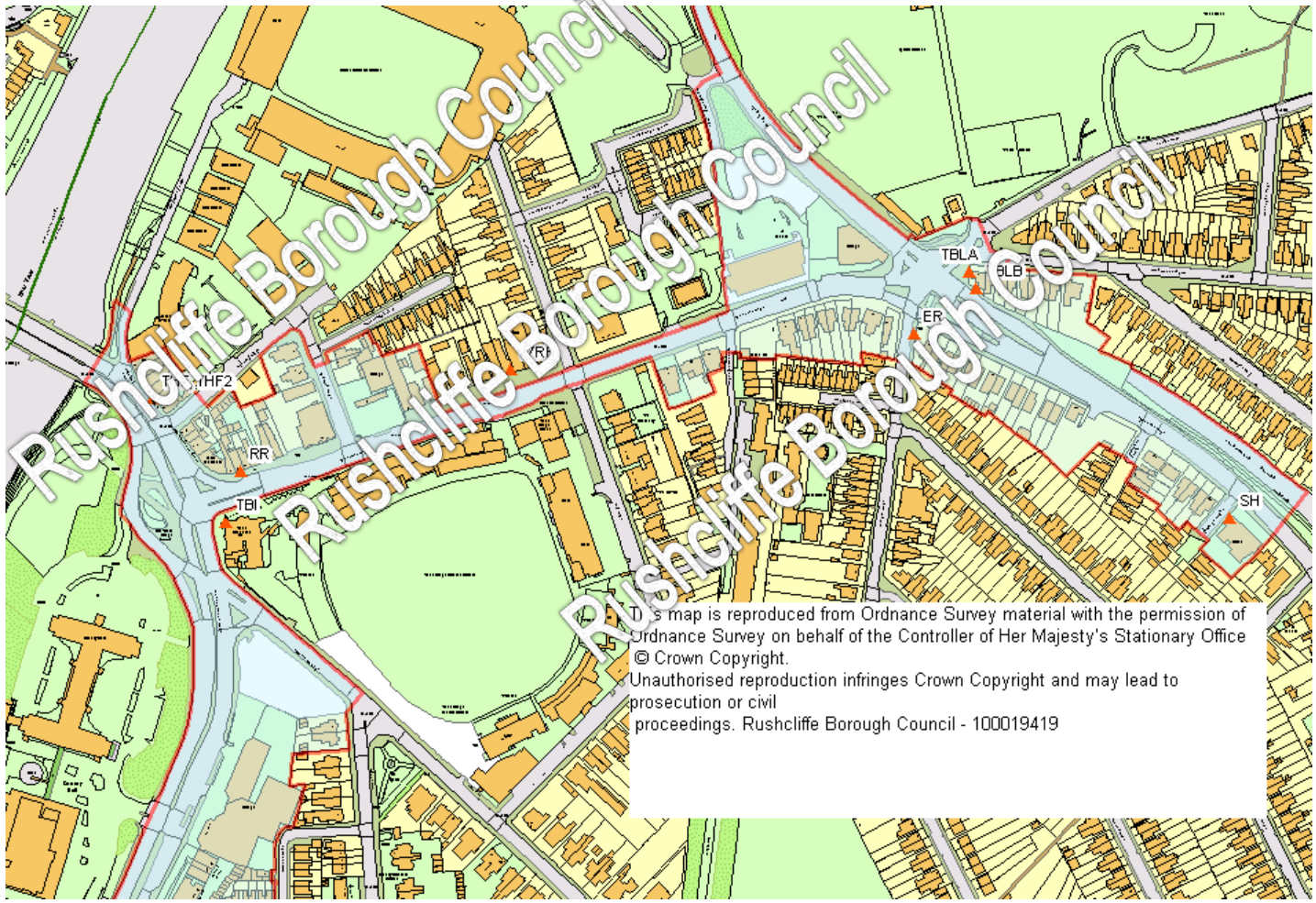
2.1.2 Non-Automatic Monitoring Sites

The non-automatic monitoring that has taken place in Rushcliffe in 2011 relates to NO2 Diffusion tubes only. These are the 20% TEA in water diffusion tubes and are supplied by Gradko International. Gradko supply a number of local authorities with this type of tube, they are a member of the WASP scheme and results for this laboratory and other information is available in the QA/QC section of this report. For 2011 the automatic monitor has produced sufficient data capture to compare the results with a set of three tubes co-located at the Loughborough Road site. This produced a bias factor of 1.11 compared to a national factor of 0.89. For reasons set out in the Appendices B: national bias adjustment factors & local co-location, a national factor has been chosen to bias adjust the diffusion tube study results. This factor is 0.89 and is available from http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html.

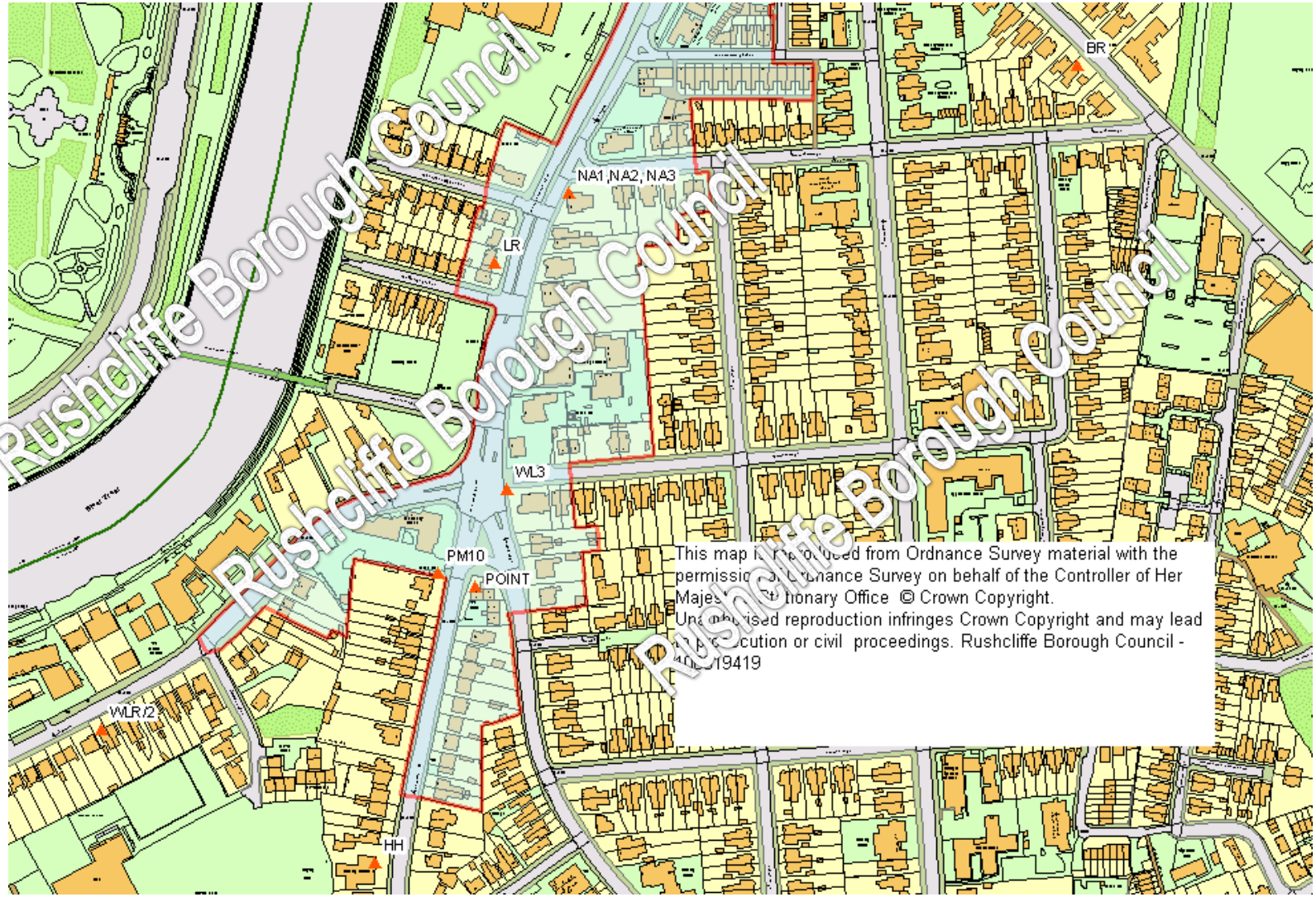
The following maps show the result and locations of diffusion tube sampling over the 2011 period with Table 2.2 showing the grid references and other detailed information.

Figure 2.6 Map(s) of Non-Automatic Monitoring Sites

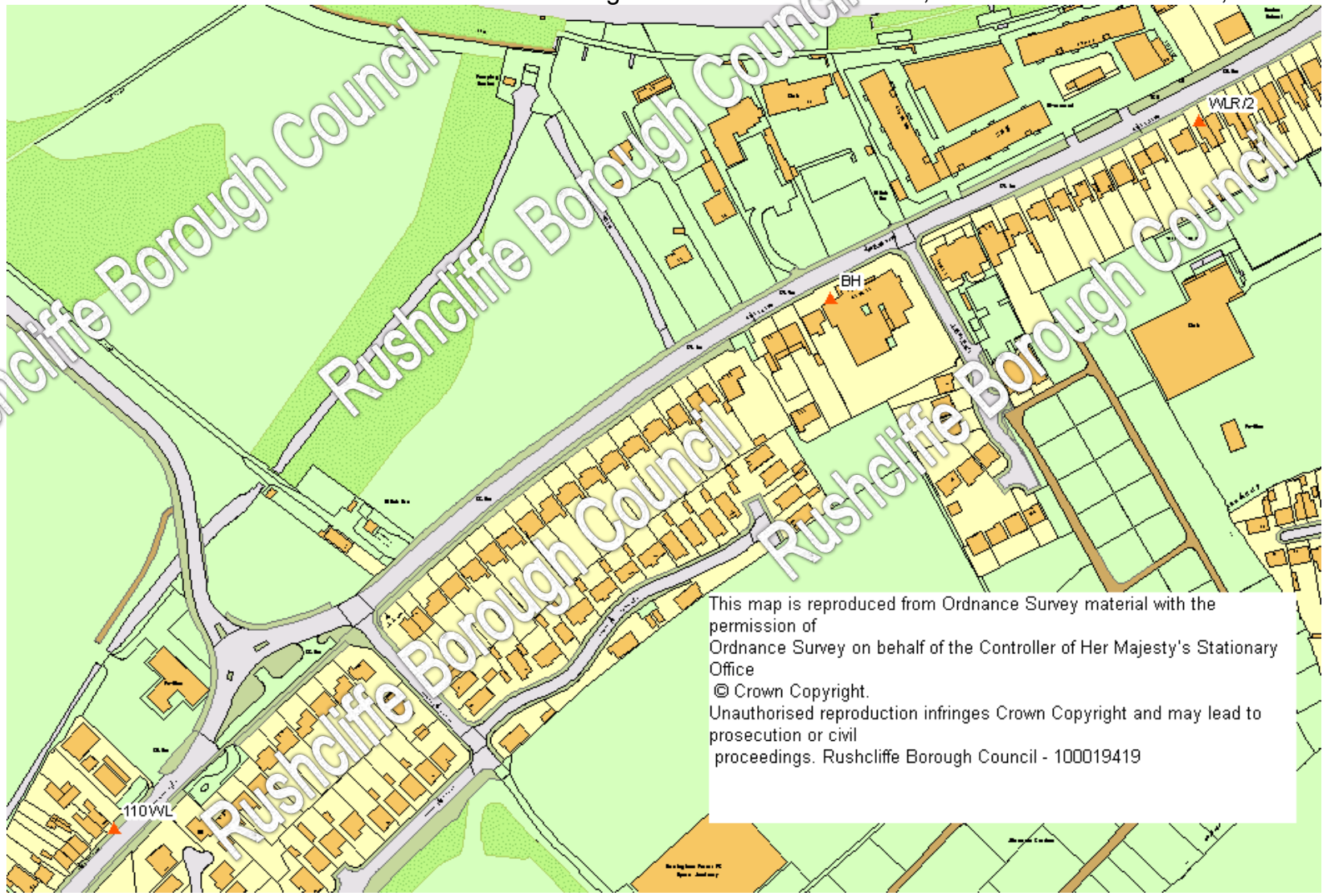
Locations of Non-Automatic Monitoring Sites THF, RR, TBI, 37RR, TBLA, TBLB & ER



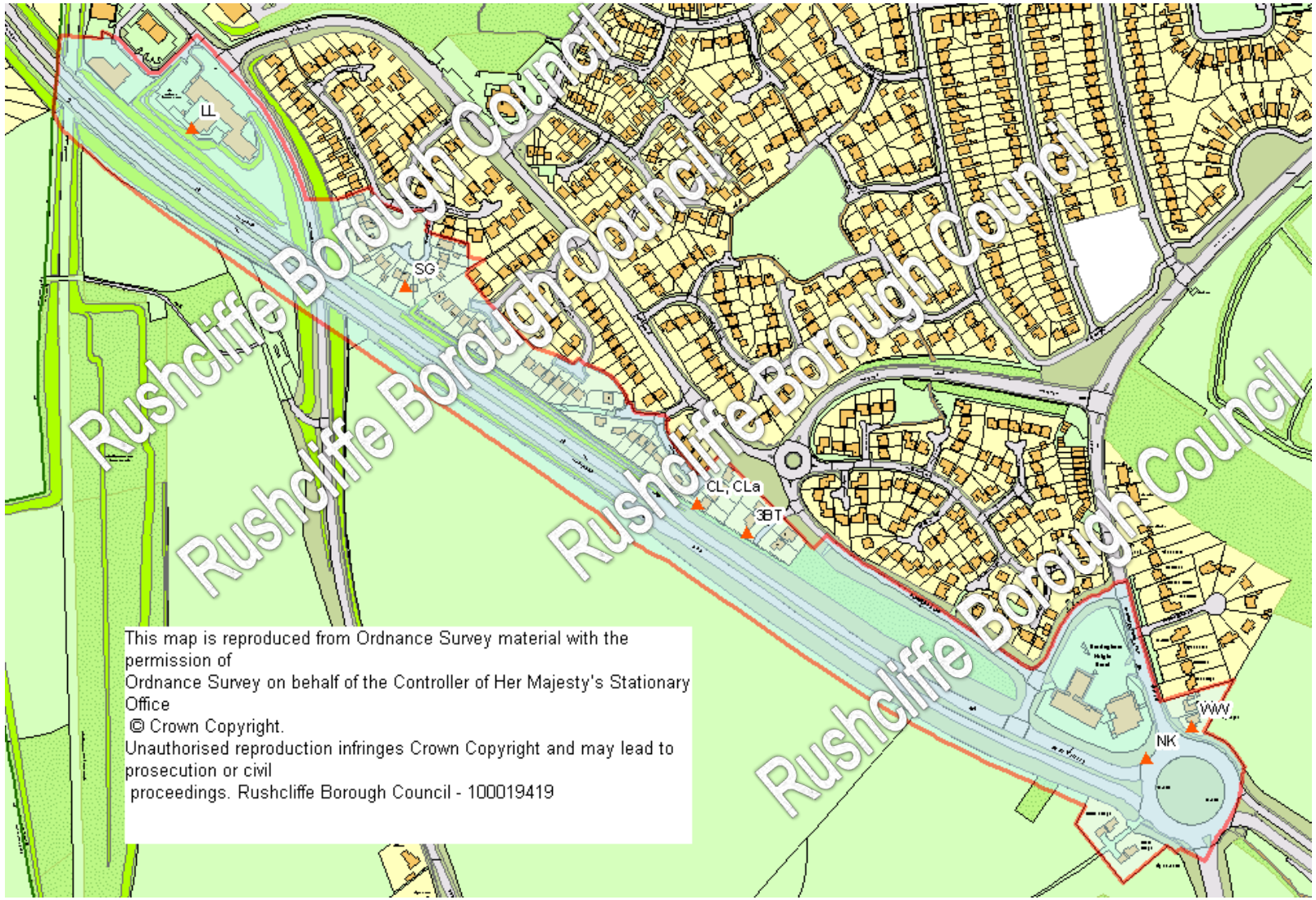
Locations of Non-Automatic Monitoring Sites NA1-3, LR, WL3, PM10, point, WLR2, HH



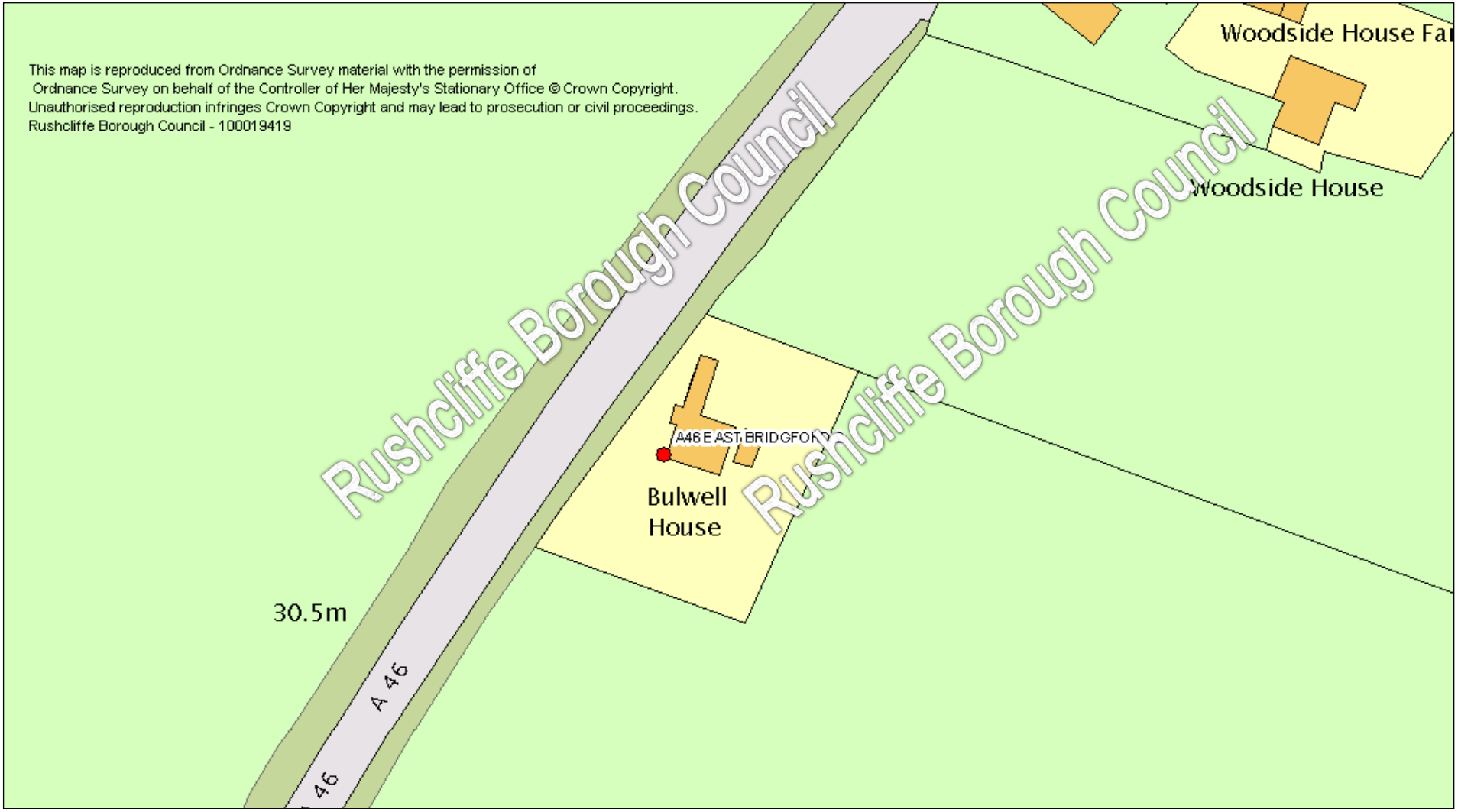
Locations of Non-Automatic Monitoring Sites BH, 110 WL, WLR2,



Locations of Non-Automatic Monitoring Sites LL, SG, CL, 3BT, NK, WW



Map 2.1 Locations of Non-Automatic Monitoring Sites EB 46, East Bridgford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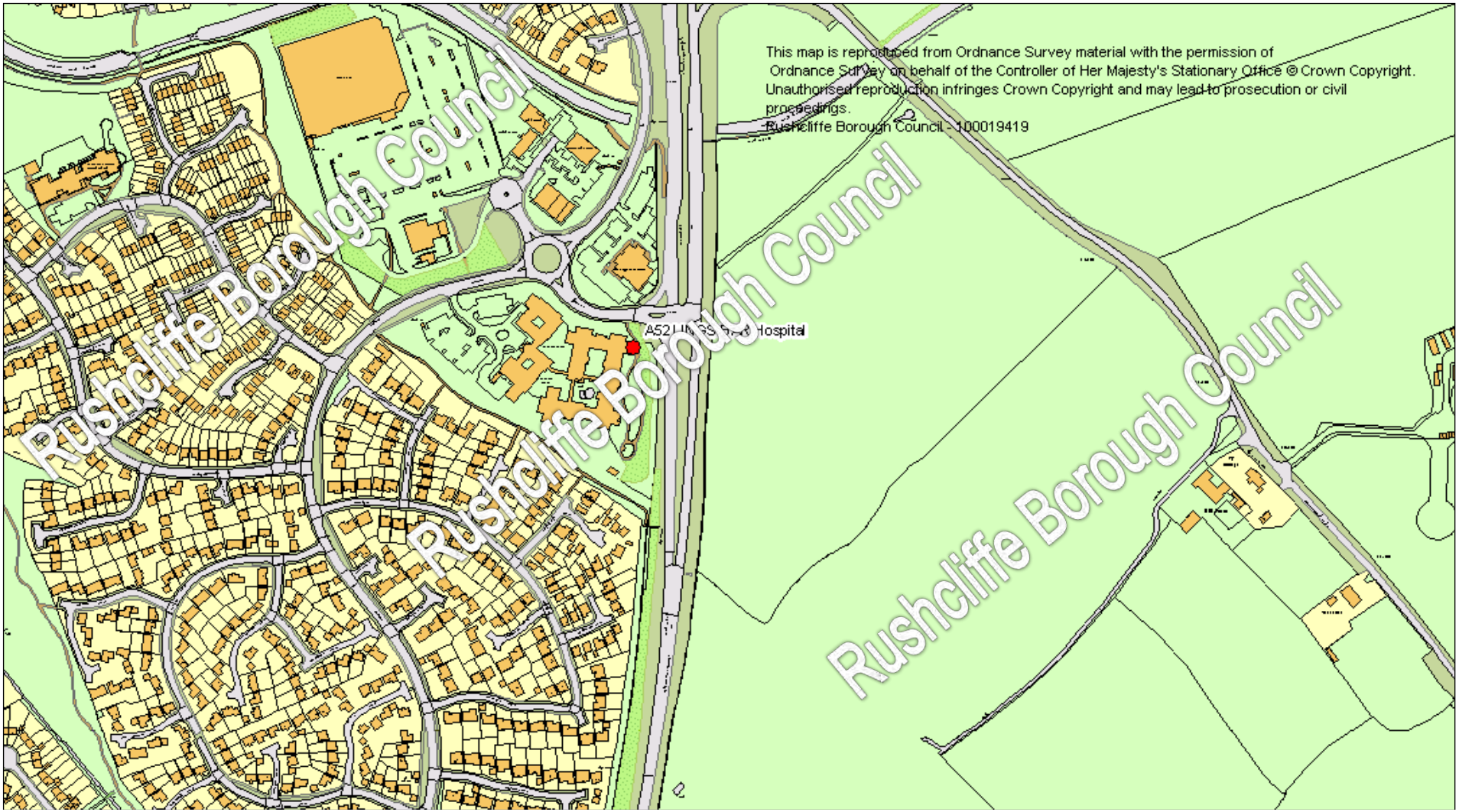
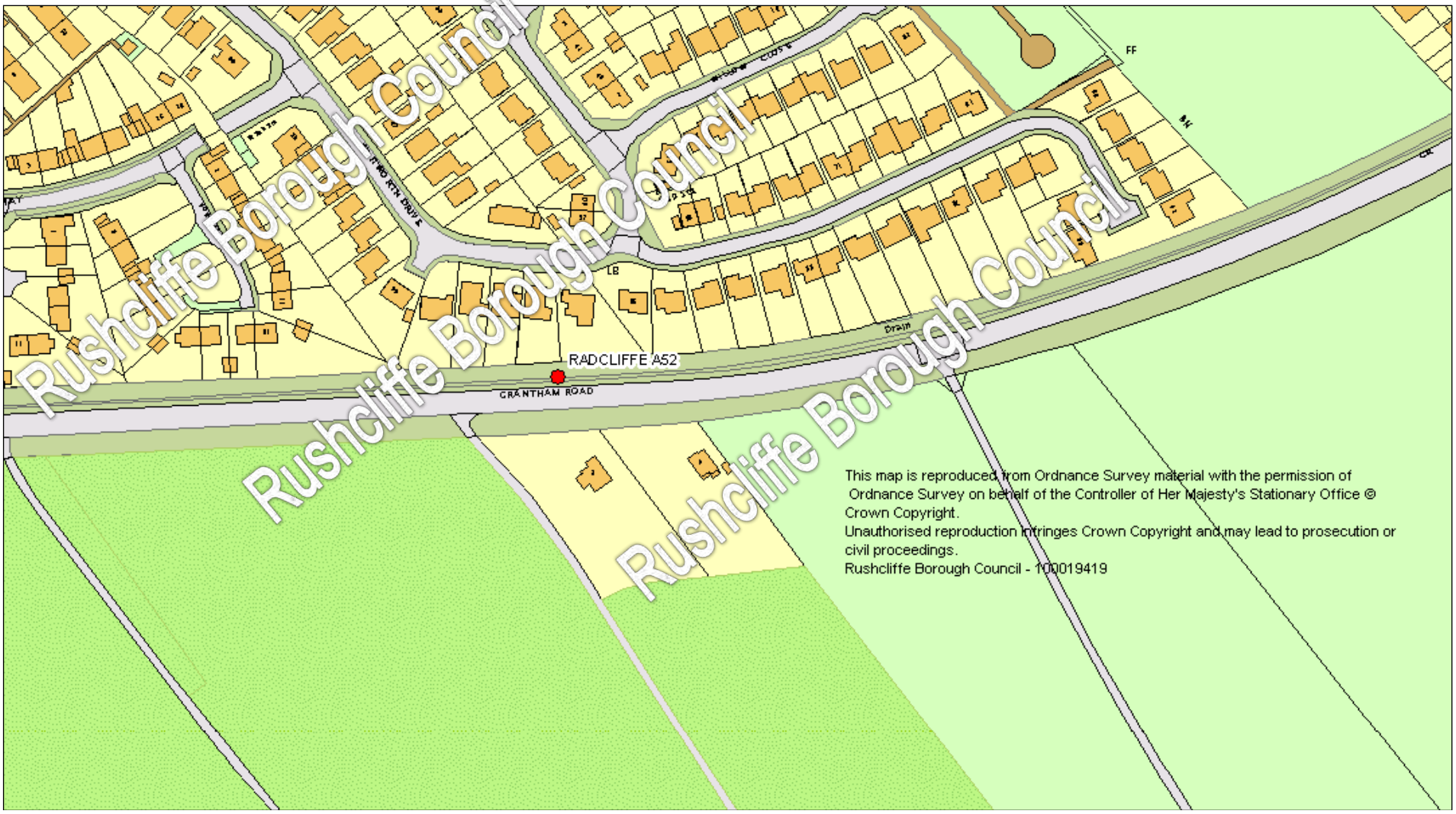
Rushcliffe Borough Council - 100019419
Rushcliffe Borough Council
Rushcliffe Borough Council
Woodside House Far
Woodside House
A46 EAST BRIDGFORD
Bulwell
House
30.5m
A 46
A 46

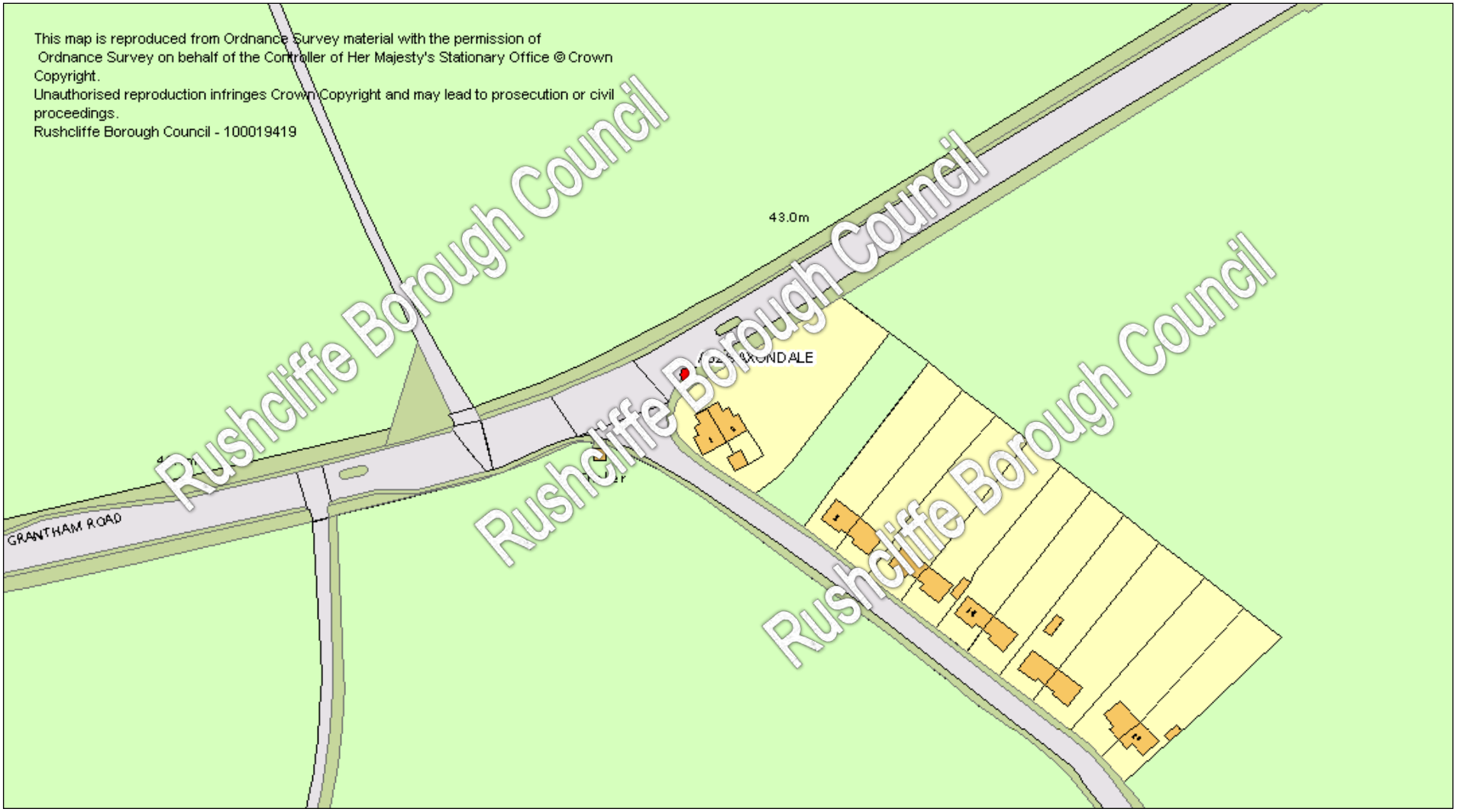
Locations of Non-Automatic Monitoring Sites A52 HOS, Gamston



Locations of Non-Automatic Monitoring Sites A52 RT

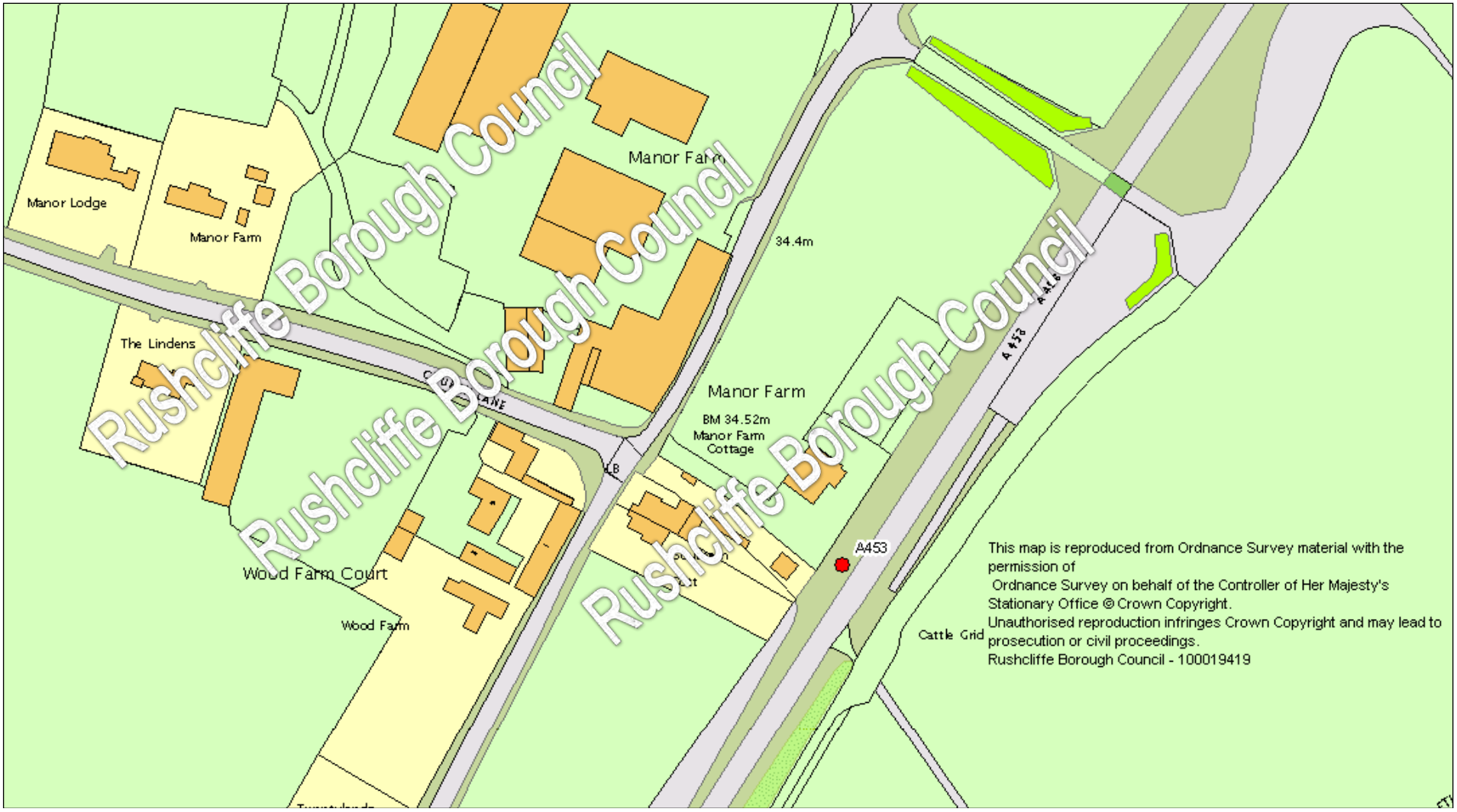


Locations of Non-Automatic Monitoring Sites A52 S



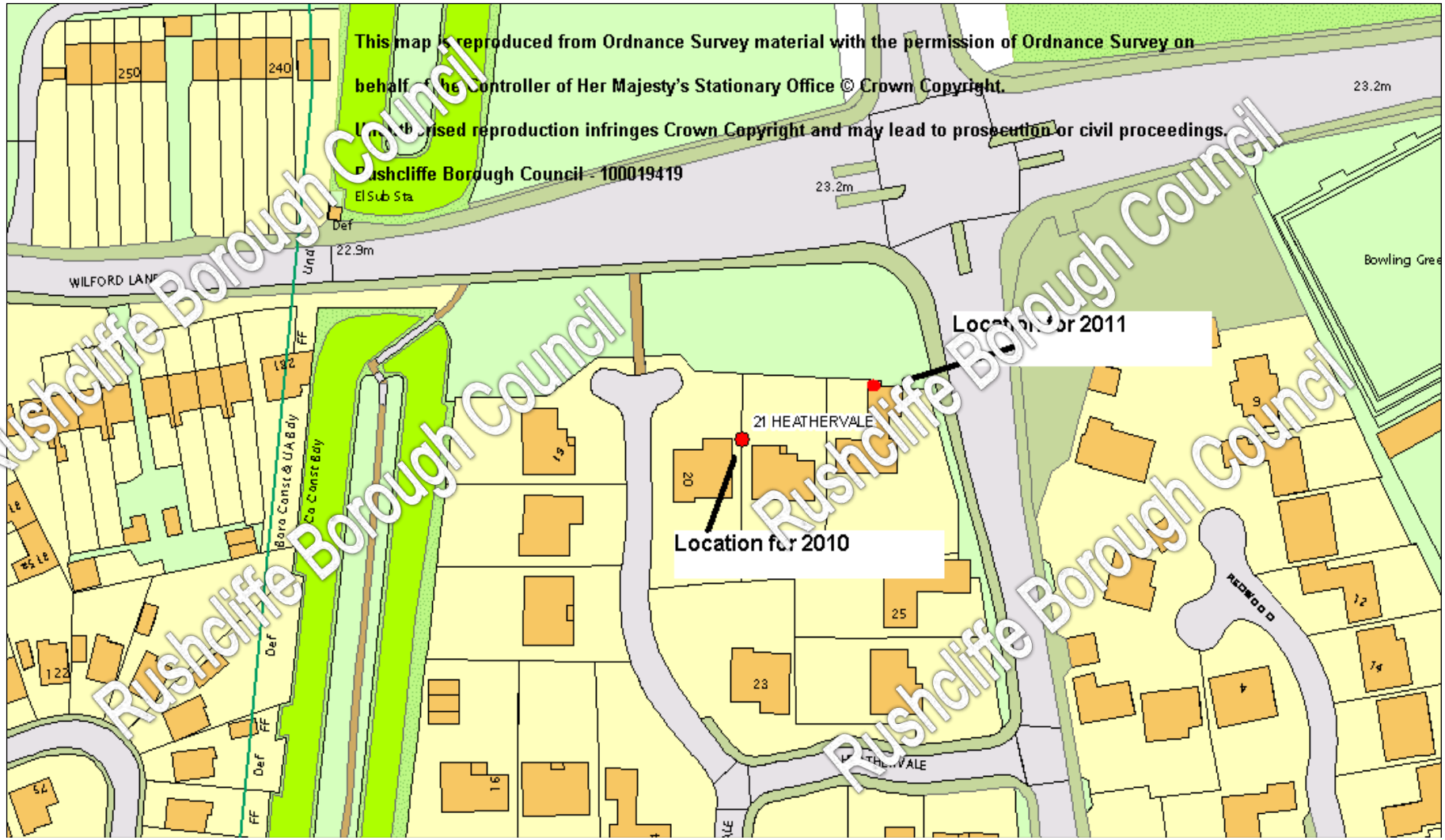
Locations of Non-Automatic Monitoring Sites A52SA, Radcliffe on Trent

Locations of Non-Automatic Monitoring Sites A453

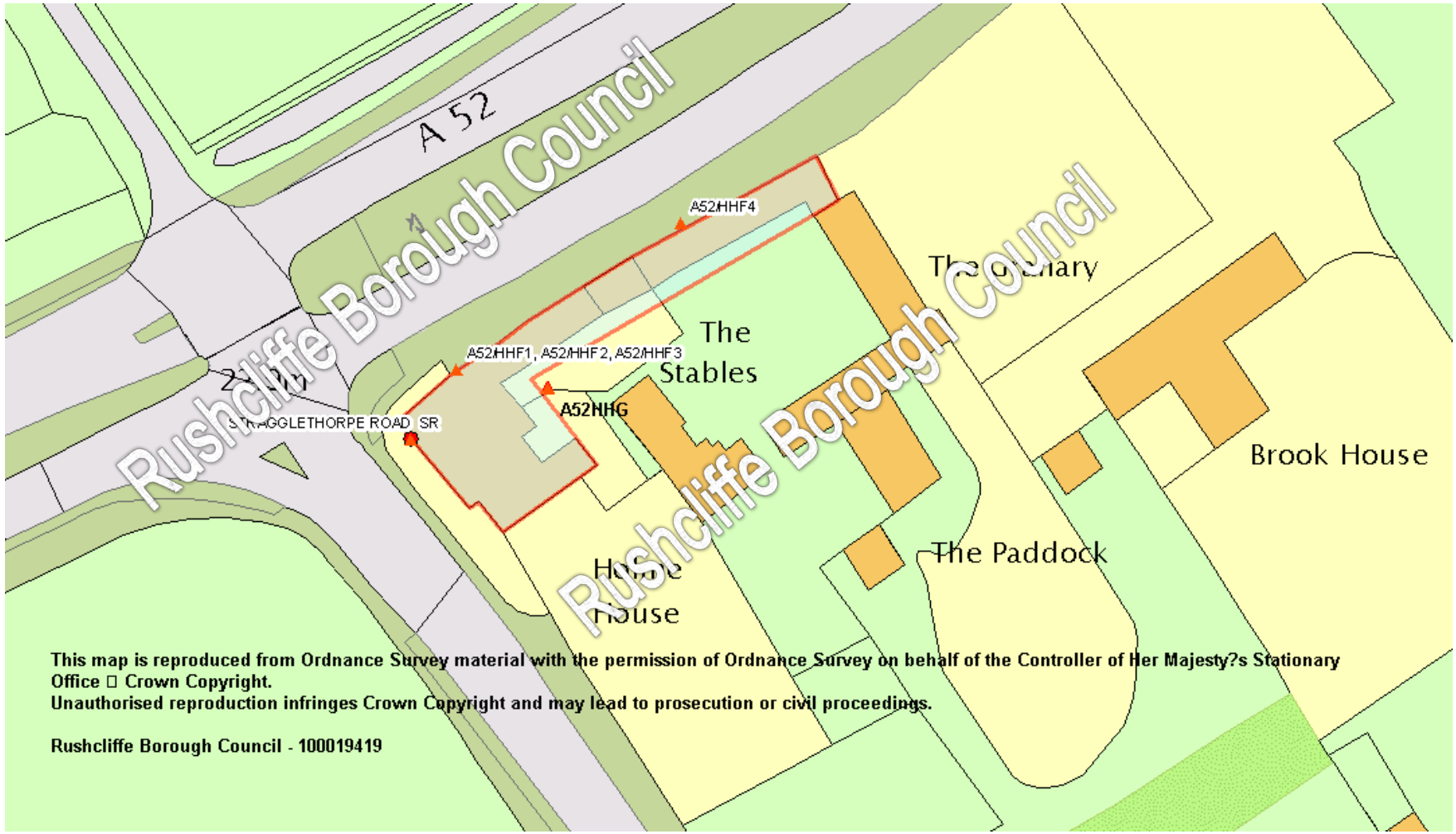


Locations of Non-Automatic Monitoring Sites HR, West Bridgford

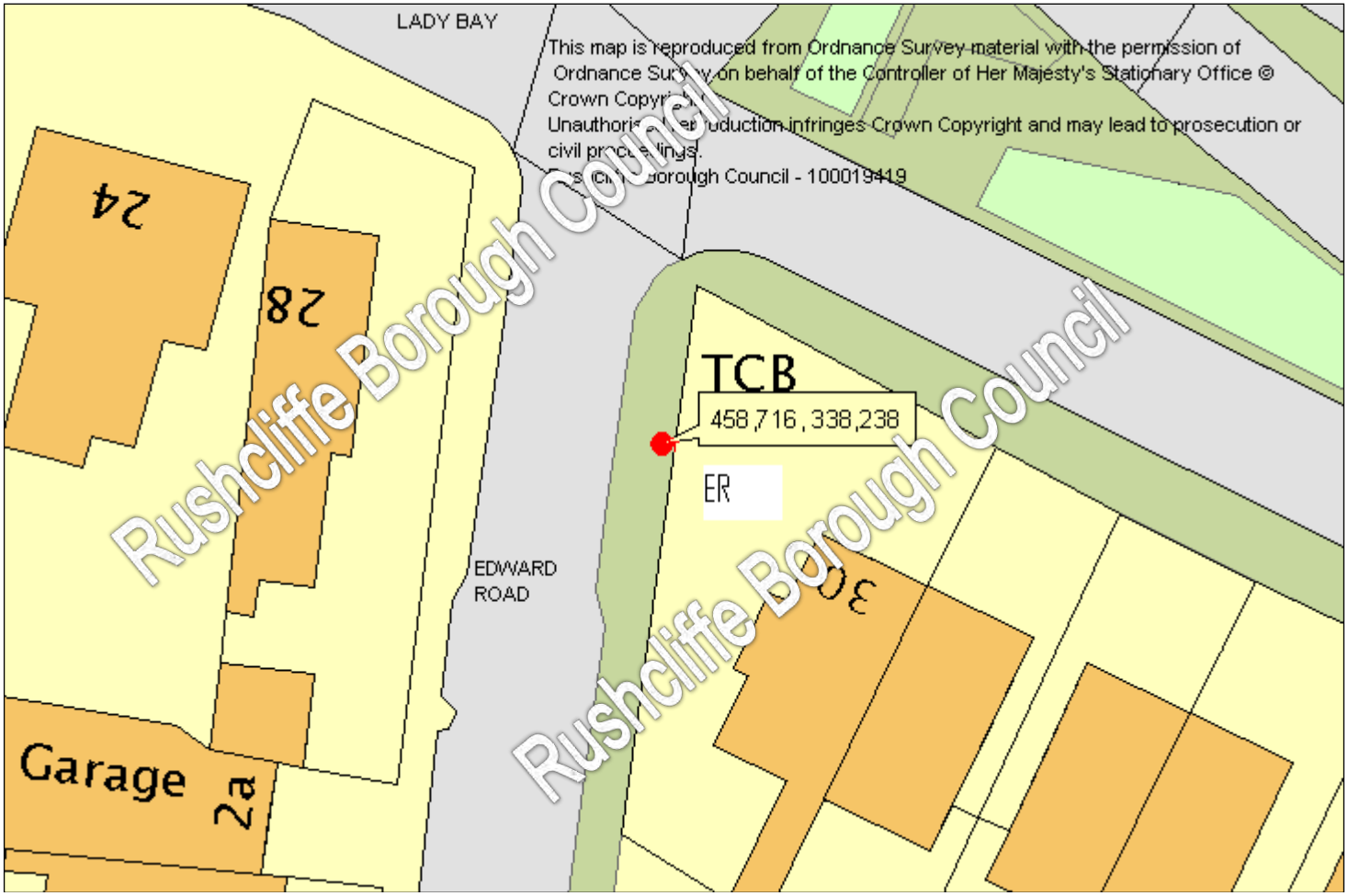
Locations of Non-Automatic Monitoring Sites HV,



Locations of Non-Automatic Monitoring Sites A52 HHF, SR, A52 HHF4, A52HHG, Radcliffe on Trent



Locations of Non-Automatic Monitoring Sites ER, Radcliffe on Trent area



Locations of Non-Automatic Monitoring Sites 1KH, 4KH, Bingham Area

Table 2.2 Details of Non-Automatic Monitoring Sites

Site Name	Brief Name	Site Type	X OS, YOS Grid Ref	Pollutants Monitored	In AQMA?	Is monitoring collocated with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) to relevant exposure)			Distance to kerb of nearest road	Does this location represent worst-case exposure?
							for annual limit	for 1 hour limit	Distance to receptor (m)	*(N/A if not applicable)*	
LOUGHB'H RD W/B/Millicent road	NA1	RS	458174, 337771.5	NO_2	1	yes	YES	YES	0	5	Y
LOUGHB'H RD W/B/Millicent road	NA2	RS	458174, 337771.5	NO_2	1	yes	YES	YES	0	5	Y
LOUGHB'H RD W/B/Millicent road	NA3	RS	458174, 337771.5	NO_2	1	yes	YES	YES	0	5	Y
EDWARD ROAD, LADY BAY	ER	RS	458716, 338238	NO_2	1	no	YES	YES	0	10.5	Y
LOUGHBOROUGH ROAD (RES)	LR	RS	458126, 337727	NO_2	1	no	YES	YES	0	8.9	Y
PARTICULATE MONITOR (CENTENARY HOUSE)	PM10	RS	458090, 337527	NO_2	1	no	YES	YES	2.5	7.3	Y
RADCLIFFE ROAD	RR	RS	458284, 338150	NO_2	1	no	YES	YES	0	4	Y
SWANS HOTEL	SH	RS	458919, 338120	NO_2	1	no	YES	YES	0	10	Y
THE POINT	POINT	RS	458114, 337518	NO_2	1	no	YES	YES	0	7.4	Y

TRENT BOULEVARD A	TBLA	RS	458752, 338278	NO_2	1	no	YES	YES	0	7.1	Y
TRENT BOULEVARD B	TBLB	RS	458756, 338267	NO_2	1	no	YES	YES	0	3.4	Y
TRENT BRIDGE INN	TBI	RS	458274, 338117	NO_2	1	no	NO	YES	0	6.6	Y
TRENT HOUSE	THF	RS	458227, 338197	NO_2	1	no *1	YES	YES	0	3.2	Y
TRENT HOUSE	THF2	RS	458227, 338197	NO_2	1	no *1	YES	YES	0	3.2	Y
WILFORD LANE 3	WL3	RS	458134, 337581	NO_2	1	no	YES	YES	5.2	2.1	Y
8 SALTBY GREEN	SG	suburban	456970, 335222	NO_2	2	no	YES	YES	0	29	Y
A60/A52 JUNCTION (Nott Knight)	NK	RS	457612, 334813	NO_2	2	no	NO	YES	15	1.8	Y
3 BOTANY CLOSE	3BT	RS	457266, 335008	NO_2	2	no	YES	YES	0	21	Y
CLOVERLANDS	CL	RS	457223, 335033	NO_2	2	no *1	YES	YES	0	16.3	Y
CLOVERLANDS	CL2a	RS	457223, 335033	NO_2	2	no *1	YES	YES	0	16.3	Y
LANDMERE NURSING HOME	LL	suburban	456785, 335359	NO_2	2	no	YES	YES	0	31.5	Y
WINDYWAYS	WW	RS	457651, 334840	NO_2	2	no	YES	YES	0	12	Y
A52 HOME HOUSE(façade) S'THORPE	A52/HHF1	RS	463011, 338213	NO_2	4	no *1	YES	YES	0	6	Y
A52 HOME HOUSE(façade) S'THORPE	A52/HHF2	RS	463011, 338213	NO_2	4	no *1	YES	YES	0	6	Y
A52 HOME HOUSE(façade) S'THORPE	A52/HHF3	RS	463011, 338213	NO_2	4	no *1	YES	YES	0	6	Y
STRAGGLETHORPE ROAD	SR	RS	463005, 338204	NO_2	4	no	YES	YES	0	5.5	Y
A52 HOME HOUSE(façade) S'THORPE	A52/HHF4	RS	463040, 338232	NO_2	4	no	YES	YES	0	5.5	Y
A52 HOME HOUSE (GARDEN)	A52/HHG	RS	463022, 338210	NO_2	4	no	YES	YES	0	15	Y
22 HEATHERVALE	HV	RS	456893, 336768	NO_2	no	no	YES	YES	0	36	Y
34 BRIDGFORD ROAD	BR	RS	458501, 337854	NO_2	no	no	YES	YES	0	10	Y
39/41 WILFORD LANE	WLR/2	RS	457873, 337426	NO_2	no	no	YES	YES	0	9	Y

A453	A453	RS	451697, 330925	NO_2	no	no	YES	YES	23.8	3.2	Y
A46 EAST BRIDGFORD	A46/EB	RS	470371, 342046	NO_2	no	no *1	YES	YES	0	12	Y
A46 EAST BRIDGFORD 2	A46/EB2	RS	470371, 342046	NO_2	no	no *1	YES	YES	0	0	Y
A52 LINGS BAR Hospital	GLB HOS	RS	460662.7, 336513.5	NO_2	no	no	YES	YES	0	26	Y
A52 SAXONDALE	A52/S	RS	466630, 339652	NO_2	no	no	YES	YES	10	1.5	Y
A52 SOUTH AVE, RADCLIFFE	A52/SA	RS	465929, 339543	NO_2	no	no	YES	YES	0	4.2	Y
HAMPTON ROAD	HR	UB	458326, 336714	NO_2	no	no	YES	YES	0	5.4	Y
HICKORY HOUSE	HH	RS	458049, 337340	NO_2	no	no	YES	YES	0	10.5	Y
RADCLIFFE ROAD	37RR	RS	458457, 338215	NO_2	no	no	YES	YES	-3.3	13.8	Y
PEVERIL COURT	PC	RS	458399, 337172	NO_2	no	no	YES	YES	0	8	Y
RADCLIFFE A52	A52/RT	RS	464644, 338730	NO_2	no	no	YES	YES	6.5	3.3	Y
THE BEECHES HOTEL	BH	RS	457701, 337342	NO_2	no	no	YES	YES	0	9.7	Y
110 Wilford Lane lamp post	110 WL	RS	457366, 337091	NO_2	no	no	YES	YES	3	2	Y
1 KIKHILL BINGHAM	1KH	RS	470210, 340010	NO_2	No	no	YES	YES	0	1.3	Y
4 KIRKHILL BINGHAM	4KH	RS	470219, 340051	NO_2	No	no	YES	YES	0	2	Y

*1 indicates site has two or more tubes located.

2.2 Comparison of Monitoring Results with AQ Objectives

The following sections detail the comparisons of monitoring results with the AQ objectives. This covers NO2 automatic monitoring, NO2 diffusion tube monitoring and PM10 Automatic sampling by gravimetric sampler within the borough

The annual mean concentration at the automatic monitoring site operated by Rushcliffe BC is below the 40 μgm^{-3} AQS with the results for the site shown in Table 2.3 and Table 2.4 below. There have been no exceedences of the 1 hour 200 µg/m-3 limit. The trend at this site is shown in Figure 2.7 below.

A complete set of diffusion tube results is shown in Appendices D: Diffusion tube results by month. Results are bias adjusted to the national factor. The statistical data for the site is shown in the following tables in section 2.2.1.

A discussion on the PM10 results is shown in the following paragraph 2.2.2 Other pollutants monitored.

All sites have been selected carefully to ensure that they are representative of exposure and where this is not possible the results are corrected for distance to the nearest relevant receptor to enable a comparison with the AQS. A discussion regarding results that are above the AQS is shown in section 2.2.3

2.2.1 [1]Nitrogen Dioxide:

Automatic Monitoring Data Results

Table 2.3 Results of Automatic Monitoring of Nitrogen Dioxide: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Data Capture for monitoring period [a] %	Valid Data Capture 2011 % [b]	Annual mean concentrations (μgm^{-3})				
					2007*[c]	2008* [c]	2009* [c]	2010* [c]	2011 [c]
Loughborough Millicent Road	Roadside	Y	93%	93%	43.2 (89% DC)	38.4 (88% DC)	34.10 (77% DC)	39.24 (89%DC*1)	37.82 (93%DC)

[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.

[1]

The chart below shows the annual means from the automatic monitoring site. 2006 data is omitted due to lack of data capture for this year. The chart illustrates a fall at this location from 2007 to 2009 and an increase reported in 2010. It is noted that this 2010 figure is an annualised result based on provisional data due to data capture being less than nine months. It is likely that this is an over estimate of the NO2 level for this reason. In addition, 2010 saw record low temperatures in December 2010 with higher than normal NO2 in this period which may also be a contributory factor. The 2011 result indicates a fall on the previous year and the trend line supports a view that emissions are in a downward trend.

Figure 2.7 Trends in Annual Mean Nitrogen Dioxide Concentrations measures at Automatic Monitoring Sites

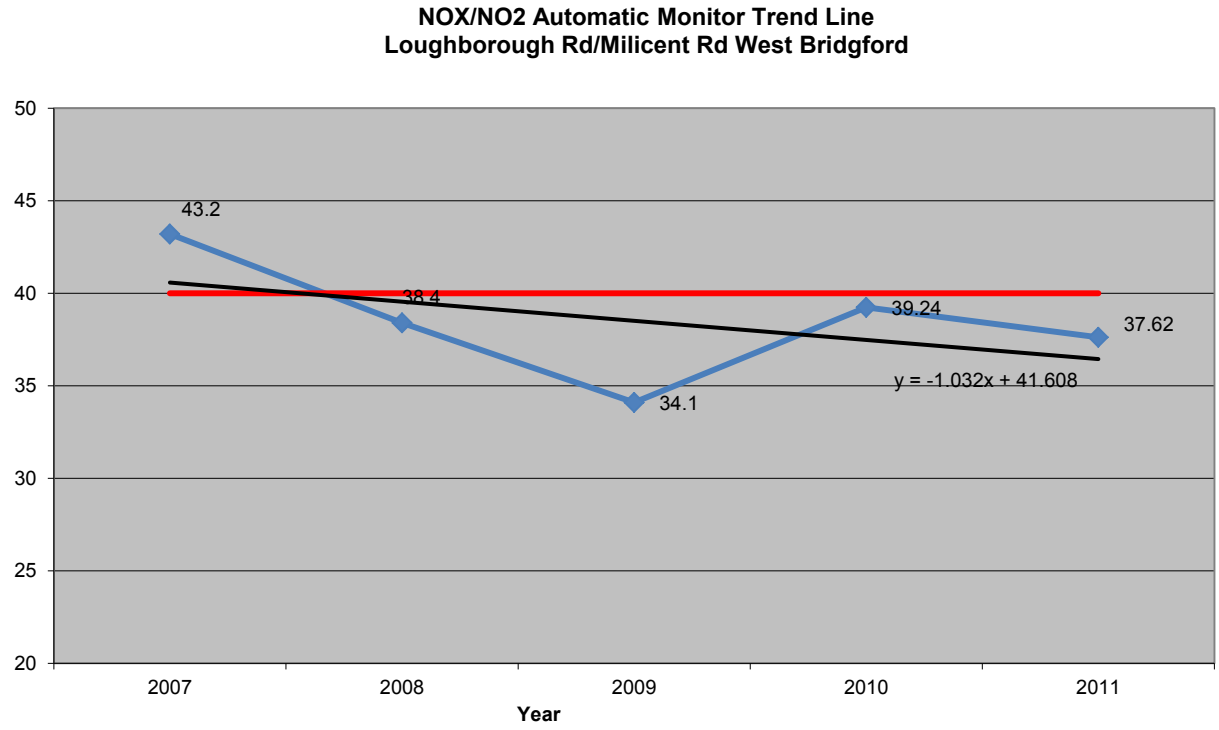


Table 2.4 Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring period %a	Valid Data Capture 2011 % b	Number of Exceedences of Hourly Mean (200 $\mu g m^{-3}$)				
					2007*c	2008* c	2009* c	2010* c	2011 c
Loughborough Millicent Road	Roadside	Y	**95**	**95**	0	2	0	0	0
							99.8th Percentile 119.78 $\mu g m^{-3}$ (revised 2010)	99.8th Percentile 131.56 $\mu g m^{-3}$	99.8th Percentile 126.8 $\mu g m^{-3}$

[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] If the period of valid data is less than 90%, include the 99.8th percentile of hourly means in brackets
*Number of exceedences for previous years are optional.

Diffusion Tube Monitoring Data

Table 2.5 below contains the results of the diffusion tube sampling undertaken in Rushcliffe in 2011. Where tubes are able to be placed on receptor locations no adjustment is required to compare the result with the AQS. In these instances it is the bias adjusted value that can be compared to the AQS. However, where this is not possible due to practical constraints the result is corrected for distance using the tool provided by Defra on the diffusion tube tool site. In this instance it is the distance corrected, bias adjusted value that should then be compared to the annual mean AQS.

The tube results for HHG site have been annualised as this tube was only located part way through the year. The calculations are shown Table 2.6 and are based on other diffusion sites period means and annual means in the nearby vicinity as this is thought to best represent the local air quality in this area to cater for the missing period.

Some sites have not been annualised as data is sporadic throughout the year making this calculation inaccurate or difficult to undertake without omitting data. As such these sites (WL, 3BT, 1KH and the TBI) results need to be treated with caution. The WL site has been subject to sporadic tampering and the TBI undertook a refurbishment that barred access at times.

The distance calculations used to obtain modified results for fall off with distance for certain tube sampling locations are illustrated in screen shots later at Figure 2.8.

The Table 2.5 has any results that are above the AQS highlighted. For improved accuracy sites (those that are duplicates or triplicates) the result that is shown is the average of all the exposed tubes at the site. E.g. the Loughborough Road result (NA1) is an average of the 36 tubes exposed over a 12 month period at the site.

Table 2.7 shows the historical results for each sampling site and as such enables the presence of any trends to be highlighted. This is best achieved by reviewing the charts shown in Figure 2.9.

Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes in 2011

Site ID	Location	Site Type(*4)	Within AQMA ?	Triplicate or Collocated Tube	Data Capture 2011 (%)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	not biased *note 3	Annual mean concentration (Bias Adjustment factor = 0.89) 2011 (μgm^{-3})	
									not distance corrected	corrected for distance to nearest receptor
NA1	1 LOUGHB'H RD W/B	RS	1	triplicate	100%	N/A	N	34.22	30.5	n/a
NA2	1 LOUGHB'H RD W/B	RS	1	triplicate	100%	N/A	N	34.22	30.5	n/a
NA3	1 LOUGHB'H RD W/B	RS	1	triplicate	100%	N/A	N	34.22	30.5	n/a
HV	22 HEATHERVALE	RS	no	single	83%	N/A	N	24.37	21.7	n/a
BR	34 BRIDGFORD ROAD	RS	no	single	100%	N/A	N	28.24	25.1	n/a
WLR/2	39/41 WILFORD LANE	RS	no	single	100%	N/A	N	29.79	26.5	n/a
SG	8 SALTBY GREEN	SUBURBAN	2	single	100%	N/A	N	29.37	26.1	n/a
A453	A453	RS	no	single	100%	N/A	Y	45.85	**40.8**	28.0
A46/EB	A46 EAST BRIDGFORD	RS	no	duplicate	100%	N/A	Y	27.10	24.1	25.4
A46/EB2	A46 EAST BRIDGFORD 2	RS	no	duplicate	67%	N/A	N	27.10	24.1	25.4
GLB HOS	A52 LINGS BAR Hospital	RS	no	single	100%	N/A	N	22.06	19.6	n/a
A52/S	A52 SAXONDALE	RS	no	single	92%	N/A	Y	36.92	32.9	26.2
A52/SA	A52 SOUTH AVE, RADCLIFFE	RS	no	single	100%	N/A	N	35.10	31.2	n/a

NK	A60/A52 JUNCTION (Nott Knight)	RS	2	single	92%	N/A	Y	55.88	**49.7**	33.5
3BT	3 BOTANY CLOSE	RS	2	single	67%	N *1	N	31.55	28.1	n/a
CL	CLOVERLANDS	RS	2	duplicate	92%	N/A	N	36.49	32.5	n/a
CL2a	CLOVERLANDS	RS	2	duplicate	92%	N/A	N	36.49	32.5	n/a
HR	HAMPTON ROAD	UB	no	single	100%	N/A	N	21.12	18.8	n/a
HH	HICKORY HOUSE	RS	no	single	100%	N/A	N	30.35	27.0	n/a
ER	EDWARD ROAD, LADY BAY	RS	1	single	100%	N/A	N	33.24	29.6	n/a
LL	LANDMERE NURSING HOME	SUBURBAN	2	single	83%	N/A	N	29.99	26.7	n/a
LR	LOUGHBOROUGH ROAD (RES)	RS	1	single	100%	N/A	N	38.77	34.5	n/a
37RR	RADCLIFFE ROAD	RS	no	single	92%	N/A	Y	33.71	30.0	31.4
PM10	PARTICULATE MONITOR (CENTENARY HOUSE)	RS	1	single	92%	N/A	N	30.39	27.0	26.1
PC	PEVERIL COURT	RS	no	single	100%	N/A	N	29.72	26.5	n/a
A52/RT	RADCLIFFE A52	RS	no	single	100%	N/A	N	41.16	36.6	31.9
RR	RADCLIFFE ROAD	RS	1	single	100%	N/A	N	40.98	36.5	n/a
SH	SWANS HOTEL	RS	1	single	100%	N/A	N	33.60	29.9	n/a
BH	THE BEECHES HOTEL	RS	no	single	100%	N/A	N	30.16	26.8	n/a
POINT	THE POINT	RS	1	single	100%	N/A	N	29.97	26.7	n/a

TBLA	TRENT BOULEVARD A	RS	1	single	100%	N/A	N	39.21	34.9	n/a
TBLB	TRENT BOULEVARD B	RS	1	single	100%	N/A	N	41.84	37.2	n/a
TBI	TRENT BRIDGE INN	RS	1	single	58%	No *1	N	53.53	**47.6**	n/a
THF	TRENT HOUSE	RS	1	duplicate	92%	N/A	N	43.65	38.8	n/a
THF2	TRENT HOUSE	RS	1	duplicate	100%	N/A	N	43.65	38.8	n/a
WL3	WILFORD LANE 3	RS	1	single	92%	N/A	Y	46.20	**41.1**	34.3
WW	WINDYWAYS	RS	2	single	100%	N/A	N	42.63	37.9	n/a
110 WL	110 Wilford Lane lamp post	RS	no	single	58%	No *1	Y	37.10	33.0	30.2
A52/HHF1	A52 HOME HOUSE(façade) S'THORPE	RS	4	triplicate	100%	N/A	N	55.48	**49.4**	n/a
A52/HHF2	A52 HOME HOUSE(façade) S'THORPE	RS	4	triplicate	100%	N/A	N	55.48	**49.4**	n/a
A52/HHF3	A52 HOME HOUSE(façade) S'THORPE	RS	4	triplicate	100%	N/A	N	55.48	**49.4**	n/a
SR	STRAGGLETHORPE ROAD	RS	4	single	92%	N/A	N	41.29	36.7	n/a
A52/HHF4	A52 HOME HOUSE(façade) S'THORPE	RS	4	single	100%	N/A	N	47.17	**42.0**	n/a
1KH	1 KIKHILL BINGHAM	RS	No	single	75%	No *1	N	45.56	**40.6**	n/a

4KH	4 KIRKHILL BINGHAM	RS	No	single	92%	N/A	N	38.35	34.1	n/a
A52/HHG	A52 HOME HOUSE (GARDEN)	RS	4	single	33%	yes*2	N	27.83	24.8	n/a

n/a means no adjustment is required to compare the result with the AQS in the last column

Note *1 data loss has occurred in various months throughout the year as such annualising has not been undertaken

Note *2 Annualised to A52/HHF1,2,3,4 & SR a factor of 1.07 applied to 26.06µg/m-3

Note *3 the results in this column, for sites with more than one tube, are the average of all tubes at the site

Note *4 RS stands for Road Side site

[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.

*Annual mean concentrations for previous years are optional.

The A52/HHG result has been annualised and then bias adjusted to obtain that shown in the above

Table 2.6 Details of the annualisation of the A52/HHG diffusion tube calculation.

	AM	PM	AM/PM
HHF	55.48	50.82	1.09
SR	41.29	44.03	0.94
HHF4	47.17	40.18	1.17
	Average (Ra)=		1.07

Annualised result = 1.07 x 26.06 = **27.83**

Figure 2.8 Details of distance calculations for applicable sampling sites:

A453 site

This calculator allows you to predict the annual mean NO_2 concentration for a location ("receptor") that is close to a monitoring site, but nearer or further the kerb than the monitor. The next sheet shows your results on a graph.

Enter data into the yellow cells

Step 1	How far from the KERB was your measurement made (in metres)?	(Note 1)	3.2	metres
Step 2	How far from the KERB is your receptor (in metres)?	(Note 1)	27	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	(Note 2)	18	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	(Note 2)	40.8	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	(Note 3)	28.0	µg/m^3

Warning: your receptor is more than 20m further from the kerb than your monitor, treat result with caution

Note 1: In some cases the term "kerb" may be taken to be the edge of the trafficked road - see the FAQ at http://laqm2.defra.gov.uk/FAQs/Monitoring/Location/index.htm for

Note 2: The measurement and the background must be for the same year. The background concentration could come from the national maps published at

Note 3: The calculator follows the procedure set out in Box 2.3 of LAQM TG(09). The results will have a greater uncertainty than the measured data. More confidence can be

A46 EB tubes

This calculator allows you to pre

Enter data into the yellow cells

Step 1	How far fr	(Note 1)	12	metres
Step 2	How far fr	(Note 1)	7	metres
Step 3	What is th	(Note 2)	18	µg/m^3
Step 4	What is y	(Note 2)	24.1	µg/m^3
Result	The predi	(Note 3)	25.4	µg/m^3

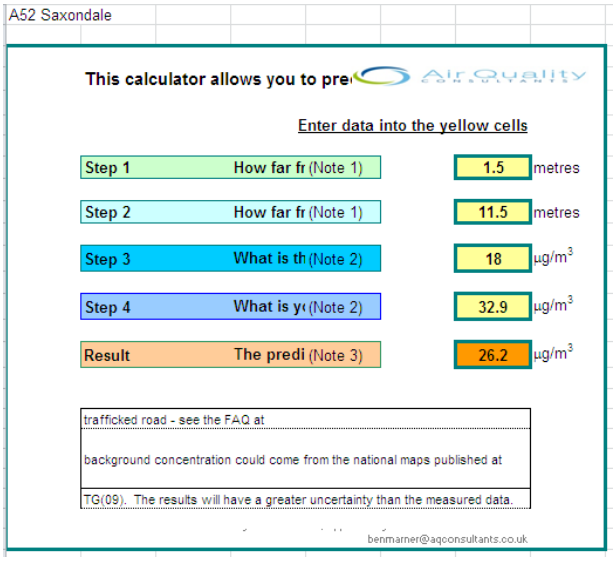
trafficked road - see the FAQ at

background concentration could come from the national maps published at

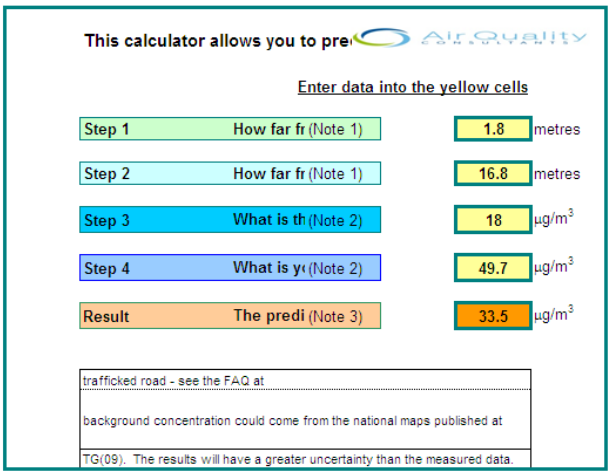
TG(09). The results will have a greater uncertainty than the measured data.

benmarner@aqconsultants.co.uk

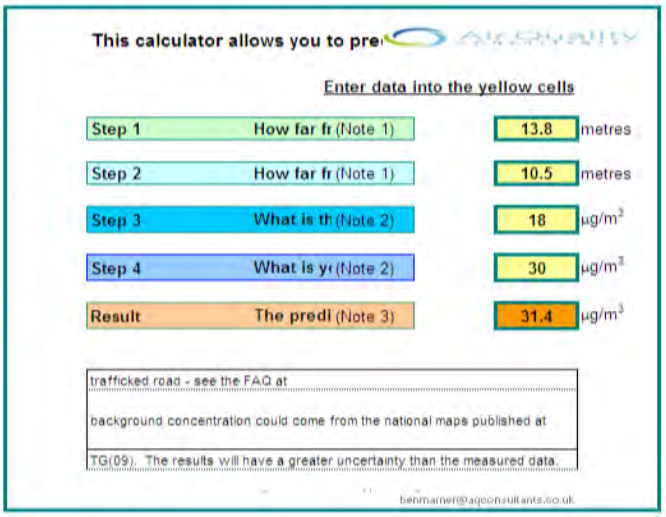
A52 Saxondale



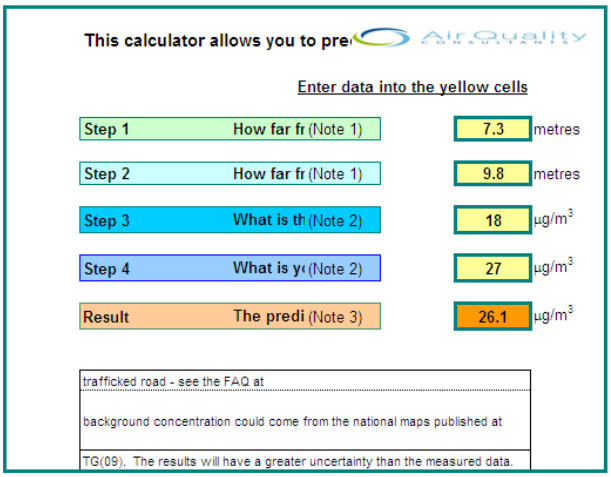
A52 Nottingham knight



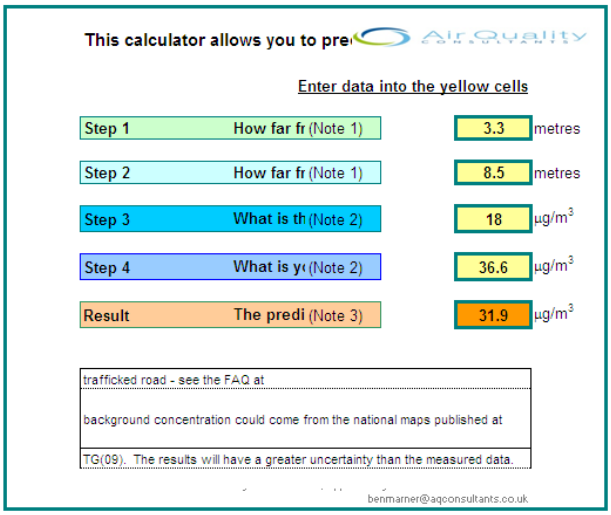
Radcliffe Road flat 37



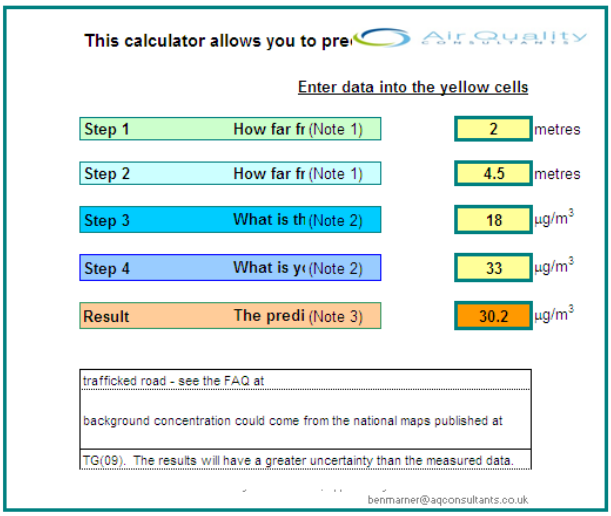
PM10/centenary House



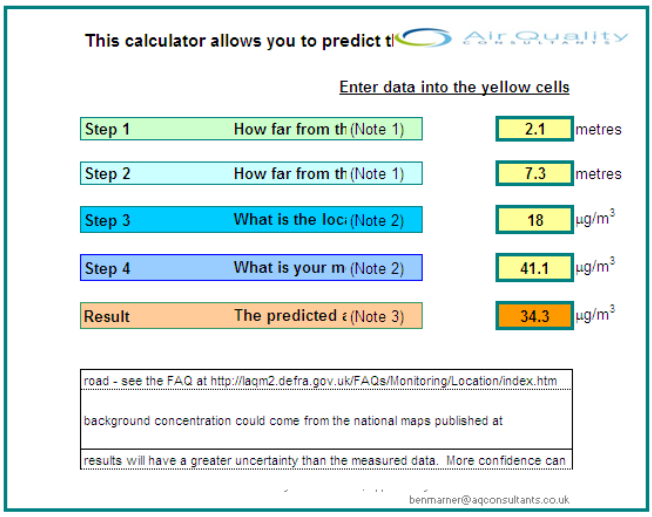
A52 RT- Radcliffe on trent



WL110 110 wilford lane



WL3 Wilford lane 3



This calculator allows you to predict t

Air Quality Consultants

Enter data into the yellow cells

Step 1	How far from th (Note 1)	2.1	metres
Step 2	How far from th (Note 1)	7.3	metres
Step 3	What is the loc (Note 2)	18	µg/m^3
Step 4	What is your m (Note 2)	41.1	µg/m^3
Result	The predicted (Note 3)	34.3	µg/m^3

road - see the FAQ at http://laqm2.defra.gov.uk/FAQs/Monitoring/Location/index.htm

background concentration could come from the national maps published at

results will have a greater uncertainty than the measured data. More confidence can

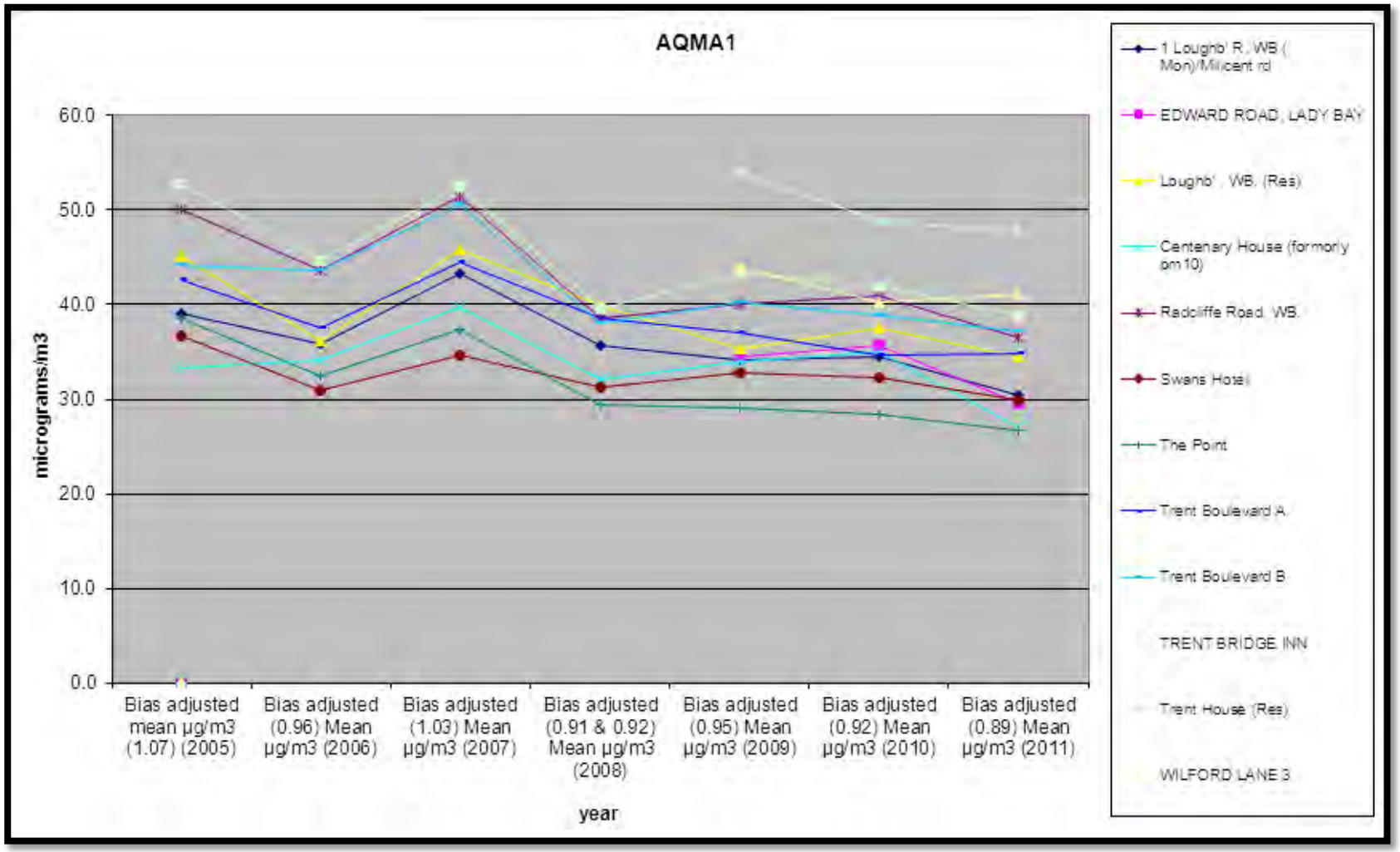
benmarner@aqconsultants.co.uk

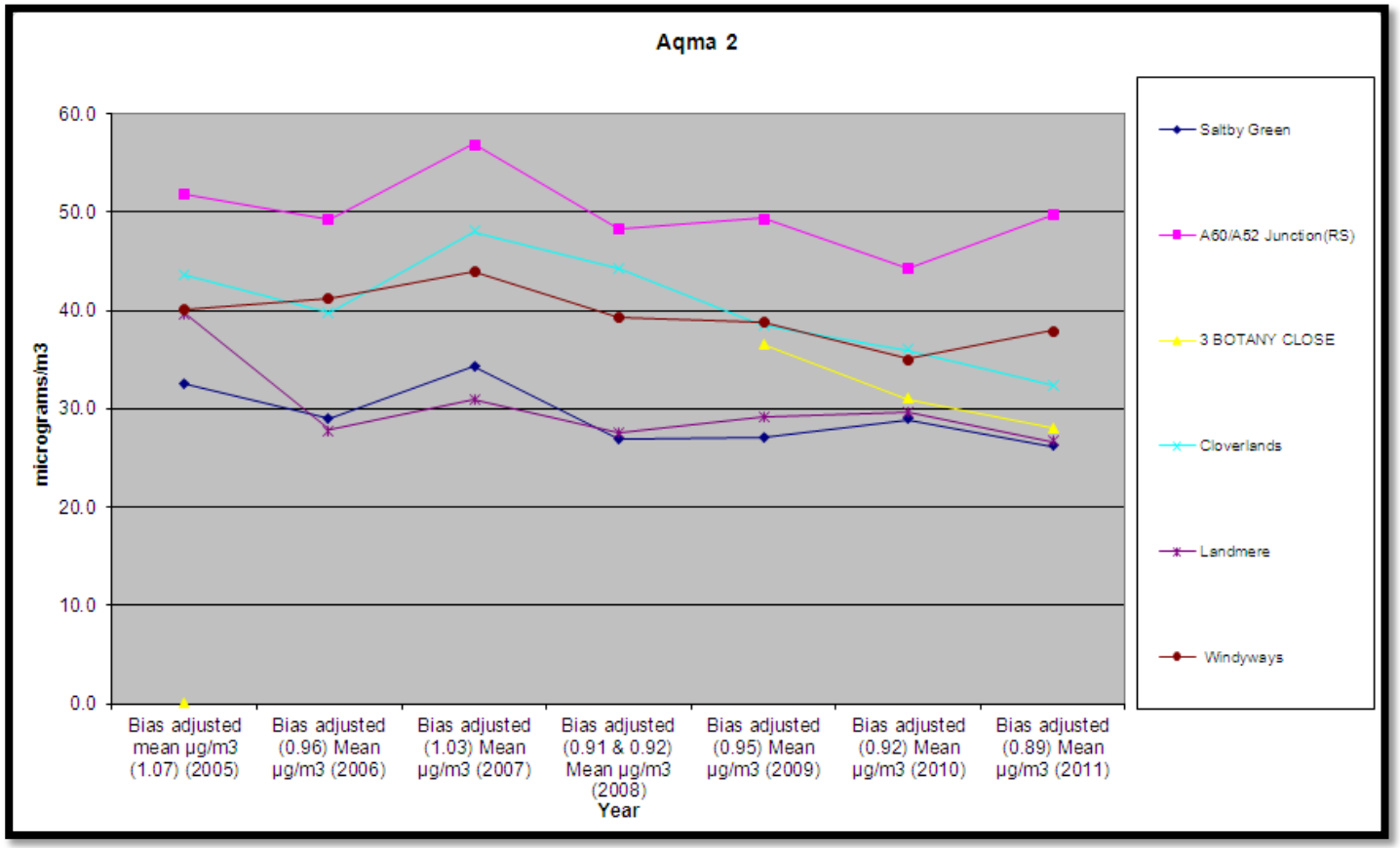
Table 2.7 Results of Nitrogen Dioxide Diffusion Tubes (2007 to 2011)

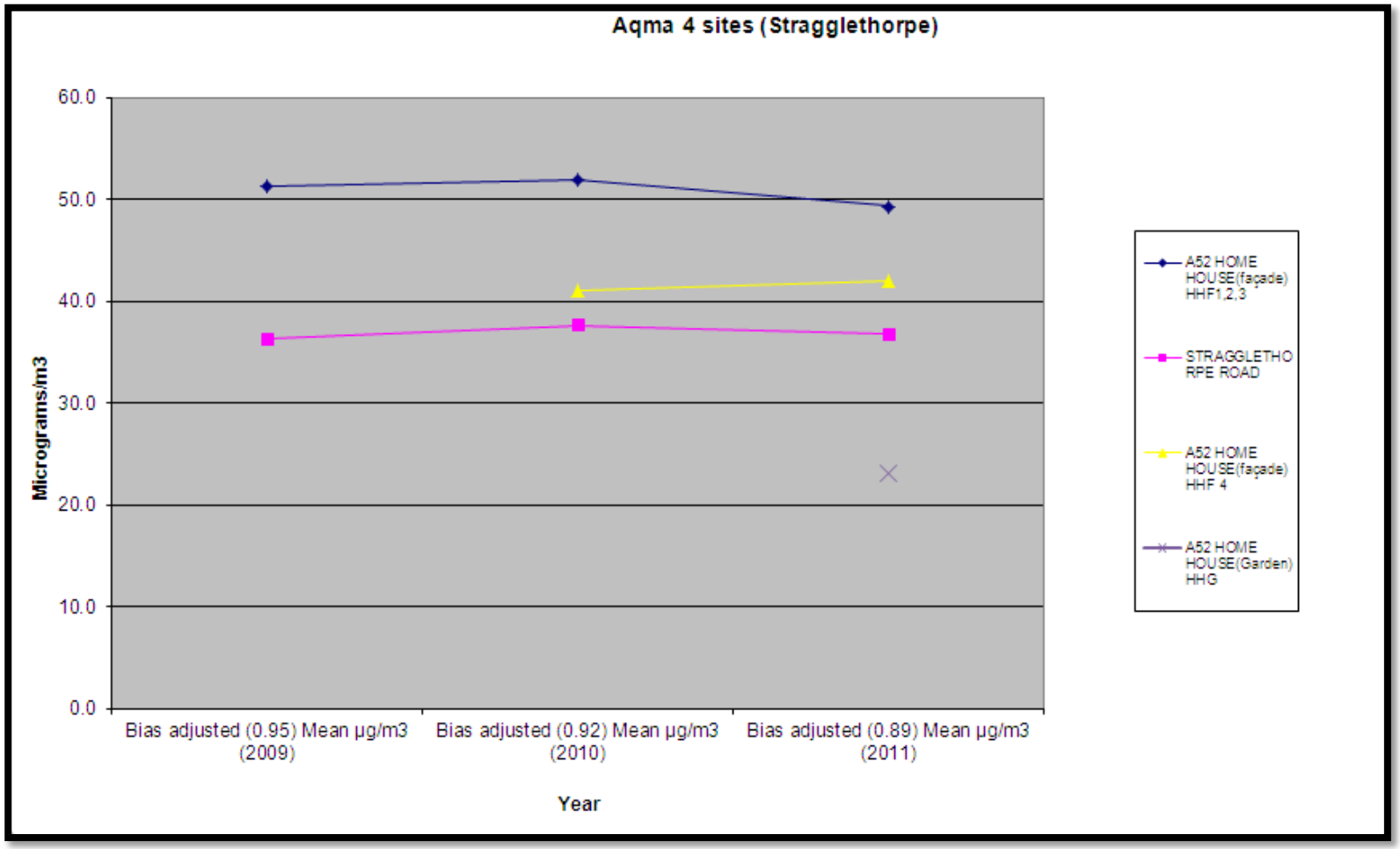
			Annual mean concentrations (µg/m^3)							
Site ID	Location	Within AQMA?	Bias adjusted mean µg/m3 (1.07) (2005)	Bias adjusted (0.96) Mean µg/m3 (2006)	Bias adjusted (1.03) Mean µg/m3 (2007)	Bias adjusted (0.91 & 0.92) Mean µg/m3 (2008)	Bias adjusted (0.95) Mean µg/m3 (2009)	Bias adjusted (0.92) Mean µg/m3 (2010)	Bias adjusted (0.89) Mean µg/m3 (2011)	comment
NA1/2/3	1 Loughb' R, WB (Mon)/Milicent rd.	1	39.0	35.9	43.3	35.7	34.2	34.5	30.5	Triplicate tube site
ER	EDWARD ROAD, LADY BAY	1					34.5	35.7	29.6	
LR	Loughb', WB. (Res)	1	45.1	36.1	45.8	40.0	35.3	37.6	34.5	
Centenary House/(formerly PM10)	Centenary House (formerly pm10)	1	33.2	34.2	39.7	32.1	33.9	35.0	27.0	
RR	Radcliffe Road, WB.	1	50.1	43.6	51.4	38.6	40.1	40.8	36.5	
SH	Swans Hotel	1	36.7	31.0	34.6	31.2	32.8	32.2	29.9	
POINT	The Point	1	38.6	32.4	37.3	29.5	29.1	28.5	26.7	
TBLA	Trent Boulevard A	1	42.6	37.5	44.4	38.5	37.0	34.6	34.9	
TBLB	Trent Boulevard B	1	44.1	43.6	50.6	38.0	40.3	38.8	37.2	
TBI	TRENT BRIDGE INN	1					54.0	48.8	47.6	
THF & THF2	Trent House (Res)	1	52.8	44.7	52.5	39.6	43.3	42.0	38.8	2 tubes
WL3	WILFORD LANE 3	1					44.0	40.3	41.1	
SG	Saltby Green	2	32.6	29.0	34.3	26.9	27.0	28.9	26.1	
NK	A60/A52 Junction(RS)	2	51.8	49.3	56.9	48.2	49.3	44.3	49.7	
3BT	3 BOTANY CLOSE	2					36.5	31.0	28.1	
CL/Cla	Cloverlands	2	43.6	39.8	48.0	44.2	38.5	36.0	32.5	2 tubes

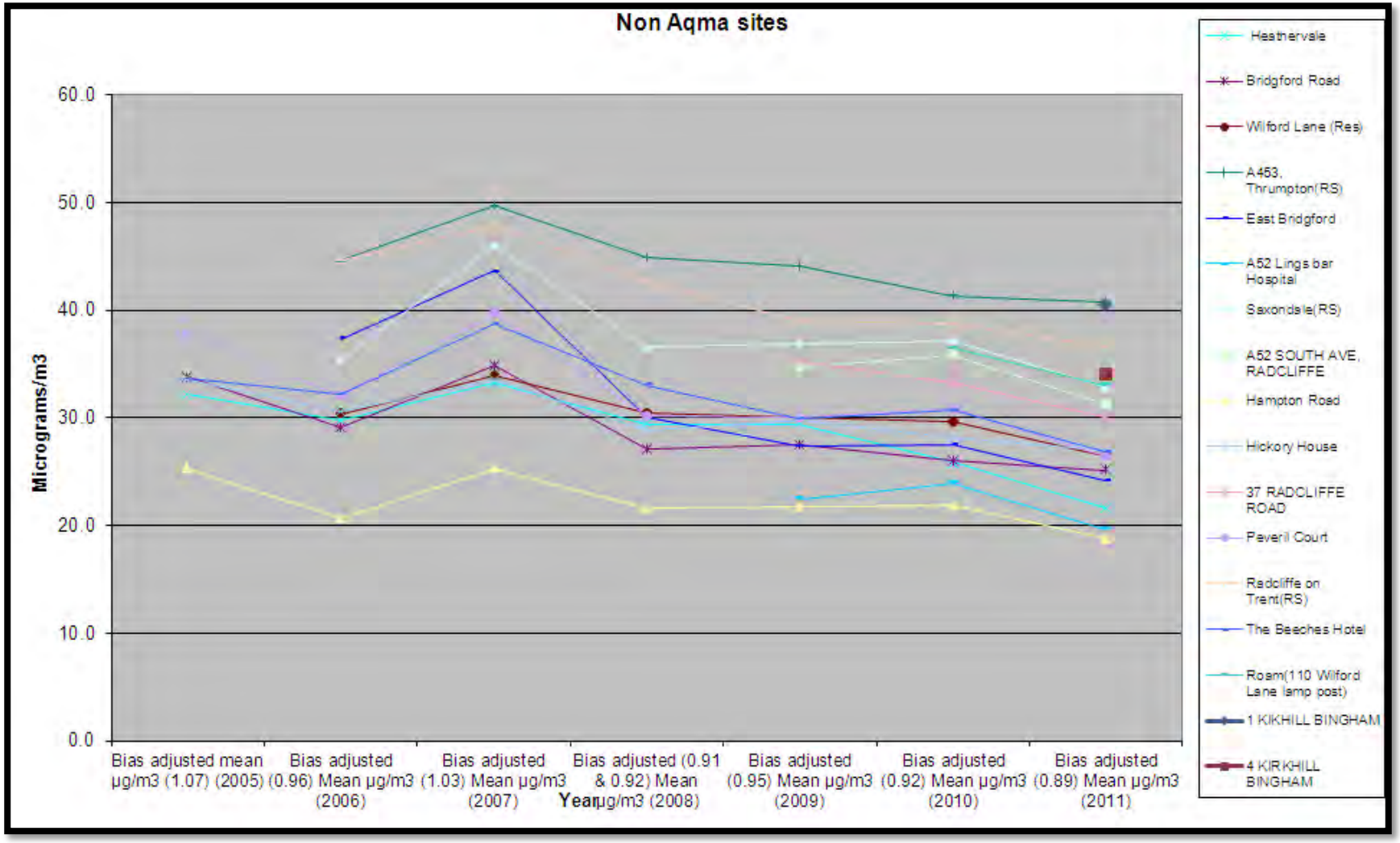
LL	Landmere	2	39.7	27.8	30.9	27.5	29.2	29.7	26.7	
WW	Windyways	2	40.1	41.2	44.0	39.3	38.8	35.0	37.9	
A52/HHF/1 2 3	A52 HOME HOUSE(façade) HHF1,2,3	4					51.3	52.0	49.4	3 tubes
SR	STRAGGLETHORPE ROAD	4					36.3	37.7	36.7	
A52/HHF/4	A52 HOME HOUSE(façade) HHF 4	4	NEW IN 2010					41.0	42.0	
A52HHG	A52 HOME HOUSE(Garden)HHG	4	NEW IN 2011						23.2	
HV	Heathervale	no	32.2	29.8	33.3	29.4	29.5	25.9	21.7	
BR	Bridgford Road	no	33.9	29.1	34.9	27.1	27.6	26.1	25.1	
WLR/2	Wilford Lane (Res)	no		30.4	34.0	30.4	30.1	29.6	26.5	
A453	A453, Thrumpton(RS)	no		44.6	49.7	44.9	44.2	41.4	40.8	
A46/EB & A46/EB2	East Bridgford	no		37.4	43.7	30.1	27.4	27.5	24.1	2 tubes
GLB HOS	A52 Lings bar Hospital	no					22.5	23.9	19.6	
A52/S	Saxondale(RS)	no		35.4	46.0	36.6	36.9	37.1	32.9	
A52/SA	A52 SOUTH AVE, RADCLIFFE	no	N				34.8	35.9	31.2	
HR	Hampton Road	no	25.3	20.8	25.3	21.7	21.8	22.0	18.8	
HH	Hickory House	no	33.5	30.6	33.5	28.9	29.8	28.2	27.0	
37RR	37 RADCLIFFE ROAD	no					35.2	33.3	30.0	
PC & PC2	Peveril Court	no	37.8	32.1	39.7	30.3	30.1	30.8	26.5	
A52/RT	Radcliffe on Trent(RS)	no		44.7	47.9	42.6	39.1	38.7	36.6	
BH	The Beeches Hotel	no	33.7	32.2	38.7	33.1	29.9	30.7	26.8	
110 WL	Roam(110 Wilford Lane lamp post)	no	NEW IN 2010					36.5	33.0	
1KH	1 KIKHILL BINGHAM	no	NEW IN 2011						40.6	
4KH	4 KIRKHILL BINGHAM	no	NEW IN 2011						34.1	

Figure 2.9 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Monitoring Sites




Aqma 2
60.0
50.0
40.0
30.0
20.0
10.0
0.0
micrograms/m3
Bias adjusted mean µg/m3 (1.07) (2005)
Bias adjusted (0.96) Mean µg/m3 (2006)
Bias adjusted (1.03) Mean µg/m3 (2007)
Bias adjusted (0.91 & 0.92) Mean µg/m3 (2008)
Bias adjusted (0.95) Mean µg/m3 (2009)
Bias adjusted (0.92) Mean µg/m3 (2010)
Bias adjusted (0.89) Mean µg/m3 (2011)
Year
Saltby Green
A60/A52 Junction(RS)
3 BOTANY CLOSE
Cloverlands
Landmere
Windyways


Aqma 4 sites (Stragglethorpe)
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Micrograms/m3
Bias adjusted (0.95) Mean µg/m3 (2009)
Bias adjusted (0.92) Mean µg/m3 (2010)
Bias adjusted (0.89) Mean µg/m3 (2011)
Year
A52 HOME HOUSE(façade) HHF1,2,3
STRAGGLETHORPE ROAD
A52 HOME HOUSE(façade) HHF 4
A52 HOME HOUSE(Garden) HHG


Non Aqma sites
Micrograms/m3
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Bias adjusted mean µg/m3 (2005)
Bias adjusted (1.07) Mean µg/m3 (2006)
Bias adjusted (0.96) Mean µg/m3 (2007)
Bias adjusted (1.03) Mean µg/m3 (2008)
Bias adjusted (0.91 & 0.92) Mean µg/m3 (2009)
Bias adjusted (0.95) Mean µg/m3 (2010)
Bias adjusted (0.92) Mean µg/m3 (2011)
Bias adjusted (0.89) Mean µg/m3
Year
Hasthervale
Bridgford Road
Wilford Lane (Res)
A453, Thrumpton(RS)
East Bridgford
A52 Lings bar Hospital
Saxondale(RS)
A52 SOUTH AVE, RADCLIFFE
Hampton Road
Hickory House
37 RADCLIFFE ROAD
Peveril Court
Radcliffe on Trent(RS)
The Beeches Hotel
Roem(110 Wilford Lane lamp post)
1 KIKHILL BINGHAM
4 KIRKHILL BINGHAM

2.2.2 Other pollutants monitored

Only PM10 has been monitored in under other pollutants in 2011

PM_{10}

The monitoring for PM10 at this current site commenced in April 2011 at the Holme House, Stragglethorpe junction site within AQMA4. The site is adjacent to a residential property near a major trunk road and busy junction. The Holme house buildings comprise seven dwellings and appear to be farm house and outbuilding conversions with the main house being Holme House. Three of the dwellings have building facades adjacent to the A52 road and the building line along which the Sven Leckel PM10 sampler is located. This monitor type is a gravimetric monitor that meets the EU sampling requirements. As such no adjustment is required to data produced by the sampler. For the period of monitoring undertaken levels are below the 40 μgm^{-3} for the annual mean and the number of days where the level has exceeded 50 μgm^{-3} has not exceeded the 35 days allowed. In addition the 90th percentile does not exceed the 50 μgm^{-3}. The results for the monitoring are shown in the following tables. The annual mean has been annualised as required by box 3.2 of TG (09). The data indicates that the site has not exceeded the PM10 AQS. Monitoring will continue at this site.

Table 2.8 Results of Automatic Monitoring of PM_{10}: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period %[a]	Valid Data Capture 2011 %[b]	Confirm Gravimetric Equivalent (Y or NA)	Annual Mean Concentration μg/m^3				
						2007*[c]	2008*[c]	2009*[c]	2010*[c]	2011[c]
PM10 Holmehouse	Roadside	Y	85.4% (15/4/2011 to 31/12/2011)	61.1	Y	n/a	n/a	n/a	n/a	21.8 (c)

[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. * Optional

Table 2.9 Details of annualised result for PM at Holme House, Stragglethorpe Site

Data from AURN sites, PM in µg/m-3 based on daily means, downloaded from the http://uk-air.defra.gov.uk on 1/2/2012				
		AM	PM	AM/PM
Chesterfield		21.65	25.49	0.85
Leicester Centre		17.45	23.20	0.75
Nottingham Centre		24.87	27.85	0.89
		Average (Ra)=		0.83

Annualised result = 0.83 x 26.2= **21.8**

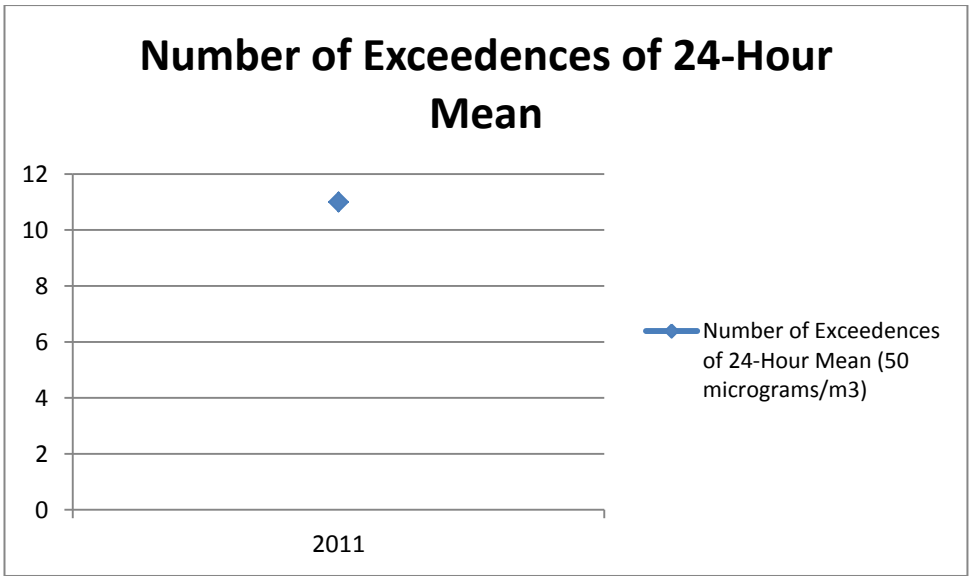
Table 2.10 Results of Automatic Monitoring for PM_{10}: Comparison with 24-hour mean Objective

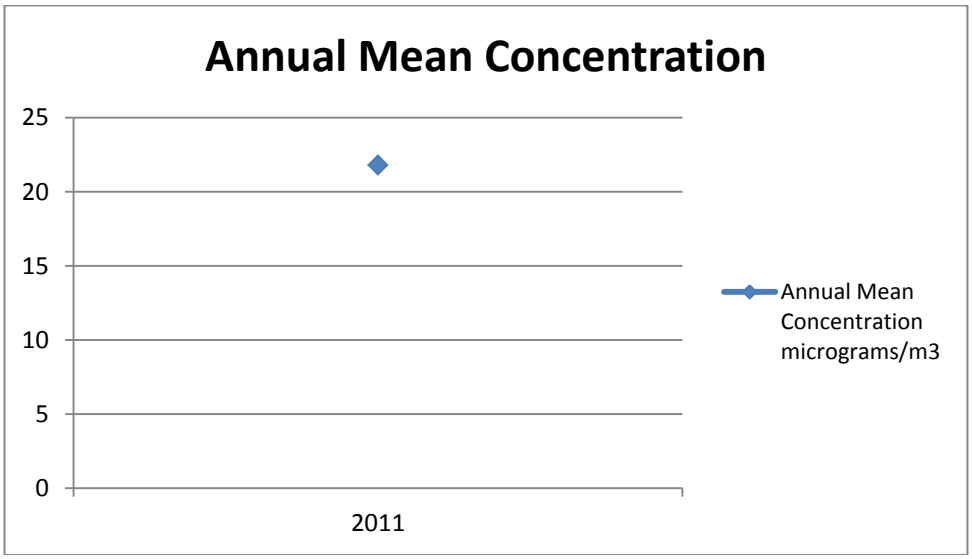
Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period %[a]	Valid Data Capture 2011 %[b]	Confirm Gravimetric Equivalent	Number of Exceedences of 24-Hour Mean (50 µg/m^3)				
						2007*	2008*	2009*	2010*	2011
PM10 Holmehouse	Roadside	Y	85.4% (15/4/2011 to 31/12/2011)	61.1	Y	n/a	n/a	n/a	n/a	11 (90th %tile= 43.3)

[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] if data capture is less than 90%, include the 90th percentile of 24-hour means in brackets
* Optional

Due to the site being new in 2011 there are no annual trends to discuss. Subsequent years will see the following tables added to.

Figure 2.10 Trends in Annual Mean PM_{10} Concentrations





The site therefore appears compliant with the PM10 AQS

No other pollutants have been monitored in 2011 by Rushcliffe Borough Council

2.2.3 Summary of Compliance with AQS Objectives

Rushcliffe Borough Council has examined the results from monitoring in the borough. The concentrations outside of the AQMA are all below the objectives at relevant locations with the exception of 1 Kirkhill monitoring site. The situation concerning Kirkhill is discussed below but at this time we are not confident that the data/evidence is sufficiently robust enough to proceed to a detailed assessment on the basis of 1 tube result covering part of the year. As such Rushcliffe do not intend to proceed to detailed assessment for this site. There are no other results that warrant detailed assessments being undertaken. The following sections will discuss diffusion tubes that have bias adjusted results for 2011 above the AQS

2.2.3.1 Discussion on the Bingham site

The 1 Kirkhill, Bingham site has measured values that are marginally above the objective with a 75% data capture over a 12 month period in 2011 (40.6 µg/m-3). Data is missing at various periods in the year and as such further adjustment/annualising would not be reliable. Also this site has been re-examined and found that a domestic flue outlet discharging vertically at eaves may have influenced the results in this location due to potential down draft of combustion emissions (see Figure 2.13). This matter has been discussed recently with the LAQM helpdesk and this conclusion has been supported provided the site circumstances and actions proposed are made clear in this report.

As the site is possibly influenced by this source the tube location has been moved to the other end of the building but still in line with the road and façade of the building. Photographs of the site are shown below. This relocation is less influenced by this domestic source being greater than 10m away.

It is however recognised that there may be increased levels of NO2 from traffic in this area as the result is higher than expected, and of concern, is the small pavement width at the site; although previous studies for planning applications have indicated levels should be compliant with the AQS. Traffic on the Kirkhill/Chapel lane road is not high being 7000 AADT for 2011(from the NCC County Council Transport Planners) although due to the A46 dualing local traffic has been observed using this a as route to avoid the diversions and delays brought about during the construction. How much of an effect this is, is not known but when the A46 is fully complete this situation will diminish.

Given that a greater degree of certainty is required at this site, the site has been improved to 2 tubes from January 2012 and additional tubes sites located at various sites around this areas to give a greater spatial awareness of any concerns. A plan showing the new sites is shown below in Figure 2.11. In essence these are the first steps toward undertaking a detailed assessment as described in box 5.3 of TG (09). If these results conclude that NO2 levels are still high and there is a degree of certainty in the figures then a detailed assessment will be undertaken within 9-12 months from January 2012. The diffusion tubes will be left in place for a minimum of 6-12 months to enable a robust conclusion to be made, but are likely to remain longer

Figure 2.11 Location of new monitoring points around Kirkhill Bingham

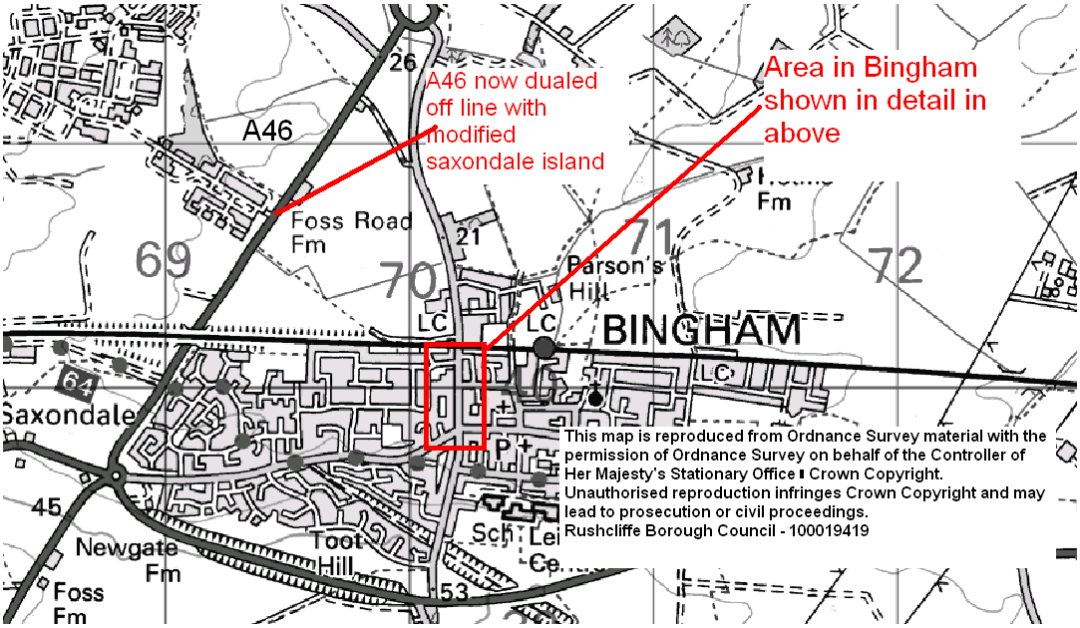


Figure 2.12 Location of new monitoring points around Kirkhill Bingham (detailed view)

Figure 2.13 Photos of Kirkhill NO2 sampling location (new site for 2012 on P sign)

Traffic queuing at the train crossing. The new sampling point is on the parking sign.

Figure 2.14 Photos of 1 Kirkhill (1KH) on lamp post. (2011 site)

The 2011 tube was mounted on the lamp post. Note flue on house at minimal discharge height within 10m of sampling location. This tube has therefore been relocated to the left side of the building. Shown in Figure 2.13 above.

2.2.3.2 Discussion on the East Bridgford site (EB)

The 2011 result for this site is 24.11 µg/m-3. Due to the opening of part of the A46 monitoring will stop for the East Bridgford site at Bulwell House (EB1 and EB2). Visiting the site has indicated a substantial fall off of traffic on this route.

Figure 2.15 Photos of A46. (Old road and new in the back ground)

The Photo shows the old A46 road and the new dualled A46 in operation in the background. The old A46 now has considerably less traffic. A traffic count in January 2012 indicated 27 vehicles in 5 minutes which equates to less than 5000 AADT (i.e. 35 in 5 minutes = 5000 AADT reference Box 5.3 TG (09)). Whether this very low figure remains is uncertain, but all passing/through traffic is now removed from this road and we are confident a significant fall will be maintained. It is clear a substantial drop has occurred and this service will monitor traffic flow counts in this area to ensure we will be aware of any changes in flows.

2.2.3.3 Discussion on the A453 site (not in an aqma)

The a453 site is located on a road sign adjacent to the road kerb a few metres from the road edge. The nearest residents are +20m from this monitoring point. The distance correction tool calculates that at the nearest residential receptor the resultant level is well below the AQS and a detailed assessment is therefore not required. The A453 is due to be dualled as such this site will remain for the time being as it provides a base line for this road but there are no concerns at this time. The new road will be taken off line but is not expected to result in NO2 problems at this site either.

2.2.3.4 Discussion on the Trent Bridge Inn (TBI) site (aqma 1)

The TBI site when adjusted for bias is above the 40 µg/m-3 AQS however the site is a commercial premises where people are regularly outside in this area congregating. As such the applicable standard is the 1 hour objective. Previous year's results have indicated this site to be below the 60 µg/m-3 and the result obtained in 2011 is 47.64 µg/m-3. Unfortunately the site has suffered some data loss due to a refurbishment of the TBI where access was not permitted. Given the data loss was sporadic it was difficult to annualise this result further. It is this services view that the result is significantly below the surrogate 60 µg/m-3 level not to warrant further investigation and is in any case is within AQMA 1 for the annual mean exceedence. It is our view that this result indicates the site is in compliance but the data capture reduces the reliability of this result. Monitoring will continue with this site.

2.2.3.5 Discussion on the Wilford Lane 3 (WL3) site (aqma 1)

The WL3 site is located on a lamppost a pavement away from the kerb. Directly to the rear of the site is a residential façade set back for the road. A distance correction calculation indicates that the relevant receptor experiences levels of 34.3 µg/m-3 at the façade compared to a level of 41.2 µg/m-3 at the sampling site. As such this site is considered to be compliant at this time being comfortably below the AQS. The site is in AQMA 1 and does not require further investigation.

2.2.3.6 Discussion on the Holme House (A52HH) sites (within aqma 4)

The Holme house sites have confirmed the exceedance of the AQS for NO2 annual mean at the triplicate site (A52 HH1, 2, 3) and at the site situated along the A52 away from the junction. The Stragglethorpe Road elevation is a façade site and indicates that this limb of the junction is not as high as the main A52 limb. The SR site is compliant with the AQS. The results support the decision to declare an AQMA area around this junction and further assessment is being undertaken which will more fully discuss this site and undertake the source apportionment. The report is being undertaken by UWE and will be submitted to Defra when completed.

2.2.3.7 Discussion on the Nottingham Knight and the Windy Waye's sites (AQMA2)

These two sites are on the A52 and within aqma 2. The road is operated by the Highways Agency. The WW is a private residence that is the closest premises to the island, although it is not currently occupied. The levels at the WW site are below the AQS again in 2011 at 37.94 µg/m-3. However, this is an increase on last year's result and is close to the objective. The increase is also seen in the NK result which is a kerb side site on a lamp post nearer to the public House across the road, the Nottingham Knight. This has also seen an increase in 2011 from 44.3 to 49.7 µg/m-3. However allowing for distance correction this results in a level of 33.4 µg/m-3. The relevant level for assessment at the PH house is the 1 hour surrogate level of 60 µg/m-3. As such this site is in compliance with the AQS albeit an increase has occurred.

There are no other monitoring results that are above the AQS

3 Road Traffic Sources

This service has received updated traffic flow data from the County Councils transport planners for 2010 and growth figures for 2011 covering the Rushcliffe area. Some of this data is based on long term UTC sites and other data is determined by growth factors calculated from these monitoring sites. In general traffic growth figures indicate a reduction in traffic from last years progress report. Rushcliffe Borough Council has reviewed the traffic flows on major roads, B roads and C roads in the district. Rushcliffe can confirm that no significant increases in traffic have occurred since the last review and assessment that require any detailed assessment or screening.

With the exception of the A46 any new roads that have been built/are being built are linked to housing schemes and have been subject to review at the planning stage and have limited traffic flows/air quality issues. None of the roads are expected to have significant traffic flows or impact on air quality. The A46 development is discussed later in this chapter.

Developments with road transport impacts.

Land North of Bingham.

The Crown estates has submitted a scoping opinion request in 2010 for up to 1000 residential dwellings (C3); 15.6 hectares of employment development (B1, B2 and B8); local centre comprising up to 300m2 of retail floor space (A1), primary school (D1), health centre (D1) and community centre (D2); a 1.6 hectare mixed use site (B1, B2, B8 and car parking); allotments and open space (including play areas and a community park); flood management and drainage works; transport and access works; and ancillary works. In early 2011 an application has been received which is currently being considered by the LPA. In 2012 no decision has yet been made, although part of the application site that has previous permission for industrial use is being taken up. AQ assessments have accompanied the applications. No decision made at this time.

The conclusions from the AQ assessments undertaken by Entec state:

The predicted annual mean PM10 concentrations at all of the receptors assessed with the Scheme in place are below the annual mean AQS for PM10 of 40 µg/m-3. The highest predicted concentration for the "with Scheme" scenario was predicted at Receptor 4 (Long Acre) with an annual mean PM concentration of 20.2 µg/m-3 . This is a property close to the road situated on Long Acre in Bingham. This is a slight decrease in concentrations from the "future baseline" scenario where the predicted concentration at this receptor was 20.7µg/m-3.

The greatest change in annual mean PM10 concentrations was also predicted at Receptor 4 (Long Acre), with a predicted change of 0.5 µg/m-3; as mentioned above this is a decrease in concentration, from 20.7 µg/m-3 to 20.2 µg/m-3.

The magnitude of the effects of the Scheme on annual mean PM10 concentrations at the identified receptors is between imperceptible and small, using the criteria given in section 7.7.2. The change in PM10 concentrations at the receptors is negligible and not significant.

Table 7.12 Predicted number of days of exceedences of PM_{10} 24 hour mean results

Ref	Receptor	2021 future baseline	2021 with Scheme	Difference	Magnitude	Significance
1	Foss Road Farm	19	19	0	Imperceptible	Negligible
2	House on old A46	19	19	0	Imperceptible	Negligible
3	Kirk Hill	19	18	0	Imperceptible	Negligible
4	Long Acre	21	20	-1	Imperceptible	Negligible
5	The Wheatsheaf Inn	19	19	0	Imperceptible	Negligible
6	Grantham Road	19	19	0	Imperceptible	Negligible
7	Nightingale Way	19	19	0	Imperceptible	Negligible
8	Tithby Road	18	18	0	Imperceptible	Negligible
9	Nottingham Road	19	19	0	Imperceptible	Negligible
10	Chapel Lane New	19	18	0	Imperceptible	Negligible
11	Chapel Lane New (west)	18	18	0	Imperceptible	Negligible
12	Rothbury Grove	18	18	0	Imperceptible	Negligible
Permitted exceedences per year		**35**	**35**			

The predicted number of days which exceed the 24 hour PM10 AQS are below the 24 hour mean PM AQS of 50 µg/m-3 with 35 days of permitted exceedences a year, under the "with Scheme" scenario at all of the receptors assessed. The highest number of days predicted to exceed the 24 hour mean PM10 AQS were also predicted at receptor 4 (Long Acre), with 20 days of exceedences. This is a decrease in concentrations from the "future Baseline" scenario, where the predicted number of days which would exceed the 24 hour mean AQS for PM10 was 21 days.

This was also the receptor with the greatest change in the number of days exceeding the PM10 24 hour mean AQS, with a change of 1 day. The magnitude of effects of the Scheme on the number of days exceeding the 24 hour mean PM10 AQS at the identified receptors is imperceptible, using the criteria in section 7.7.2. The change in the number of days exceeding the 24 hour mean PM10 AQS concentrations at the receptors will be negligible and not significant.

Given that the change in pollutant concentrations is considered to be negligible at all modelled receptors and the predicted annual mean NO2 and PM concentrations and the number of exceedences of the 24 hour mean for PM at the receptors, are all well below the relevant AQSs, the potential air quality effects of the Scheme will not be significant.

Tesco's store Land north of Bingham

1.65 Hectare Tesco's store with 221 parking spaces on land North West of Bingham. Due to the site being across a railway crossing there are concerns over traffic build up on the Bingham side. The Application has a supporting AQ assessment undertaken by TPA (Transport Planning Associates) and at this service's request looked also at cold start emission. No significant impacts were highlighted. No decision has been made by the LPA with regards to this application at this stage and the area that maybe impacted by traffic is now adequately monitored with diffusion tubes. This being the Kirkhill Road area of Bingham mentioned previously in this report.

The conclusions from the AQ assessment are shown below:

Using data obtained from the UK Air Quality Archive, air quality assessments of the following scenarios have been carried out at two locations in the vicinity of the proposed development.

- *Existing (2009) Traffic*
- *Total Forecast Base 2010 Traffic (with committed development traffic);*
- *Total Forecast 2010Traffic (with committed and proposed development traffic);*
- *Forecast Base 2017 Traffic (with committed development traffic including the impact of the A46 dualling works); and*
- *Total Forecast 2017 Traffic (with committed and proposed development traffic).*

5.2 Assessment of the existing case has shown that the levels of both NO2 and PM10 are below the standards set out within the UK Air Quality Strategy, and it can therefore be assumed that levels of other relevant pollutants will also be within their respective standards.

5.3 Assessment of the total forecast (2010) scenario shows a maximum increase in pollutant levels of 7% in NO2 and 2% in PM10 over the total forecast base (2010), confirming that the impact on the surrounding area is considered to be "slight adverse".

5.4 Assessment of the forecast base 2017 scenario (without the proposed development traffic) shows an overall decrease in pollutant levels. It is therefore evident that these levels also remain within the standards set out by the UK AQS.

5.5 Assessment of the total forecast (2017) scenario again shows a maximum increase in pollutant levels over those seen in the 2017 total forecast base scenario, but a decrease over that seen in the existing 2009 and both 2010 scenarios, confirming that the impact on the surrounding area is again considered negligible.

5.6 It is concluded that the pollutant levels remain within the required levels, and is considered negligible according to criteria set out in the National Society for Clean Air's guidance documentation.

5.7 TPA therefore considers that the impact of this development on the local air quality in and around the proposed development site in Bingham is negligible, and no further assessment is

The Cotgrave colliery site, Redevelopment of site for up to 470 dwellings; employment uses (B1, B2 and B8); open space; landscaping; footbridge crossing the canal; associated works including roads, cycleways, footpaths and car parking (revised scheme. This site has been subject to an air quality assessment the impacts of which were not considered to be significant on air quality. The application and AQ report can be view at http://www.document1.co.uk/blueprint/ with search reference 10/00559/OUT. This application has been discussed in previous R&A reports, the site is several miles from the main conurbation area with no air quality impacts expected within the site, the concern relates to increased traffic at offsite locations e.g. at the Stragglethorpe/A52 junction. These concerns are not significant enough to object to the development. Several conditions have been placed in the permission granted which will be assessed at reserved matters stage to ensure air quality objectives are not exceeded and mitigated as far as possible. These include condition 27, 38 and 39 of the permission which can be viewed from the above link. The development has not yet been through reserved matters and construction has not begun. Slight increases in traffic are predicted at the Stragglethorpe/A52 junction (which is now AQMA4) but are not considered significant.

Land at Sharphill to East and West of Melton Road Edwalton Nottinghamshire
Proposal: Mixed use development of up to 1200 dwellings; primary school; business innovation centre; further education centre; 100 bed hotel; local centre with retail units, community building and health centre, sports facilities and community park; associated road
Application number: 08/00664/OUT Melton Road, Edwalton (Sharphill)

Limited construction has begun on this site in 2011 with only 3 properties being constructed to maintain the permission. The site has been discussed in previous R&A reports and the conclusions accepted by Defra. The application was granted at planning appeal with air quality being dismissed as a consideration. An air quality assessment was produced for the application and it was agreed that the air quality impacts would not be sufficiently detrimental to raise objection. As part of the application process the developer has agreed to a range of mitigation measures to reduce the impacts of transport emissions and climate change impacts. The development of the site will result in a long term building programme in the area with various stages of development being undertaken over a number of years. As there is no traffic from the operational or construction phases at this time there is no requirement to proceed to a detailed assessment.

RAF Newton 0/02105/OUT

Outline proposals with all matters reserved seeking the delivery of: up to 500 dwellings; up to 50 live/work units; 6.45ha of new employment land (B1, B2 & B8); up to 1000sqm of space for ancillary A1, A3, & A4 uses and community uses; retention of existing

The site is situated some distance from the main Nottingham Conurbation. Due to the size of the development an AQ assessment was requested as part of the planning process. The results of the AQ assessment undertaken by Hunter Page Planning are shown below.

"*Modelled NO2 and PM10 concentrations are not predicted to exceed the relevant air quality objectives at any of the proposed receptors. Furthermore, the increase in traffic along the modelled road network once the development has been completed will result in a small to imperceptible change in air quality (NO2 and PM10) at existing and proposed receptors adjacent to the modelled road network. This includes increases in traffic levels associated with the re-alignment of the A46.*
Overall, the significance of this change is considered to be negligible. Based on the results of this assessment it is considered that the site is suitable for development. However, the developer may wish to consider some of those measures discussed in the mitigation section"

A proposed travel plan is contained in the application. A construction Environmental Method Statement has been requested through the planning process. It is Rushcliffe's view that a detailed assessment is not required for is site.

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Rushcliffe Borough 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.

However, your attention is drawn to the discussion previously in this report concerning Kirkhill in Bingham which fits part of these criteria. This site has been assessed in previous rounds and not found to be a concern. Given one diffusion tube is slightly above the AQS, action has been taken to undertake diffusion tube monitoring at several relevant locations along the street for a minimum period of six months in line with section A1. Box 5.3 of TG (09). If this confirms levels are being exceeded RBC will proceed to a detailed assessment. If results demonstrate compliance the matter will be discussed in the next progress report.

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

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Rushcliffe Borough 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.

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Rushcliffe Borough Council confirms that there are no new/newly identified roads with high flows of buses/HDVs.

3.4 Junctions

Rushcliffe Borough 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

The A46 has been constructed since the last USA. Some elements of the road are now open but some road construction is still underway. The details of traffic flow on the new road and leading to it have not stabilised at this time to enable any examination of the change in traffic flows to this road. This service has been advised that after a year of the completion of the road a traffic study will be undertaken by the HA and the County transport planners to assess the road traffic changes and see if the patterns are as predicted.

The A46 was subject to full EIA and public inquiry before construction with the impacts on air quality from the operational stage being fully considered.

A summary of the results are shown below:

- We have (*the consultants for the HA*) calculated concentrations of the main road traffic pollutants with and without the Scheme at a selection of residential properties along the existing A46, the new alignment and surrounding side roads. Baseline and operational pollution levels at all the selected residential properties are below the current air quality objectives, EU and limit values. Overall, the Scheme would have a moderate beneficial impact on community exposure to road traffic pollution.
- When the Scheme is fully open in 2016, 84% of properties within 200m of the road would experience an improvement in air quality and 16% would experience a worsening in air quality. The air quality impact assessment concludes that the Scheme would not result in any significant air quality problems due to changes in road traffic emissions. The assessment uses a worst case scenario.

- We have predicted the total quantity of road traffic pollutants and the greenhouse gas CO2 with and without the Scheme in operation. The increase in total vehicle kilometres travelled in the Traffic Model Study Area and the increase in average speed on the A46 with the Scheme in place would result in a moderate increase in total emissions from road traffic.

The A453 project has more recently been given the go ahead for dualing as reported on the Highways Agency website and by press release. Previously this project had been suspended following government funding reductions. An air quality assessment has been undertaken in 2009 the summary from the assessment is below:

- The scheme is predicted to result in a slight increase in nitrogen dioxide and PM10 exposure at receptors along the A453 corridor. The scheme is not predicted to result in any exceedence of National Air Quality Objectives at any receptors close to the A453.
- The scheme is predicted to result in a slight increase in nitrogen dioxide exposure at receptors in two Air Quality Management Areas in Rushcliffe (AQMA 1 & AQMA 2), one in Nottingham (AQMA 2) and one in North West Leicestershire (AQMA 1).
- The scheme is predicted to result in a slight reduction in nitrogen dioxide exposure at receptors in three Air Quality Management Areas in Broxtowe (AQMA 1, AQMA 2 & AQMA 4), one in Nottingham (AQMA 1) and one in Erewash (AQMA 1). Properties within 200m of roads significantly affected by the proposed scheme are predicted to experience reductions in nitrogen dioxide, and 6,080 properties are predicted to experience increases in nitrogen dioxide. Overall exposure to nitrogen dioxide will slightly increase. 12,587 properties within 200m of roads significantly affected by the proposed scheme are predicted to experience reductions in PM10, and 5,043 properties are predicted to experience increases in PM10. Overall exposure to PM10 will slightly reduce.
- The scheme will result in a slight negative effect on receptors near to the road scheme, but will be of benefit to air quality in the study area. Overall there will be a neutral effect on air quality.
- The scheme will result in a slight increase in greenhouse gas emissions from road traffic in the region.

- The construction phase of the scheme has been ranked as „high' risk due to the potential to produce dust and PM10. Mitigation measures have been proposed to minimise this.

Other roads constructed are estate roads or similar with little traffic flows and fall outside the scope to assess.

Rushcliffe Borough Council has assessed new/proposed roads meeting the criteria in Section A.5 of Box 5.3 in TG (09), and concluded that it will not be necessary to proceed to a Detailed Assessment.

3.6 Roads with Significantly Changed Traffic Flows

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

3.7 Bus and Coach Stations

Rushcliffe Borough Council confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

Rushcliffe Borough Council confirms that there are no airports in the Local Authority area.

4.2 Railways (Diesel and Steam Trains)

4.2.1 Stationary Trains

Since the last USA the Parkway station has opened on the existing line out of Nottingham which is sited next to the Radcliffe-on-Soar power station and near the A453. Trains pause briefly to take on passengers and drop off passengers. Train numbers have not increased as a result. Back ground NO2 is below 25 μgm^{-3} in this location, also no relevant exposure occurs in this area.

Therefore Rushcliffe Borough 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

Rushcliffe Borough 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)

Rushcliffe Borough 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

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

Rushcliffe Borough 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

Rushcliffe Borough 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.

Rushcliffe Borough Council would advise that the Barnstone cement works operated by LaFarge has undergone a number of changes to the operations at the site over a number of years which has seen the emissions from the site change. The kilns, which use to emit significant quantities of NOx and SO2 at a level that lead to the declaration of an AQMA was closed in 2007, but cement grinding and cement handling/bagging activities, continue to take place at the site. The old kiln building remains in place decommissioned. The old sand dryer has now been replaced with a new fluid bed dryer operating on gas oil and a new enclosed cement bagging facility has been constructed in 2011/2012. Both areas are covered by an A2 permit which is in place due to the A2 cement grinding activity. The new bagging facility is not operational at this time. The only source of combustion gases now is the sand dryer which is rated at 2.7Mw. As such emissions have substantial fallen. The bagging facility is fully enclosed and fitted with dust filtration to meet the current standards in the process guidance note for this sector. Sensitive receptors continue to be some distance from the site. The nearest resident being 250 metres from the plant.

From fuel figures supplied by LaFarge it is calculated that 670t of low sulphur gas oil is used at the site in a batch process. Emission rates for the industrial process used on the site have been taken from the national emissions factor data base. This results in the following annual quantity of emissions.

NOx = 0.29 x 670= 194kg

SO2 = 1.68 x 670 = 11254.6kg

Pm10 = 0.2 x 670 = 13.4kg

The plant has a 12.5 m stack height but topography varies around the site. Residential receptors are a significant distance from the plant at 250m.

With reference to TG(09) box 5.5 it is not considered that these emission rates warrant further investigation and there is little risk of an exceedance of the AQS for the three pollutants listed. The data from the back ground maps for 2010 accessed on April 29th 2012 for the site and surrounding area are shown below:

Grid 473500, 335500

Pm10 = 17.39 $\mu gm^{-}3$.

NOx = 16.23 $\mu gm^{-}3$.

NO2 = 11.52 $\mu gm^{-}3$.

SO2 = 3.14 $\mu gm^{-}3$. (2001 background map)

Given these low background readings, the rural nature of the area, the distance to the nearest receptor and the low emission rates no further assessments are considered necessary.

E.on Emissions at Radcliffe on Soar Power station:

The tables below are taken from the Environment Agency's website and show the amount of nitrogen oxides, PM10 and sulphur oxides emitted from the site from 2007 to 2010. The power station has been assessed in previous R&A reports and is an A1 process managed by the Environment Agency. The results below indicate a fall in emissions or no substantial increases occurring. As such a detailed assessment is not required.

Nitrogen Oxides (Grid reference: X: 450,612.51; Y: 329,609.34)

This table shows the amount of substance released, for each authorisation in the area you chose. Largest releases are shown first.

Page 1 of 1 (4 results for selected location)

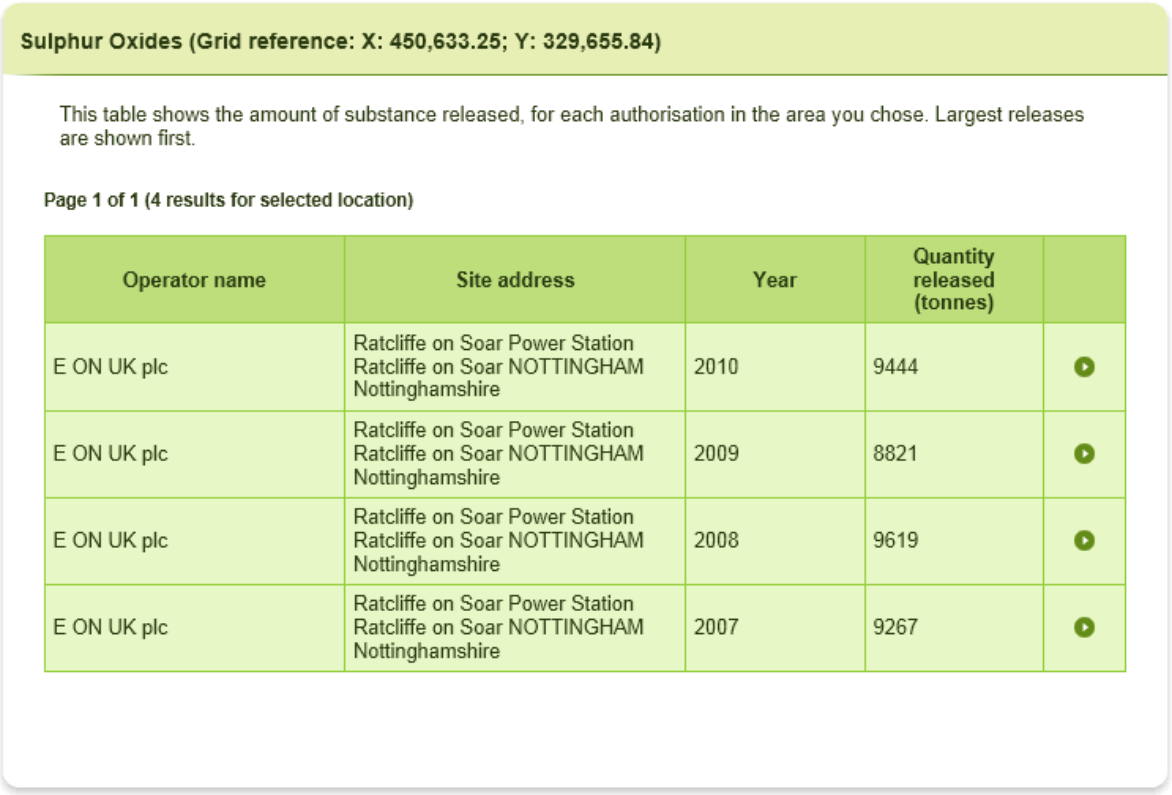
Operator name	Site address	Year	Quantity released (tonnes)	
E ON UK plc	Ratcliffe on Soar Power Station Ratcliffe on Soar NOTTINGHAM Nottinghamshire	2010	14955	
E ON UK plc	Ratcliffe on Soar Power Station Ratcliffe on Soar NOTTINGHAM Nottinghamshire	2009	13911	
E ON UK plc	Ratcliffe on Soar Power Station Ratcliffe on Soar NOTTINGHAM Nottinghamshire	2008	17984	
E ON UK plc	Ratcliffe on Soar Power Station Ratcliffe on Soar NOTTINGHAM Nottinghamshire	2007	22182	

Particulates (PM10) (Grid reference: X: 450,672.47; Y: 329,536.55)

This table shows the amount of substance released, for each authorisation in the area you chose. Largest releases are shown first.

Page 1 of 1 (4 results for selected location)

Operator name	Site address	Year	Quantity released (tonnes)	
E ON UK plc	Ratcliffe on Soar Power Station Ratcliffe on Soar NOTTINGHAM Nottinghamshire	2010	116	
E ON UK plc	Ratcliffe on Soar Power Station Ratcliffe on Soar NOTTINGHAM Nottinghamshire	2009	72	
E ON UK plc	Ratcliffe on Soar Power Station Ratcliffe on Soar NOTTINGHAM Nottinghamshire	2008	95	
E ON UK plc	Ratcliffe on Soar Power Station Ratcliffe on Soar NOTTINGHAM Nottinghamshire	2007	96	



Sulphur Oxides (Grid reference: X: 450,633.25; Y: 329,655.84)

This table shows the amount of substance released, for each authorisation in the area you chose. Largest releases are shown first.

Page 1 of 1 (4 results for selected location)

Operator name	Site address	Year	Quantity released (tonnes)	
E ON UK plc	Ratcliffe on Soar Power Station Ratcliffe on Soar NOTTINGHAM Nottinghamshire	2010	9444	
E ON UK plc	Ratcliffe on Soar Power Station Ratcliffe on Soar NOTTINGHAM Nottinghamshire	2009	8821	
E ON UK plc	Ratcliffe on Soar Power Station Ratcliffe on Soar NOTTINGHAM Nottinghamshire	2008	9619	
E ON UK plc	Ratcliffe on Soar Power Station Ratcliffe on Soar NOTTINGHAM Nottinghamshire	2007	9267	

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

Rushcliffe Borough 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

Rushcliffe Borough Council confirms that there are no petrol stations meeting the specified criteria

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5.4 Poultry Farms

Rushcliffe Borough Council confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

Rushcliffe has assessed the biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

The tables below indicate the status with the Nottinghamshire County Council's programme of converting older coal and oil burning boilers to wood pellet boilers and other boilers this service is aware of that are above 50Kw.

The County Council are using wood pellets of high quality and tested according to DIN standards. These older boilers that are being replaced have been assessed in previous rounds of the review and assessment process and given that the emission rates will be better for the replacement newer appliances and that the locations are well away from residential premises this service is of the opinion that further assessment is not required. However, Rushcliffe is working with the County Council to ensure that replacement boilers are assessed as necessary. Where boilers are in smoke control areas they are either approved appliances or work is being undertaken to ensure that previous exemption granted for use as coal burning appliances can be satisfactorily amended to the new fuel type. The Rushcliffe Comprehensive has had a chimney height calculation and a screening assessment undertaken for this site and this are contained in the appendices.

Sites completed	Installed Capacity	Replacing	Type	Project Status
James Peacock Infant & Nursery School	150 Kw	Coal Boiler	Converted coal boiler	Completed 2004
The West Bridgford School	3 boilers converted total 2200Kw	Coal Boiler	Converted coal boiler	Completed 2006
Lady Bay Primary School	Ashwells 100Kw	Coal Boiler	New pellet Boiler	Apr-09
Brookside Primary School	Ashwells 220kw	Coal Boiler	New pellet Boiler	Jul-09
Rushcliffe Comprehensive	Hoval 2x 350 total 700 Kw	Oil Boiler	New pellet Boiler	Jul-09
Abbey Road Primary School	Hoval 170 Kw	Coal Boiler	New pellet Boiler	Sep-09
Sites Proposed	Installed Capacity	Replacing	Type	Project Status
Orston Primary, Orsten	120Kw	Coal boiler	not yet known	not done yet
James Peacock Infants School, Ruddington	180Kw	Coal boiler	not yet known	not done yet
West Bridgford CHUB (Library)	150Kw	Replace Existing site	not yet known	not done yet

Rushcliffe is aware of the following boilers using biomass in the district either granted permission or in operation.

Screening assessment shave indicated there is no need to proceed to a detailed assessment for these appliances.

The John Brookes Saw Mills have received planning approval but construction has not begun. An air quality assessment was undertaken for the planning process which indicated no exceedences of the air quality objectives in operation. The non-technical summary of the air quality assessment states:

"Detailed dispersion modelling has been undertaken to identify potential air quality impacts associated with a proposed biomass energy plant to be located off Fosse Way, Widmerpool, Nottingham. Potential emissions from the process have been predicted through undertaking detailed dispersion modelling. Modelled concentrations have been compared to the relevant Air Quality Objectives, Environmental Assessment Levels and Expert Panel on Air Quality Standards guideline values. No exceedences of the relevant assessment criteria have been predicted at any sensitive receptor location in the vicinity of the proposed plant. Furthermore, no significant impacts on air quality guideline values have been predicted at any sensitive receptor locations."

Planning permission was granted for this site in January 2011 and details of the air quality modelling report and other planning application documents can be accessed at:
http://www.nottinghamshire.gov.uk/home/environment/planningmatters/developmentcontrol/planning-applications/applications-detail.htm?id=4875
The application reference is F/1908.

Other Biomass Combustion plants

Application Ref	Name of Development	Address	Grid reference X	Grid reference Y	Biomass Boiler or CHP	Make of Appliance	Combustion System Design	Thermal Output	Fuel Type
11/01952 /FUL	Hofton and sons ltd	Unit 11 Nottingham South & Wilford Industrial Estate, Ruddington Lane, NG12 7ep	456743	335761	biomass heating	CAS 400	hand fired wood chip	118 Kw	wood chip saw dust

10/00760 /FUL	Cedars farm	Cedars Farm Butt Lane Normanton On Soar Nottinghamshire LE12 5EE	452895	324500	biomass heating	KWB multi fire 100	automatic feed	101kw	wood chip saw dust
F/1908	John Brookes	John Brooke (Sawmills) Ltd, The Sawmill, Fosse Way, Widmerpool	465228	327799	biomass energy productio n	Steam Turbine	Vibrating feed conveyor	3MW	reclaimed (waste) and natural wood from existing site operations

Screening assessments have indicated there is no need to proceed to a detailed assessment for these appliances.

6.2 Biomass Combustion – Combined Impacts

Rushcliffe Borough Council has assessed the biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

The proposed biomass plant at John Brooke Sawmill was assessed in the last USA in 2009. Since then the plant has still not been constructed. The proposal is for a 3MW boiler for which an air quality assessment and stack height calculation have been completed by the applicant. The location is remote to existing residential receptors situated in a rural area surrounded by agricultural land as such there is no other combustion impacts to consider. This installation requires no further assessment should it become operational.

The Rushcliffe School has replaced 2 oil fire boilers with 2 wood pellet boilers rated at 350Kw each. A chimney height calculation was undertaken and a screening assessment undertaken. (See appendices). An assessment in this area as detailed in TG (09) section D.1b for combined effects indicate that emissions are not greater than the threshold emission calculated from the background maps for the area. Indeed assuming all the existing properties in the 500x500 grid were using smokeless fuel this still resulted in the emission rate being lower than the threshold emission.

The County Council has replaced a number of coal appliances in schools with wood chip biomass plant. These are of a similar heating capacity and utilise the same boiler houses and emission points to the boilers being replaced, although new stacks which are insulated may be fitted. A number of these appliances are in smoke control areas and these appliances are now approved by Defra for use in smoke control areas. As such the emissions for these sites are expected to be lower than the previous coal burning appliances. It is Rushcliffe's view that such appliances do not need further assessment.

6.3 Domestic Solid-Fuel Burning

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

Previous rounds of the review and assessment found that coal burning does not occur in areas of high density in the borough. Gas is widely available in the older built up areas of the district where traditional housing is prevalent. New housing development has not occurred where biomass or other solid fuel burning takes place.

7 Fugitive or Uncontrolled Sources

Rushcliffe Borough Council is aware of a pending application to extend the Rempstone sand/gravel quarry operated by Cemex. The application number at the Nottinghamshire County Council is ES/2135 site reference 8008/M. The application and supporting material are available at:

http://www.nottinghamshire.gov.uk/home/environment/planningmatters/developmentcontrol/planning-applications/search-applications.htm

This service has commented on the application that part of the land that will be quarried will be within 200m of a dwelling. The area around the quarry is rural and only a small number of farm houses exist in this area. The occupier of the farm house is associated with the quarry company over the quarrying activity. This receptor is considered a low sensitive receptor.

This service has visited the site and reviewed the existing process that is currently in operation and have concluded that fugitive and uncontrolled dust would not cause an exceedence of the pm10 air quality objective. The reason for this are:

- Background levels of PM10 in the area of the quarry are 16.5 micrograms for 2012 taken from the R&A background maps on the Defra website. Which is low.
- The area that is of concern will be excavated on a campaign basis; this will see the area only worked for a proportion of the year when conditions are satisfactory for the work operation.
- after negotiation with the operator planned haul roads will be sited further away from the dwelling than initially suggested mitigating this as a source,
- the dust management plan existing at the site will continue to be used to control and mitigate dust including haul roads
- there have not been any complaints of dust from the site
- Observations indicate haul roads to be adequately managed and wetted with wheel washes used to prevent dust on nearby roads etc. with extensive water supplies on site.
- Processing of extracted material will take place in the same area as existing work which was considered under previous R&A rounds.

- The ground conditions are damp/wet for this type of operation and there exists significant water resource's onsite to maintain dust control and indicates the damp ground conditions in the area.
- The type of dust from the site is considered to be of a larger particle size than that of PM10 and as such PM10 is not considered to be produced significantly at the site.
- During the period of excavation in the closest area to the dwelling dust sampling will be undertaken to further supplement the dust management plan.

Rushcliffe Borough Council confirms that there are no potential sources of fugitive particulate matter emissions in the Local Authority area.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

It is Rushcliffe's view that in 2011 the sites within the AQMA1 and AQMA 2 were all compliant with the AQS at relevant receptor locations. Levels have increased at 2 sites in the AQMA 2 and are close to the AQS but not exceeding; however, others have fallen and are consistently well below the AQS. Previous year's results have indicated compliance in AQMA2 with a falling trend.

However, due to the increase in two of the tubes it is not proposed to revoke or reduce the AQMA2 at this time and it will remain until Rushcliffe is satisfied that the compliance with the objectives will be likely to continue.

The Levels in AQMA 1 have all for the first time been assessed as below the AQS and this is encouraging. The AQMA will however remain until the levels are consistently below the AQS as specified in TG (09). This may take a period of a further 2-3 years to demonstrate.

Some sites that have been longstanding sites in the sampling programme indicate low levels that are unlikely to show any exceedance of the AQS. As such a number of these tubes can be decommissioned and relocated to emerging areas of concern or to improve reliability of other sites. The sites that could be removed include:

- Landmere lane: consistently low result
- Saltby Green: consistently low result
- A52 Saxondale: property is set back from the road and long term this property is not likely to exceed AQS. The A52 South Avenue is a more representative site for Radcliffe on Trent and properties close to the A52.
- East Bridgford (2 tubes): site can be removed as the traffic on the old A46 has significantly reduced.

The Windywayes site has shown an increase in the years monitoring and as such this is a concern that levels have moved the wrong way. However it is still under the AQS and to improve the accuracy of this site this can be doubled up. The other nearest tube to this site has also shows an increase in value, that of the Nottingham

Knight tube. This simultaneous increase suggests a real increase has occurred in this area, albeit both are assessed as below the AQS at the nearest receptors.

The AQMA 4 sites have indicated significant exceedence at façade and support the decision to declare an AQMA was correct.

The 1KH site is not sufficiently robust at this time to proceed to a detailed assessment. Enhanced monitoring will take place over 2012 in the affected Bingham area to improve the reliability of this data.

It is recommend to utilise the national factor for the bias factor in future reports as the local factor produced is influence by local conditions that do not make it suitable for wider use.

The PM10 sampling undertaken at the AQMA4 site indicates compliance with the PM10 AQS. Monitoring will continue at this site to ensure the site is adequately assessed.

8.2 Conclusions from Assessment of Sources

Local development at this time is not significant and all development that is likely to have impacts have been identified at the planning stage. Air quality assessments have been undertaken as requested with no development indicating any significant impacts will occur as a result of proposed developments. Permissions for housing at Sharphill may lead to increases in due course but these are not considered significant, however the properties are not actively being constructed at this time due to the down turn. As such the impact of any transport emissions from the estate will be lessened even further as emission factors improve over time from that assumed in the assessment for this site.

There has been development commence at the RAF Newton; this is some distance from any built up area and no significant impacts are expected. Similarly the Cotgrave colliery development is several miles from the main Nottingham conurbation and although small amounts of traffic may be added to the main arterial routes there is no local air quality issues expected or significant effects on the AQMA's.

The proposed extension of the Cemex quarry is not expected to have adverse impacts on any residential premises in the area.

Coal burning is not a significant occurrence in the borough

The change of boilers by the County Council from Coal to wood chip is likely to produce a positive outcome as the new boilers are more modern in design and process control and the emission factors are lower when compared to coal.

8.3 Proposed Actions

Additional monitoring is now taking place at and around the Kirkhill Road area of Bingham using diffusion tubes. 1 KH has been doubled to improve accuracy.

Some tubes will be removed from the sampling programme as discussed above for 2012 as a review of the data over the long term indicates the sites are unlikely to indicate a breach of the AQS. These are the Landmere Land, Saltby Green, A52 Saxondale, and the East Bridgford sites.

The Windy ways site is to be doubled up to improve the accuracy of the site as this location is key to deciding the keep or revoke the AQMA2.

An application is likely to be made for grant funding to undertake real time monitoring of NO2 in AQMA 4. This was a matter that was recommended in last year's R&A appraisal from Defra.

The AQMA boundaries to remain unaltered and the AQMA's to remain in place.

A „further assessment' is to be submitted with this report or shortly after for the AQMA4. (AQMA 1, 20011)

An AQAP is to be developed for AQMA 4 area. The time of submission will be dependent on the ability of the Highways Agency to respond to requests for assistance in determining the measures and their impacts, although a time deadline of 12 months from this report shall be targeted.

Applications that are received that may have negative impacts on air quality will continue to be assessed using the planning system. RBC have committed to a Supplementary Panning document (SPD) for air quality in the AQAP. We are

currently working on a joint bid with Gedling to try and move this action forward. This will help ensure that development takes place with due regard to air quality considerations.

RBC will continue to liaise with the County over the introduction of biomass plant in schools etc.

9 References

Biomass Screening Methods, 2008, Defra and the Devolved administrations, by AEA Technology 2008

Rushcliffe Borough Council 2006 Local Air Quality Management Updating and Screening Assessment

Highways Agency's Design Manual for Roads and Bridges (DMRB), Volume 11, Section 3, Part 1 Air Quality, May 2007, and accompanying spreadsheet DMRB Screening Method V1,03.xls. July 2007

Local Air Quality Management Technical Guidance LAQM.TG (09). February 2009. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland

Local Air Quality Management Policy Guidance LAQM.PG (09). February 2009. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland

Local Air Quality Management Updating and Screening Assessment Report 2009 Rushcliffe Borough Council

Local Air Quality Management, Progress with AQAP Report 2009 Rushcliffe Borough Council

Local Air Quality Management, Annual Progress Report 2007 Rushcliffe Borough Council

Rushcliffe Borough Council 2007, Local Air Quality Management Air Quality Action Plan 2007

Rushcliffe Borough Council 2010, Local Air Quality Management update of Air Quality Action Plan 2007,

Local Transport Plan for Nottingham, 2006-2011, Nottinghamshire County Council
Congestion Delivery Plan, Nottinghamshire County Council 2007

Air Quality Considerations for Developers, Rushcliffe Borough Council, 2010
GLM7, Gradko Laboratories NO2 Laboratory Method

BSEN 123412, EC reference Method, British Standard

MDHS 14/2, General methods for the sampling and gravimetric analysis of respirable and total inhalable dust, HSE

Policy G1, Non statutory Local Plan, Rushcliffe Borough Council

PPG 13, planning policy guidance 13, transport, Communities and Local Government (formerly OPDM)

PPS 23, Planning policy statement 23, Planning and pollution control, Communities and Local Government (formerly OPDM)

Policy 36 East Midlands Regional Plan, East Midlands Regional Assembly, 2006

LDF, Local Development Framework, Rushcliffe Development Framework - Core Strategy Option for Consultation. (Consultation document)

Rushcliffe Borough Council published documents are available from www.Rushcliffe.gov.uk. Air quality reports are located on page http://www.rushcliffe.gov.uk/doc.asp?cat=10437

10 Appendices A DMRB Calculations

No DMRB calculations have been undertaken for this assessment

11 Appendices B: national bias adjustment factors & local co-location

The diffusion tubes used in this study are 20%TEA supplied by Gradko International. This tube type is supplied to all the Nottinghamshire Local Authorities by Gradko.

The results of the local co-locator study at the Loughborough Road site are shown below. The site is considered to be a roadside site. The data has been added to the Difftab excel spread sheet produced by AEA Technology v04 Feb 2011. The results indicate tube precision to be good and a bias of **1.11** is calculated. Data capture for one of the periods for the no2 analyser was low. With this excluded the data capture used by the spread sheet is 97%. The diffusion tube mean was 35µg/m-3 and the analyser mean was 39 µg/m-3 for the periods selected by this method. All 12 periods had the CV (coefficient of variance) less than 20.

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Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements										Automatic Method		Data Quality Check	
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 μgm^{-3}	Tube 2 μgm^{-3}	Tube 3 μgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean	Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
1	05/01/2011	02/02/2011	42.80	45.26	45.47	45	1.5	3	3.7	46.683	99	Good	Good
2	02/02/2011	03/03/2011	36.23	34.18	31.07	34	2.6	8	6.5	44.658	99	Good	Good
3	03/03/2011	30/03/2011	36.38	41.46	36.18	38	3.0	8	7.4	52.070	90	Good	Good
4	30/03/2011	27/04/2011	38.12	41.14	39.79	40	1.5	4	3.8	47.461	79	Good	Good
5	27/04/2011	01/06/2011	26.25	24.71	27.31	26	1.3	5	3.2	26.224	58	Good	or Data Capture
6	01/06/2011	01/07/2011	31.42	30.20	31.00	31	0.6	2	1.5	28.721	99	Good	Good
7	01/07/2011	03/08/2011	24.74	25.78	33.37	28	4.7	17	11.7	27.664	94	Good	Good
8	03/08/2011	30/08/2011	32.03	30.51	31.90	31	0.8	3	2.1	27.637	98	Good	Good
9	30/08/2011	28/09/2011	28.38	33.52	34.10	32	3.1	10	7.8	31.578	98	Good	Good
10	28/09/2011	02/11/2011	37.13	36.27	37.98	37	0.9	2	2.1	40.973	100	Good	Good
11	02/11/2011	30/11/2011	36.95	36.51	37.61	37	0.5	1	1.3	42.20	99	Good	Good
12	30/11/2011	04/01/2012	29.30	33.71	33.03	32	2.4	7	5.9	34.735	99	Good	Good
13													
											Overall survey -->	Good precision	Good Overall DC

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

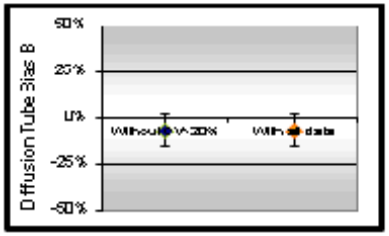
(Check average CV & DC from Accuracy calculations)

Site Name/ ID:	Loughborough Road

Precision	12 out of 12 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval) without periods with CV larger than 20%	
Bias calculated using 11 periods of data	
Bias factor A	1.11 (1.01 - 1.22)
Bias B	-10% (-18% - -1%)
Diffusion Tubes Mean:	35 μgm^{-3}
Mean CV (Precision):	6
Automatic Mean:	39 μgm^{-3}
Data Capture for periods used:	97%
Adjusted Tubes Mean:	39 (35 - 43) μgm^{-3}

Accuracy (with 95% confidence interval) WITH ALL DATA	
Bias calculated using 11 periods of data	
Bias factor A	1.11 (1.01 - 1.22)
Bias B	-10% (-18% - -1%)
Diffusion Tubes Mean:	35 μgm^{-3}
Mean CV (Precision):	6
Automatic Mean:	39 μgm^{-3}
Data Capture for periods used:	97%
Adjusted Tubes Mean:	39 (35 - 43) μgm^{-3}



Jaume Targa, for AEA
Version 04 - February 2011

Diffusion Tube Bias Adjustment Factors

The national bias factor for this laboratory and available from http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html. Is 0.89 for the 2011 period published in April 2012. The results from this study were submitted and accepted into the national database.

Discussion of Choice of Factor to Use

In this study the national factor has been applied to the diffusion tube results over the 2011 period. This is due to a number of factors that indicate the national factor would be a better more robust figure to use at other monitoring locations in the borough. Namely:

- The site is not typical of the exposure for the majority of the tube sites. It is situated to the side of a building that may affect air flow at the sampling point
- Local QA/QC procedures are used
- The site is not affiliated to the AURN network
- The local value produced is high when compared to other sites in the Nottingham area that use Gradko and are both affiliated to the network and not affiliated to the network.
- The local value is one of the highest values for the Gradko 20%TEA tube type
- National factors have been used in the past for Rushcliffe's reporting purposes and have been accepted in previous reports.

PM Monitoring Adjustment

No adjustment is required for PM10 as the monitor is compliant with the sampling standard.

12 Appendices C: Quality Control (QA/QC)

It is essential to ensure that all data collected is accurate, reliable and comparable and have high data capture rates. It is therefore important to apply consistent quality control and assurance procedures. The aim of this document is to outline the main quality assessment and quality control procedures used in Rushcliffe BC to determine air quality data for use in the local air quality management process.

Air quality operators

All monitoring and data management is undertaken by fully trained in house employees who have several years experience in air quality monitoring and data management. Any new personal will undertake appropriate supervised training in line with the service's competency scheme prior to any unsupervised monitoring, calibration or data management. Currently two personal are trained and competent to undertake such work this includes, Martin Hickey EHO and John Pemblington Technical Officer.

Diffusion Tube Monitoring

Rushcliffe use diffusion tubes prepared using 20%TEA in water to measure nitrogen dioxide at a number of sites in the borough. The diffusion tubes are stored in an airtight bag in a refrigerator upon receipt in the post and are used within 6 weeks of the preparation date displayed on the label.

Tube batches are exposed at selected sites to the atmosphere for approximately 4 weeks with the change over date aiming to be +/- 1 day of the publicised diffusion tube change over date for the month to allow comparison with other Local Authority studies if necessary. The locations have are reviewed periodically and all tubes are mounted using spacer brackets and grommets supplied through Gradko.

Each tube is labelled with a bar code and unique identification number. Each batch is supplied with a data collection form to record the location, date and time each tube is exposed in that period. The exposure period is calculated using an excel spreadsheet and in addition Gradko recheck the calculated exposure period for each tube on receipt at the laboratory.

On the day of collection, the tubes are sent in an air tight bag to Gradko International Limited for analysis, together with a control blank that is stored unexposed in the

sample fridge. The diffusion tubes are analysed within the scope of Gradko International Ltd Laboratory Quality Control Procedures utilising in-house method GLM7. Gradko is a UKAS accredited laboratory and undertakes diffusion tube monitoring on the same basis for a number of other Local Authorities and Environmental Consultants and now undertakes the monitoring for all LA in the Nottinghamshire Pollution Working Group.

Nitrogen Dioxide absorbed as nitrite by triethanolamine is determined by spectrophotometric measurement at 540 nanometers. Nitrite reacts with an added reagent to form a reddish purple azo dye and the optical density of this complex is measured using a Camspec UV/Visible Spectrophotometer. The concentrations of nitrogen dioxide are then calculated from a pre-calibrated response factor and exposure times. The values are not blank corrected, using the blank "control" diffusion tube provided by Rushcliffe Borough Council.

The accuracy of the measurements made by Gradko are also monitored by participation in an external laboratory measurement proficiency scheme, the „Workplace Analysis Scheme for Proficiency' (WASP), implemented by the Health and Safety Laboratory, Sheffield. The results of the wasp analysis is shown below

Wasp round	**105**	**106**	**107**	**108**	**109**	**110**	**111**	**112**	**113**
	April – June 2009	June – August 2009	Oct – Dec 2009	Jan – March 2010	April – June 2010	June – August 2010	Oct – Dec 2010	Jan - March 2011	April - June 2011
Gradko International [1]	100 %	100 %	100%	100 %	87.5%	100 %	100%	100 %	100%

[1] Gradko International - Participant subscribes to two sets of test samples (2 x 4 test samples) in each WASP PT round.

The analysis is carried out in accordance with Gradko International Ltd, Internal Laboratory Quality Procedure GLM 7, and within their U.K.A.S. Accreditation Schedule.

Data Ratification

All diffusion tube data is checked on a monthly basis to identify any spurious data and compared with other local monitoring sites to further identify any suspect data.

Ratified diffusion tube monitoring data are reported in this document have been biased adjusted using the correction factor as stated which is either derived from the collocation of tubes at the continuous monitoring analyser at Loughborough Road,

West Bridgford using the method set out in technical guidance 09 and available from http://www.airquality.co.uk/laqm/tools/AEA_DifTPAB_v03.xls or the most up to date national bias factor.

Gravimetric Monitor

The gravimetric sampler is a Sven Leckel 47/50 gravimetric monitor and is compliant with BS EN 123412, as a EC reference method for PM10. The data necessary to calculate the air flow and any error status is downloaded to a laptop via a cable at each filter cartridge change. The cartridge has a maximum capacity of 17 filters, although Rushcliffe use a batch process of 15 filters at a time.

The sampler operates by drawing a metered ambient air sample through a size selective inlet head by a vacuum pump, thus enabling the particles to be trapped on a filter for later weighing. Each filter is exposed for a 24-hour period and is then automatically changed at midnight each day until the inlet cartridge is empty. Exposed filters are moved to a collection cartridge after exposure.

Filter handling procedures

Filters are supplied by TES Bretby (UKAS Accredited and HSE Approved Laboratory) in individual metal containers already in the filter housing and able to be placed in the monitor without touching the filter surface. Each filter housing is identified by a number (e.g. RBC1) and each filter has a unique number to keep track of the pre-weighed value. The exposed filters and record sheets are returned to the laboratory for re-conditioning, re-weighing and the necessary calculations to determine the mass collected on the filter for each 24hr period. The returned form contains the date of exposure, the air flow sampled, the length of time of exposure, the filter reference number and the mass of PM10 in $\mu gm^{-}3$.

The laboratory in-house method is based on the HSE document MDHS 14/2 „General methods for the sampling and gravimetric analysis of respirable and total inhalable dust'. The filters used are QMA 47 and are stored and weighed in an air-conditioned balance room.

All filters are conditioned for at least 12 hours prior to weighing and re-weighing in the laboratory. They remain under the influence of an ionised air source, in order to minimise the influence of static electricity, immediately prior to weighing. The filters are then weighed on "Sartorius" micro-balances that have a readability of 1µg. The final results are recorded and submitted on UKAS accredited test reports.

Monitor checks and maintenance

At each visit to the monitor (every 15 days) to change the filters the grease trap in the inlet is cleaned and fresh grease applied. Upon download of the parameters each filters hours of exposure and volume of air sampled is examined to determine if any unusual values have occurred. If so the operator will investigate the cause and take appropriate action.

The monitor is under a service contract with the supplier Enviro Technology PLC and receives 2 service visits annually at which time preventative maintenance and cleaning takes place as well as a flow calibration.

Data handling

Reports from TES Bretby are received via email and the data is transferred manually on to an excel spreadsheet. From the spreadsheet the annual mean, data capture rate and number of days above the AQS is determined. As the sampler is an EU approved sampler no corrections are required to be made to the reported particulate results and direct comparison with the AQS's can be made.

NOx Continuous Analyser

Description of Analyser

The NOx continuous analyser is located at the façade of 43 Loughborough Road, West Bridgford and is a permanent site. The site is non residential but provides a good assessment of NO2/NOx close to the main road along the building line. It is a Monitor Europe ML9841B single chamber Chemiluminescence analyser and is approved by TUV, US EPA and NETCEN.

The analyser has a resolution of 0.001ppm and a reported lower detectable limit of <0.5ppb. The linearity error of the analyser is ± 1% of the full scale (from best line fit), and the precision is 0.5ppb or 1% of concentration reading (whichever is the greater).

From February 2010 the monitor and enclosure has been renewed but kept at the same location. Data reported in this document is entirely from the new monitor. The new monitor remains a ML9841B NOx Analyser with IZS and for 2010 is installed into a Romon 300 roadside enclosure with air conditioning.

Instruments Checks and Calibration of the Analyser

Daily automatic calibration

Zero air is generated by passing air through scrubbers and passed through the reaction cell. Span gas is generated by a permeation tube and passed to the reaction chamber to give the span calibration response.
The daily automatic calibrations are used as a check on the instrument performance and drift.

Analyser inspection and manual calibration

The analyser was covered by a service and maintenance contract. In 2011 this contract has been changed to SupportingU from Casella. The service and maintenance contract covers calibration checks, flow and leak checks, cleaning of components, analyser diagnostic checks, replacement of faulty components and consumables and fault call out.
Manual calibration checks are carried out by RBC staff on a fortnightly basis using scrubbed zero air derived from the integrated scrubber column and a certificated NO/NOx calibration gas is supplied by BOC Gases. The BOC gas is changed when the certification expires.
The analyser is taken out of service and the inlet filter is changed prior to connecting the calibration gases. The zero air and NO/NOx gases are run through the analyser and the responses noted together with the instrument gain factor. The output of the analyser (e.g. the gain) is only reset or altered following equipment service or repair or if drift occurs necessitating a change of the gain setting. The calibration zero values, span values and gas certified values are used to rescale the raw data received from the analyser using a proprietary software package, Envista.

Data Handling and Ratification

Data handling
Raw data is downloaded via a modem connection automatically every 24hours into the Envista Arm remote server database. This data can be viewed by all the Nottinghamshire Local Authorities who are part of the network; however, only data can be manipulated in the database that belongs to the respective LA. Data is currently being maintained under contract by the software supplier engaged through Casella Stanger and data integrity and security is part of this contract arrangement. In addition the data, both raw and ratified is published on the following web page http://www.nottinghamaqm.net/Default.htm

Data is downloaded in PPB and μgm^{-3} and visually inspected for negative values, missing data sets and spurious results.
Initial scaling factors are determined for NO and NOx using the following formulas based on the fortnightly calibration checks.

$$\text{Scaling Factor "A"} = \frac{\text{Expected (Known) Cylinder Concentration}}{\text{Measured Concentration } \mathbf{- Measured\ Zero}}$$

$$\text{Scaling Factor "B"} = \text{- Measured Zero Value}$$

To rescale the NO value the “A” scaling factor for the fortnightly period in question is multiplied to each 15 minute data set for NO in the database (on the PPB channel). Subsequently the “B” scaling factor is added to the same period of data to address any zero drift noted at the calibration check.
If any zero values, negative values are still present the data block is further rescaled to remove any zero values. Any values added to the NO channel are applied to the NOX channel. This ensures no change in the NO2 outcome.

The same procedure is then carried out with the NOx data using calculated “A” and “B” factors for NOx over the same periods.

To calculate the rescaled NO2 15 min values a calculation is then run on the PPB data base using the following equation:

NO2 concentration (PPB) = NOx concentration (PPB) - NO concentration. (PPB)

These calculations are undertaken in PPB before any conversion to micrograms. NO2 and NOx are converted to μgm^{-3} by a conversion factor of 1.91. NO is converted to μgm^{-3} by a conversion factor of 1.25.
Once data on the PPB channels is determined to be satisfactory the μgm^{-3} channels are re-calculated from the PPB channels to enable analysis in micrograms.

Data ratification
All raw data is examined for consistency and the existence of any spurious results. Negative values are examined and either removed or rescaled further and high values are interrogated to see if the readings are consistent with expectations or an equipment error may have occurred. Data, during calibration checks is automatically

excluded from the database by a software service switch on the instrument panel which is used during calibration checks.

If any doubts exist as to the satisfactory status of any data the data is excluded from the data base calculations, although the Envista Arm software allows the data to remain in the database and marked as „not used' enabling recovery of any excluded data should that be considered necessary. Each data set that is excluded must have annotated against it a reason for the data exclusion to allow for traceability of data ratification. The most common reason for data being excluded is monitor breakdown leading to consistently low or very high readings. However, power failure can also be a cause as well as any specific events noted by officers during visits. E.g. trucks being run next to the monitor for maintenance of the building façade or similar.

Information from the other analysers on the system can also be accessed to compare any data that may be experiencing high or low readings to enable a decision to be made on the status of any data highlighted. This includes the AURN monitors operated by the Nottingham City.

Envista has built in reports that enable a number of parameters to be determined on the ratified or raw datasets as required. During 2010 three new channels have been added to the data base to enable display of the results directly in μgm^{-3}. Data ratification and recalculation will take place on the ppb channels as described above with final data being calculated from these ppb channels and converted using the published conversion factors in TG (09).

13 Appendices D: Diffusion tube results by month

2011 NO2 diffusion tube results by month, 20%TEA in Water, micrograms per cubic meter

AQMA	Name	Location	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Annual Mean
1	1 LOUGHB'H RD W/B	NA1	42.80	36.23	36.38	38.12	26.25	31.42	24.74	32.03	28.38	37.13	36.95	29.30	33.31
1	1 LOUGHB'H RD W/B	NA2	45.26	34.18	41.45	41.14	24.71	30.28	25.78	30.51	33.52	36.27	36.54	33.71	34.45
1	1 LOUGHB'H RD W/B	NA3	45.47	31.07	36.18	39.79	27.31	31.08	33.37	31.90	34.10	37.98	37.61	33.03	34.91
1	EDWARD ROAD, LADY BAY	ER	45.54	33.92	34.17	42.21	24.09	28.19	29.09	30.06	26.21	32.76	43.41	29.21	33.24
1	LOUGHBOROUGH ROAD (RES)	LR	40.96	33.05	37.84	48.45	32.67	39.94	32.89	41.72	36.97	35.13	49.28	36.33	38.77
1	PARTICULATE MONITOR (CENTENARY HOUSE)	PM10	42.84	21.33	33.64	40.98	24.98	27.37	28.18	26.47	23.04	35.13	n/a	30.34	30.39
1	RADCLIFFE ROAD	RR	51.74	37.36	35.11	55.34	33.52	37.22	39.34	42.44	35.99	46.46	42.66	34.57	40.98
1	SWANS HOTEL	SH	46.63	33.01	34.86	41.15	24.14	27.00	27.60	29.82	27.50	39.05	42.42	29.98	33.60
1	THE POINT	POINT	41.20	33.25	33.00	34.60	22.10	24.63	24.27	27.09	24.27	31.62	35.68	27.98	29.97
1	TRENT BOULEVARD A	TBLA	43.08	37.01	37.60	46.51	35.72	39.69	31.04	40.29	36.03	43.96	39.72	39.86	39.21
1	TRENT BOULEVARD B	TBLB	50.94	39.42	46.41	52.19	36.65	39.10	35.78	43.75	32.71	42.59	43.52	39.07	41.84
1	TRENT BRIDGE INN	TBI	57.80	47.55	n/a	n/a	n/a	48.73	n/a	50.61	n/a	60.71	63.58	45.75	53.53
1	TRENT HOUSE	THF	48.75	42.21	44.71	56.17	35.25	37.88	35.81	37.06	n/a	54.77	63.41	31.68	44.34

1	TRENT HOUSE	THF2	52.68	43.85	43.23	45.83	34.38	40.94	37.39	40.56	40.42	44.82	61.66	29.80	42.96
1	WILFORD LANE 3	WL3	61.39	45.40	45.43	54.34	37.65	41.23	32.78	43.69	n/a	51.61	47.81	46.89	46.20
2	8 SALTBY GREEN	SG	37.77	31.81	29.44	34.77	24.66	26.69	23.45	26.11	21.61	34.08	37.48	24.52	29.37
2	A60/A52 JUNCTION (Nott Knight)	NK	60.22	54.75	53.16	61.77	61.71	43.18	39.45	44.58	n/a	68.94	88.64	38.31	55.88
2	3 BOTANY CLOSE	3BT	35.15	n/a	n/a	35.89	30.27	n/a	23.90	28.17	31.38	37.03	n/a	30.60	31.55
2	CLOVERLANDS	CL	60.32	36.84	38.17	46.57	n/a	32.30	30.02	34.12	34.31	44.10	40.92	40.38	39.82
2	CLOVERLANDS	CL2a	37.28	44.29	36.43	41.19	n/a	29.97	26.35	30.82	33.02	10.43	39.98	34.86	33.15
2	LANDMERE NURSING HOME	LL	37.81	30.41	33.26	32.33	25.56	27.03	24.25	27.91	n/a	33.98	n/a	27.34	29.99
2	WINDYWAYS	WW	42.32	38.36	40.40	45.44	40.15	37.88	35.96	40.07	47.61	59.03	45.10	39.26	42.63
4	A52 HOME HOUSE(façade) S'THORPE	A52/HHF1	60.99	49.92	58.95	70.20	60.67	56.55	57.57	50.65	47.48	61.21	60.39	39.41	56.17
4	A52 HOME HOUSE(façade) S'THORPE	A52/HHF2	58.94	53.93	51.65	71.38	60.93	52.28	50.42	52.66	41.81	54.56	60.80	44.29	54.47
4	A52 HOME HOUSE(façade) S'THORPE	A52/HHF3	74.66	59.31	49.23	70.16	56.09	51.10	56.05	53.19	46.17	52.40	61.31	40.05	55.81
4	STRAGGLETHORPE ROAD	SR	46.75	36.18	40.03	48.14	36.54	37.59	38.98	37.86	26.68	n/a	80.75	24.67	41.29
4	A52 HOME HOUSE(façade) S'THORPE	A52/HHF4	52.07	52.13	42.71	63.74	44.95	50.40	49.35	49.99	19.32	51.59	45.86	43.95	47.17
4	A52 HOME HOUSE (GARDEN)	A52/HHG	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	25.47	24.79	30.06	23.93	26.06
no	22 HEATHERVALE	HV	34.42	n/a	n/a	29.39	16.18	21.02	20.50	22.13	17.60	30.64	28.71	23.09	24.37
no	34 BRIDGFORD ROAD	BR	40.51	25.26	31.01	33.59	22.04	24.93	21.63	23.75	24.80	31.29	32.16	27.93	28.24
no	39/41 WILFORD LANE	WLR/2	38.22	35.97	31.33	35.39	22.35	28.02	23.96	27.44	20.08	35.49	35.68	23.50	29.79
no	A453	A453	47.94	47.87	43.80	68.51	39.81	50.40	37.56	46.87	47.97	40.66	47.80	31.03	45.85

no	A46 EAST BRIDGFORD	A46/EB	36.11	24.20	21.94	33.76	20.66	26.16	22.61	26.79	25.63	26.80	27.68	20.91	26.10
no	A46 EAST BRIDGFORD 2	A46/EB2	39.76	23.48	28.81	34.50	22.49	27.78	22.68	25.19	n/a	n/a	n/a	n/a	28.09
no	A52 LINGS BAR Hospital	GLB HOS	29.88	23.64	26.89	26.07	16.48	19.41	19.28	19.18	15.66	20.94	26.94	20.31	22.06
no	A52 SAXONDALE	A52/S	46.33	32.37	41.06	46.26	29.76	33.37	n/a	40.62	30.89	34.72	37.88	32.82	36.92
no	A52 SOUTH AVE, RADCLIFFE	A52/SA	45.16	32.54	41.25	49.16	28.17	30.91	31.36	31.14	28.37	35.74	38.62	28.75	35.10
no	HAMPTON ROAD	HR	31.09	21.29	23.53	24.03	14.53	18.47	15.46	19.45	17.30	21.32	27.40	19.51	21.12
no	HICKORY HOUSE	HH	36.90	38.15	32.81	34.86	21.37	24.28	23.02	26.76	25.97	32.83	39.41	27.83	30.35
no	RADCLIFFE ROAD	37RR	39.05	28.39	34.22	41.64	25.76	28.41	23.27	28.62	n/a	50.59	39.22	31.63	33.71
no	PEVERIL COURT	PC	37.19	30.07	26.10	32.54	22.24	27.57	24.84	28.47	28.89	30.21	40.75	27.79	29.72
no	RADCLIFFE A52	A52/RT	49.50	36.85	41.85	53.19	36.56	38.47	29.81	40.39	37.66	46.03	46.68	36.97	41.16
no	THE BEECHES HOTEL	BH	40.54	30.27	27.94	39.90	23.30	29.93	25.90	31.08	18.20	33.75	32.36	28.76	30.16
no	110 Wilford Lane lamp post	110 WL	45.56	n/a	43.32	n/a	n/a	30.89	29.24	n/a	n/a	34.00	45.06	31.66	37.10
No	1 KIKHILL BINGHAM	1KH	n/a	43.51	44.23	48.10	38.73	n/a	41.48	44.55	35.88	61.04	52.54	n/a	45.56
No	4 KIRKHILL BINGHAM	4KH	n/a	32.14	40.75	46.52	29.34	38.52	34.99	39.39	33.51	47.63	55.90	23.20	38.35

14 Appendices E: Rushcliffe School chimney height calculation

A1 BRIDGE FLUE SYSTEMS
Maun Way Boughton Industrial Estate Notts
NG22 9TF
Telphone: 0870 160 2280 Fax: 0870 160 2281
E-MAIL:
VISIT OUR WEB SITE AT:http://www.a1flues.co.uk

CHIMNEY DIAMETER CALCULATION - EN 13384-1 / DIN 4705

Project Ref:- Rushcliffe school-biomass **Cal.Ref:-** (Untitled)
Customer :- Notts C C **Date :-** 20/02/2009
Engineer :- Carl Bostwick

SYSTEM TYPE:- Boiler Chimney - Single Connection **FUEL:-** BM Pellet

APPLIANCE DETAILS:- (Full Load / Red.Load)
No.of: - 1 / 0 + 1 Pressure(-ve Req.d) F.Gas Temp.:- 170 / 80^C
Total Rating:- 1100 / 400kg/hr F.Gas Co2: - 13.0 / 11.0%
Make: - Hoval STU 450 Flue Conn.: - 300mm

RESULTS:-

	Full Load	Red. Load	
Combustion Air Intake PD - (Std.Louvre)	2.0		Pa
System Buoyancy @ 15dec C Amb.	-31	-16	Pa
System Flow Resistance	+16	+1	Pa
Oper.Press at Appliance Outlet	-15	-14	Pa
Target Oper.Press. App.Outlet	-9 to -25		Pa
Outlet liner Temp. @ 0 deg C Amb.	120	40	C
Target Min. liner Temp. (Su=0.02%)	98	95	C
Flue Gas Terminal Exit Velocity	6.0	1.7	m/s
Target Exit Gas Vel. (Clean Air Act)	6.0		m/s
Chimney Exit Diameter.	290		mm
Surface Temp. Int. @ 20 deg C Amb.	47		C

SYSTEM DETAILS:-

1 = Flue Pipe
2 = Chimney
3 =
4 =
5 =
6 =

	Product Type	Insulation	I/D mm	O/D mm	Inc/Red	Add.Res Pa
1	Deltavent	25mm Rockwool	400	450	Tapered	
2	Twin Wall	25mm Vermiculite	400	450		
3						
4						
5						
6						

Lengths(m)	1	2	3	4	5	6
In Open	2.3	1.5				
In Enc.						
Outside		6.0				
Vert.Rise	0.5	7.5				
Tees:						
90^std						
90^boot	2					
135^		1				
135^ + 45E						

Elbows	1	2	3	4	5	6
90^Sm Rd						
90^std.						
90^min.						
60^std						
45^std		1				
30^std						
15^std						
Add'k'						
Terminal	Tapered Cone(open)					

COMMENTS:-

This calculation was prepared by James Kelly E-Mail: jkelly@a1flues.co.uk (6.0)
Contact Tel.No.: 0870 160 2280 Mobile: 07795 627 364 Fax: 0870 160 2281

A1 BRIDGE FLUE SYSTEMS
Maun Way Boughton Industrial Estate Notts
NG22 9TF
Telphone: 0870 160 2280 Fax: 0870 160 2281
E-MAIL:
VISIT OUR WEB SITE AT:http://www.a1flues.co.uk

CHIMNEY HEIGHT CALCULATION - CLEAN AIR ACT MEMORANDUM

Project Ref:- Rushcliffe School
Customer :- Notts C C
Engineer :- Carl Boswick

Cal.Ref:- (Untitled)
Date :- 20/02/2009

Fuel type	BM Pellet	
Cv	18.00	MJ/kg
Su	0.02	%
Total Input Rating	3253	kW
Fuel Usage	650.60	kg/hr
District Ref.	N/A	
Uncorrected Height	2.76	M
Radius '5U'	13.8	M
No. of Buildings Considered	1	
Max Hm	6.5	M
Max Tm	> Ht	M
Corrected chimney Height	8.2	M
Adjustment for Overriding Minimum Requirement	1.8	M

FINAL CHIMNEY HEIGHT **10** **M**
(Above ground level)

Comments:

1. The final chimney height of all chimneys must be approved by the Local Environmental Health Department who may specify a further adjustment in overall height in light of particular local circumstances.

2. This calculation assumes that the exit velocity of the chimney is not less then 8 m/s for boilers up to 2200kW input, 7.5m/s up to 9000kW , 15m/s over 135MW (between 9000kW & 135MW pro rata). This This is to prevent the plume of gas flowing down the outside of the chimney.

3. No height adjustment has been added to cover the possible overriding minimum requirement of clause 25 of the Memorandum due to insuffient information being available

This calculation was prepared by James Kelly
Contact Tel No.: 0870 160 2280
E-Mail: jkelly@a1flues.co.uk
Mobile: 07795 827 364
Fax: 0870 160 2281

15 Appendices F: Rushcliffe biomass School screening assessment

Review and Assessment Tool for PM_{10} from biomass combustion stacks

The maximum emissions of PM_{10} in g/s from biomass combustion source emissions are calculated for your given stack details. Greater emission rates may result in exceedence of the 24 hour objective for PM10 in England, Wales and Northern Ireland or the annual mean objective in Scotland.

Enter required information in Cream Cells
Resulting Emission in Red Bold

Building height	6.5	m
Stack diameter	0.29	m
Stack height	10	m
Location {Scotland, Rest of UK}	Rest of UK	
PM_{10} Annual mean background concentration (include roadside contribution at relevant receptors)	16.3	μgm^{-3}
Calculated Effective stack height	5.8	m
Target Emission Rate	**0.0356**	g/s

If the maximum stack emission rate is less than the target above then it is not likely that the most stringent objective for PM_{10} will be exceeded

Annual mean NO_2 objective

The target emissions of NO_x in g/s from biomass combustion source emissions are calculated for your given stack details. Greater emission rates may result in exceedence of the annual mean objective for NO_2

Enter required information in Cream Cells
Resulting Emission in Red Bold

Building height	6.5	m
Stack diameter	0.29	m
Stack height	10	m
Location {Scotland, Rest of UK}	Rest of UK	
NO_2 Annual mean background concentration (include roadside contribution at relevant receptors)	13.5	μgm^{-3}
Calculated Effective stack height	5.8	m
Target Emission Rate	**0.1771**	g/s

If the maximum stack emission rate is less than the target above then it is not likely that the annual mean limit value for NO_2 will be exceeded

Review and Assessment Tool for oxides of nitrogen emissions from biomass combustion stacks

Hourly mean NO_2 objective

The target emissions of NO_x in g/s from biomass combustion source emissions are calculated for your given stack details. Greater emission rates may result in exceedence of the annual mean objective for NO_2

Enter required information in Cream Cells
Resulting Emission in Red Bold

Building height	6.5	m
Stack diameter	0.29	m
Stack height	10	m
Location {Scotland, Rest of UK}	Rest of UK	
NO_2 Annual mean background concentration (include roadside contribution at relevant receptors)	13.5	μgm^{-3}
Calculated Effective stack height	5.8	m
Target Emission Rate	**0.1174**	g/s

If the maximum stack emission rate is less than the target above then it is not likely that the hourly mean objective for NO_2 will be exceeded

PM10 emissions.

66x 350 10^{-6}= 0.0231g/s target is 0.0356

No2

150 x 350 x 10 -6 = 0.0525g/s target is 0.1771

Emission factors taken from biomass screening methods, AEA technology 2008

16 Appendices G: Prescribed process list as of February 2012

PPC module number	uprn	installation	EPA/PPC /EP Ref Number	Date Authorised	Company
Part B Process					
10/00004/EPR B	003040023894	Petrol Filling Station	99/006	30.03.99	Total Convenience Store, Lane End, 94 Melton Road, TollertonNG12 4EN
10/00005/EPR B	003040044114	Petrol Filling Station	99/002	03.03.99	Murco Limited, Kings Filling Station, Grantham Road, Bingham, NG13 8DF
10/00006/EPR B	003040058058	Petrol Filling Station	99/007	31.03.99	Shell, Saxondale Service Station, Saxondale Crossroads, Bingham, NG13 8AY
10/00007/EPR B	003040048656	Petrol Filling Station	99/009	14.04.99	Brobot, Pylon Service Station, Fosse Way, East Bridgford, NG13 8LA
10/00008/EPR B	003040011721	Petrol Filling Station	99/010	14.04.99	Brobot, Rancliffe Service Station, Loughborough Road, Bunny, NG11 6QT
10/00009/EPR B	003040050210	Petrol Filling Station	99/016	--	Ruddington Service Station,130 Loughborough, Ruddington, NG11 6LJ
10/00010/EPR B	003040055391	Petrol Filling Station	99/003	05.03.99	Morrison's Supermarkets plc., Ambleside, Gamston
10/00011/EPR B	003040053429	Petrol Filling Station	99/004	29.03.99	Cotgrave Service Station, Main Road, Cotgrave, Nottingham, NG12 3HQ

10/00012/EPRB	00304004924 8	Petrol Filling Station	99/011	14.04.99	Pierrepont Service Station, Radcliffe Road, Holme Pierrepont NG12 2LF
10/00013/EPRB	00304005170 5	Petrol Filling Station	99/012	16.04.99	Melton Road Service Station, Melton Road, West Bridgford, NG2 6EP
10/00015/EPRB	00304004854 0	Petrol Filling Station	99/015	24.05.99	LMP Service Station LTD, Stragglethorpe Cross Roads Radcliffe on Trent Nottingham NG12 2JU
10/00016/EPRB	00304005826 8	Petrol Filling Station	99/018	26.11.99	Asda, Loughborough Road, West Bridgford, Nottingham, NG2 7JA
10/00014/EPRB	00304004814 6	Petrol Filling Station	10/001	18.5.2010	Car colston Filling Station, Fosse Road, Bingham, NG13 8JA
10/00017/EPRB	00304005635 3	Dry Cleaner	06/002	01/08/2007	Finishing Touch Dry Cleaners, Unit 3 Manvers Business Park, High Hazels Road, Cotgrave, NG12 3GZ David Redgate, 01159376599, 07850436719
10/00018/EPRB	00304005290 6	Dry Cleaner	06/003	01/08/2007	Giltbrook Cleaners.52 Rectory Road, West Bridgford, Nottingham, NG2 6BU
10/00019/EPRB	00304004253 5	Dry Cleaner	08/001/A	01/05/2008	First Class Dry Cleaners,25 Market Place, Bingham, NG13 8AN
10/00020/EPRB	00304005272 3	Dry Cleaner	06/006	01/08/2007	Morrison Supermarket, Ambleside, Gamston, Nottingham, NG2 6PS
10/00021/EPRB	00304006580 7	Dry Cleaner	06/007	01/08/2007	Johnson Cleaners, Bridgford Point, Unit 1a, Radcliffe Road, West Bridgford, Nottingham, NG2 5FX
10/00022/EPRB	00304005760 7	Waste Oil Burner	92/001	24/04/1992	Barry's Autos, Unit 5 Candleby Lane, Cotgrave, NG12 3JG

10/00023/EPRB	003040022128	Waste Oil Burner	92/002	25/04/1992	Black Star Motors, 34a Blake Road, West Bridgford
10/00025/EPRB	003040039938	Waste Oil Burner	03/001	12/02/2003	Bingham Garage, Nottingham Road, Bingham
10/00026/EPRB	003040001104	Waste Oil Burner	99/019	24/05/2000	Charnwood Truck Services, Hillside, Gotham Road, Kingston on Soar
10/00033/EPRB	003040022924	Waste Oil Burner	10/002	01/10/2010	R E Howard ·& Son, 29 Gertrude Road West Bridgford, Nottinghamshire,NG2 5BZ
10/00034/EPRB	003040048757	Waste Oil Burner	10/003	01/12/2010	JIT Logistics, Unit 1 Building No 83 Langar Industrial Estate, Harby Road, Langar, Nottinghamshire, NG13 9HY
10/00027/EPRB	003040054985	Pulverised fuel ash facility	95/005/B	18/09/1995	E.ON Plc, A453 Winking Hill, Ratcliffe on Soar Power station, Radcliffe of Soar, Nottingham, NG11 0EE
10/00029/EPRB	003040008583	Crematoria	92/006	30/09/1992	Wilford Hill Crematoria, Southern Cemetery, Wilford Hill, West Bridgford, NG2 7FE
10/00030/EPRB	003040055032	Metal Coating Installation	06/001	24/03/2008	Trent Shortblasting Company Ltd, Southfields Business Park, Langar North Trading Estate, Harby Road, Langar, Nottingham, NG13 9HY
10/00031/EPRB	003040013353	Respraying of road vehicles	03/003	03/10/2003	Nottingham Volkswagen, Loughborough Road, West Bridgford, NG2 7JB
A2's					

10/00028/EPR A2	003040000499	Animal Carcase and Animal Waste Incineration	95/006 (Part B) 95/006/B (Part A2)	30.09.92 (12.08.96 sub.change).A2 Permit issued 18 August 2006	University of Nottingham, Faculty of Agriculture and Food Sciences, Sutton Bonnington
10/00032/EPR A2	003040047492	Cement Grinding/Bulk handling/mineral process	09/001/A	01/08/2009	Works Manager, Barnstone Cement works, Works, Lane, Barnstone, NG13 9JN

17 Appendices H: Traffic flows from 2009 to 2010.

ROAD NO.	LINK NO.		LOCATION (FROM - TO)	AADT 2009	AADT 2010	difference
A 46	33		Leicestershire boundary - A 606 Melton Road	24300	23750	-2%
A 46	34		A 606 Melton Road - Nottingham Road (Cotgrave crossroads)	16600	15850	-5%
A 46	35		Nottingham Road (Cotgrave crossroads) - A 52 (Saxondale roundabout)	18250	17400	-5%
A 46	36		A 52 (Saxondale roundabout) - A 6097 (Margidunum roundabout)	26350	26050	-1%
A 46	37		A 6097 (Margidunum roundabout) - Main Street, Farndon	22600	22450	-1%
A 52	54		Clifton Boulevard: A 453 Clifton Lane - A 60 (Nottingham Knight roundabout)	50200	49900	-1%
A 52	55		Clifton Boulevard: A 60 (Nottingham Knight roundabout) - A 606 (Wheatcroft roundabout)	35700	36600	2%
A 52	56		Gamston Lings Bar Road: A 606 (Wheatcroft roundabout) - Ambleside	24950	24750	-1%
A 52	57		Gamston Lings Bar Road: Ambleside - A 6011 (Gamston roundabout)	25250	25000	-1%
A 52	58		Radcliffe Road: A 6011 (Gamston roundabout) - Sandy Lane (Holme House)	40900	40600	-1%
A 52	59		Sandy Lane (Holme House) - Nottingham Road, Radcliffe-on-Trent	34850	34650	-1%
A 52	60		Radcliffe Bypass: Nottingham Road - Cropwell Road	30650	30450	-1%
A 52	61		Radcliffe Bypass: Cropwell Road - Bingham Road	25550	25400	-1%
A 52	62		Bingham Road, Radcliffe-on-Trent - A 46 (Saxondale roundabout)	26500	26350	-1%
A 52	63		Bingham Bypass: A 46 (Saxondale roundabout) - Grantham Road, Bingham	15900	15450	-3%
A 52	64		Grantham Road, Bingham - C 3, Elton	17050	16550	-3%
A 52	65		C 3, Elton - Leicestershire boundary	15400	14950	-3%
A 60	122		Trent Bridge, Nottingham: B 685 Meadow Lane - A 6520 Radcliffe Road	43000	40550	-6%
A 60	123		Loughborough Road, West Bridgford: A 6520 Radcliffe Road - A 606 Melton Road	30800	32150	4%
A 60	124		Loughborough Road, West Bridgford: A 606 Melton Road - Rugby Road	14300	14150	-1%
A 60	125		Loughborough Road, West Bridgford: Rugby Road - Boundary Road	13500	13400	-1%
A 60	126	124	Loughborough Road, West Bridgford: Boundary Road - A 52 (Nottingham Knight roundabout)	17750	17600	-1%
A 60	127	125	Loughborough Road, Ruddington: A 52 Clifton Boulevard - B 680 Kirk Lane	15700	15650	0%
A 60	128	126	Loughborough Road, Ruddington: B 680 Kirk Lane - Mere Way	17600	17550	0%
A 60	129	127	Mere Way, Ruddington - Pendock Lane, Bradmore	13700	13650	0%

A 60	130	128	Pendock Lane, Bradmore - Gotham Lane, Bunny	12150	12150	0%
A 60	131	129	Gotham Lane, Bunny - C 26, Costock	8950	8950	0%
A 60	132	130	C 26, Costock - A 6006, Rempstone	8500	8500	0%
A 60	133	131	A 6006, Rempstone - Leicestershire boundary	6450	6450	0%
A 453	137	135	Leicestershire boundary - Kegworth Road, Ratcliffe-on-Soar	26200	26750	2%
A 453	138	136	Kegworth Road, Ratcliffe-on-Soar - C 4 Clifton Lane (Crusader roundabout)	22500	23000	2%
A 606	139	137	Melton Road, West Bridgford: A60 Loughborough Road - Musters Road	12550	11650	-8%
A 606	140	138	Melton Road, West Bridgford: Musters Road - Boundary Road	12600	12000	-5%
A 606	141	139	Melton Road, West Bridgford: Boundary Road - A52 (Lings Bar roundabout)	11800	11550	-2%
A 606	142	140	A52 (Lings Bar roundabout) - Clipstone Lane (Plumtree turn)	23250	23150	0%
A 606	143	141	Clipstone Lane (Plumtree turn) - A46	15700	14800	-6%
A 606	144	142	A46 - Upper Broughton	6500	6450	-1%
A 606	145	143	Upper Broughton - Leicestershire boundary	5000	5000	0%
A 6006	289		Leicestershire boundary - Park Lane, Sutton Bonington	10600	10200	-4%
A 6006	290		Park Lane, Sutton Bonington - C4 (East Leake Turn)	7700	7650	-1%
A 6006	291		C4 (East Leake turn) - A60, Rempstone	8550	8500	-1%
A 6006	292		A60, Rempstone - Leicestershire boundary	8200	7050	-16%
A 6011	308		Lady Bay Bridge, Nottingham: Meadow Lane - A6520 Radcliffe Road	21650	21250	-2%
A 6011	309		Radcliffe Road, West Bridgford: A6520 Radcliffe Road - Davies Road	26650	26400	-1%
A 6011	310		Radcliffe Road, West Bridgford: Davies Road - Regatta Way	26950	26700	-1%
A 6011	311		Radcliffe Road, West Bridgford: Regatta Way - A52 (Gamston roundabout)	25750	25500	-1%
A 6520	368		Radcliffe Road, West Bridgford: A60 Loughborough Road - Fox Road	17050	18200	6%
A 6520	369		Radcliffe Road, West Bridgford: Fox Road - A6011 Lady Bay Bridge	18650	18500	-1%

B&C roads

NO.	NO.	LOCATION (FROM - TO)	2009	2010	
B 679	409	Wilford Lane: B 680 Ruddington Lane, Wilford - A 60 Loughborough Road, West Bridgford	16550	16700	1%
B 680	410	Ruddington Lane, Wilford: B 679 Wilford Lane - Landmere Lane	5600	5550	-1%
B 680	411	Wilford Road: Landmere Lane - Clifton Road, Ruddington	6450	7200	10%
B 680	412	High Street, Ruddington: Clifton Road - Kirk Lane	7150	8800	19%
B 680	413	Kirk Lane, Ruddington: High Street - A 60 Loughborough Road	7550	6700	-13%
C 3	717	Stragglethorpe Lane: A 52, Bassingfield - Main Road, Cotgrave	7150	7000	-2%
C 3	718	Stragglethorpe Lane, Cotgrave: Main Road - Hollygate Lane	2700	2650	-2%
C 3	719	Stragglethorpe Lane, Cotgrave: Hollygate Lane - A 46	5350	5250	-2%

C 3	720	Nottingham Road: A 46 Fosse Way - Church Street, Cropwell Bishop	4950	5050	2%
C 3	721	Church Street, Cropwell Bishop - Langar	2600	2650	2%
C 3	722	Langar - A 52, Elton	n/a	n/a	n/a
C 3	723	A 52, Elton - Staunton-in-the-Vale	1200	1200	0%
C 4	726	Clifton Lane/Nottingham Road: Farnborough Road, Clifton - Kegworth Road, Gotham	5900	5750	-3%
C 4	727	Leake Road: Kegworth Road, Gotham - Bunny Lane, East Leake	3450	3800	9%
C 4	728	Gotham Road, East Leake: Bunny Lane - Main Street	6850	7550	9%
C 4	729	Castle Hill/Loughborough Road: Main Street, East Leake - A 6006	5500	5400	-2%
C 4	730	Leake Road: A6006 Melton Road - Main Street, Stanford on Soar	n/a	n/a	n/a
C 26	768	Main Street/Kinoulton Lane: Hickling Road, Kinoulton - A46	1,200	1200	0%
C 26	769	Kinoulton Lane: A46 - A606 Melton Road	250	250	0%
C 26	770	Station Road: A606 Melton Road - Keyworth Road, Widmerpool	n/a	n/a	n/a
C 26	771	Wysall Road/Widmerpool Road: Willoughby Road, Widmerpool - Main Street, Wysall	550	550	0%
C 26	772	Costock Road/Wysall Road: Wymeswold Road, Wysall - A60, Costock	900	900	0%
C 26	773	Costock Road, Leake Road: A60, Costock - Castle Hill, East Leake	3900	4000	3%
C 26	774	Main Street, East Leake: Caslte Hill - Gotham Road	6800	6700	-1%
C 26	775	Main Street, East Leake: Gotham Road - Station Road	5350	5250	-2%
C 26	776	Station Road/West Leake Road: Main Street, East Leake - Dark Lane, West Leake	2200	2300	4%
C 26	777	Pithouse Lane, West Leake: Dark Lane - Brickyard Lane	1700	1650	-3%
C 26	778	Melton Lane: Pithouse Lane, West Leake - College Road, Sutton Bonington	2,200	2150	-2%
C 26	779	Station Road: College Road, Sutton Bonington - Kingston Lane, Kegworth	n/a	n/a	n/a
C 26	7790	Station Road, Kegworth: Kingston Lane - Leicestershire boundary	n/a	7100	7100
C 28	780	Chapel Lane/Kirkhill: A 46 (Margidunum roundabout) - Newgate Street, Bingham	7200	7050	-2%
C 28	781	Fairfield Street, Bingham: Newgate Street - Nottingham Road	7450	7300	-2%
C 28	782	Tithby Road, Bingham: Nottingham Road - A 52 Bingham Bypass	3900	3850	-1%
C 28	783	Tithby Road: A52, Bingham - Bingham Road, Tithby	3200	3050	-5%
C 28	784	Bingham Road: Tithby - Langar	n/a	n/a	n/a
C 28	785	Langar Lane/Harby Road: Langar - Leicestershire boundary	2550	2500	-2%
C 43	794	Nottingham Road/Main Road, Radcliffe on Trent: A52 - Shelford Road	9350	9200	-2%
C 43	795	Shelford Road, Radcliffe on Trent: Main Road - Queen's Road	7600	7450	-2%
C 43	796	Shelford Road: Queen's Road, Radcliffe on Trent - Shelford Hill	6100	6000	-2%
C 43	797	Shelford Hill - Newton	4150	4100	-1%
C 43	798	Newton - A 6097	3850	3800	-1%
C 43	799	Kirk Hill, East Bridgford: A6097 - Trent Lane	2700	2650	-2%
C 43	800	Main Street/Butt Lane: Kirk Hill, East Bridgford - A46	2100	2050	-2%
C 47	801	Station Road: The Green, Kingston on Soar - Melton Lane, Sutton Bonington	1100	1100	0%

C 47	802	College Road, Sutton Bonington: Melton Lane - Landcroft Lane	1900	1850	-3%
C 47	803	Main Street/Park Lane, Sutton Bonington: Landcroft Lane - A6006	2300	2250	-2%
C 47	804	Main Street/Moor Lane, Normanton on Soar: A 6006 - Butt Lane	1950	1900	-3%
C 47	805	Stanford Road/Normanton Lane: Normanton on Soar - Stanford on Soar	n/a	n/a	n/a
C 47	806	Main Street, Stanford on Soar: Leake Lane - Leicestershire Boundary	n/a	4700	n/a
C 60	807	Normanton Lane/Nottingham Road, Keyworth: Station Road - The Square	5350	5250	-2%
C 60	808	Wysall Lane: Main Street, Keyworth - Widmerpool Road, Wysall	750	700	-7%
C 60	8080	Wymeswold Road: Widmerpool Road, Wysall - Leics Boundary	n/a	n/a	n/a
C 74	813	Bradmore Lane: A60, Bradmore - Station Road, Plumtree	2000	1950	-3%
C 74	814	Church Hill/Old Melton Road, Plumtree: Station Road - A606	2650	2600	-2%
C 74	815	Cotgrave Road, Tollerton: A 606 - Cotgrave Lane	n/a	n/a	n/a
C 74	816	Plumtree Road: Cotgrave Lane - Main Road, Cotgrave	8100	7950	-2%
C 74	817	Main Road, Cotgrave: Plumtree Road - Candleby Lane	8600	8450	-2%
C 74	818	Bingham Road, Cotgrave: Candleby Lane - Hollygate Lane	6600	6500	-2%
C 74	819	Colston Gate, Cotgrave: Hollygate Lane - Ring Leas	2400	2350	-2%
C 74	820	Colston Gate, Cotgrave: Ring Leas - A46	1700	1650	-3%
C 74	821	Colston Road: A46 - Colston Bassett	1650	1600	-3%
C 74	822	Harby Lane: Colston Bassett - Hose Lane	n/a	n/a	n/a
C 74	823	Harby Lane: Hose Lane - Leicestershire boundary	1150	1150	0%
C 127	830	Nottingham Road, Bingham: A 46 / A 52 (Saxondale roundabout) - Tithby Road	7000	6700	-4%
C 127	831	Long Acre, Bingham: Tithby Road - Market Street	8250	8100	-2%
C 127	832	Long Acre, Bingham: Market Street - Cherry Street	7100	6950	-2%
C 127	833	Grantham Road, Bingham: Cherry Street - The Banks	7950	7800	-2%
C 127	834	Grantham Road, Bingham: The Banks - A 52 Bingham Bypass	6150	7300	16%

18 Appendices I: Copy of AQMA order 1 2011

Environment Act 1995 Part IV Section 83(1)

Rushcliffe Borough Council
Air Quality Management Area No 1 Order 2011

Rushcliffe Borough Council ("the Council"), in exercise of the powers conferred upon it by Section 83(1) of the Environment Act 1995, hereby makes the following Order.

1. This Order may be cited/referred to as the Rushcliffe Borough Council Air Quality Management Area No.1 Order 2011 and shall come into effect on 1 October 2011.

2. The area shown edged in red on the attached map is to be designated as an Air Quality Management Area (the designated area). The designated area incorporates land adjacent to the A52 at the Stragglethorpe Junction.(Grid reference 469008,338207) The map may be viewed at the Council Offices or web site (www.rushcliffe.gov.uk).

3. This Area is designated in relation to a likely breach of the nitrogen dioxide annual mean objective as specified in the Air Quality (England) Regulations 2000 (as amended by the Air Quality (England) (Amendment) Regulations 2002).

4. This Order shall remain in force until it is varied or revoked by a subsequent order.

The Common Seal of
RUSHCLIFFE BOROUGH COUNCIL
was hereto affixed on 16th September 2011
in the presence of:-

MAYOR

SENIOR SOLICITOR

Rushcliffe Borough Council Air Quality Management Area No 1 boundary (Source Detailed Assessment, RBC)
Brook House
The Granary
The Paddock
The Stables
Helme House
A52
BM 21.9 m
BM 22.86m

19 Further information

Alternative Format or Language Required?

If you would like a copy of this document in a different format, such as large print, Braille, audio tape or language, please contact the Customer Services Team on:

Telephone : 0115 9819911

Email: customerservices@rushcliffe.gov.uk

Post: Rushcliffe Borough Council
Civic Centre
Pavilion Road
West Bridgford
Nottingham
NG2 5FE

Rushcliffe Borough Council is registered with „Language Line' to ensure our services are accessible to all our customers.

CHINESE

CHINESE
中文

進一步資料

需要不同的格式或語言？

如果閣下想要一份這文件的不同格式，例如大字體，盲人用點字法，錄音磁帶或語言，請聯絡顧客服務組:

電話: 0115 9819911

電郵: customerservices@rushcliffe.gov.uk

郵寄: Rushcliffe Borough Council
Civic Centre
Pavilion Road
West Bridgford
Nottingham
NG2 5FE

Rushcliffe Borough Council 已向 "電話傳譯" 登記去確保我們的服務能夠被我們全部的顧客取用。

FARSI

اطلاعات بیشتر

مورد احتیاج در شکلها و زبانهاي مختلف ؟

اگر شما مایل به فتوکپي از این مدرک در شکلهاي مختلف مثل چاپ درشت چاپ مخصوص نابینایان و نوار شنوایي و یا زبان دیگر هستید لطفا با تیم. خدمات مشتریان در ذیل تماس بگیرید .

تلفن : 0115 9819911

آدرس ایمیل : customerservices@rushcliffe.gov.uk

آدرس پست :
Rushcliffe Borough Council
Civic Centre
Pavillion Road
West Bridgford
Nottingham
NG2 5FE

کنسل ناحیه Rushcliffe ثبت شده در Language Line است تا اطمینان دهد که خدمات ما قابل دسترسي به تمام مشتریان ما قرار میگیرد .

FRENCH – Format ou Langue alternative exigé

Si vous voudriez une copie de ce document dans un format différent, tel que la grande copie, le Braille, la bande sonore ou la langue, contactez svp l'équipe de services de la clientèle sur : Téléphone: 0115 9819911 ; Email: customerservices@rushcliffe.gov.uk, Poste:Rushcliffe Borough Council, Civic Centre, Pavilion Road, West Bridgford, Nottingham, NG2 5FE.

Le conseil municipal de Rushcliffe est inscrit à la ligne de langue de „pour assurer que nos services sont accessible à tous nos clients.'

POLISH

Jeżeli chcieliby Państwo otrzymać kopię tego dokumentu w innym formacie, np. napisane dużym drukiem, alfabetem Braille'a, na kasecie audio lub w innym języku, prosimy skontaktować się z Biurem Obsługi Klienta (Customer Services Team): Telefonicznie pod numerem: 0115 9819911, Email-em: customerservices@rushcliffe.gov.uk, Listownie pod adresem: Rushcliffe Borough Council, Civic Centre, Pavilion Road, West Bridgford, Nottingham NG2 5FE.

Celem zapewnienia wszystkim naszym klientom dostępu do naszych usług, Rushcliffe Borough Council udostępnił Państwu korzystanie z telefonicznej linii językowej - „Language Line'.

GUJARATI

વધુ માહિતી

બીજી કોઇ ફોર્મેટ અથવા ભાષામાં જોઇએ ?

જો તમને આ દસ્તાવેજની એક નકલ બીજી કોઇ ફોર્મેટ જોઇતી હોય, દા.ત. મોટા અક્ષરોમાં, બ્રેઇલમાં, ઓડીઓ ટેઇપમાં અથવા બીજી ભાષામાં, તો કૃપા કરીને કસ્ટમર સર્વિસીસ ટીમનો અહીં સંપર્ક સાધો :

ટેલિફોન : 0115 9819911

ઈમેઇલ : customerservices@rushcliffe.gov.uk

ટપાલ : Rushcliffe Borough Council
Civic Centre
Pavilion Road
West Bridgford
Nottingham
NG2 5FE

અમારી સેવાઓ અમારા બધા ગ્રાહકોને ઉપલબ્ધ હોય તે નિશ્ચિત કરવા માટે રશ્ક્લીફ બરા કાઉન્સિલ 'લેન્ગ્વેજ લાઇન' સાથે રજિસ્ટર્ડ છે.

HINDI

और ज्यादा जानकारी

जानकारी कोई दूसरी भाषा या फोरमैट में ?

यदि यह दस्तावेज आपको किसी दूसरी भाषा या फारमैट में, जैसे कि बडे अक्षरों में, बरेयल (अन्धे लोगो के लिये) में, सुनने वाली टेप पर, चाहिये तो आप कसटमर सर्विस टीम को निम्नलिखित टैलीफोन नम्बर व डाक पते पर सम्पर्क करके प्राप्त कर सकतें हैं ।

टैलीफोन नम्बर: 0115 9819911 customerservices@rushcliffe.gov.uk

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Nottingham
NG2 5FE

रश्कलिफ बरोअ काऊंसिल 'लैन्गुऐज लाईन'(एजैन्सी जो कि दूसरी भाषा में अनुवाद कराने में मदद करती है) के साथ रजिस्टर है यह निश्चित करने के लिये कि हम्हारी सेवाऐं सभी लोगों के लिये प्राप्य हैं ।

URDU

مزید معلومات

کیا کسی دوسری صورت یا زبان میں درکار ہیں ؟

اگر آپ کو اس اشاعت کی ضرورت کسی دوسری صورت' مثلاً بڑے پرنٹ ' نابینا افراد کی لکھائی بریل ' آواز کی کیسٹ 'یا کسی اور زبان میں درکار ہوں تو برائے مہربانی کسٹمر سروسز ٹیم سے رابطہ کیجئے:

ٹیلیفون نمبر: 0115 9819911

ای میل: customerservices@rushcliffe.gov.uk

پوسٹ:
Rushcliffe Borough Council
Civic Centre
Pavillion Road
West Bridgford
Nottingham
NG2 5FE

رشکلف براء کاؤنسل زبان کی سہولت کیلئے' لینگویج لائن' کے ساتھ رجسٹرڈ ہے تا کہ یقین دہانی ہو سکے کہ ہمارے تمام صارفین کو ہماری سروسز تک رسائی حاصل ہے۔