BANBRIDGE
DISTRICT COUNCIL

2012 Air Quality Updating and Screening Assessment for Banbridge District Council

In fulfillment of Environment (Northern Ireland) Order 2002
Local Air Quality Management

April 2012

Local Authority Officer	Chris Coyle
Department	Environmental Health
Address	Gate Lodge, Linenhall Street, Banbridge, Co. Down BT32 3EG
Telephone	07917 133627
e-mail	c.coyle@sgehc.com
Report Reference number	BANUSA2012
Date	April 2012

Executive Summary

Diffusion Tube monitoring during 2011 at 7 locations within Banbridge District Council's area has demonstrated that there are no sites with NO_2 levels exceeding the objective limit of 40ug/m^3. Therefore no AQMA's will be declared at this time for any of the sites monitored by Banbridge District Council. No detailed assessments are required for NO_2 at this time.

This Updating and Screening Assessment has determined that there are no impacts on local air quality from the assessment of sources in sections 3,4,5,6 & 7 of this Updating and Screening Assessment.

This Updating and Screening Assessment has not identified the need to proceed to a detailed assessment. No new additional monitoring is required and the next course of action to be completed by Banbridge District Council is to submit a Progress Report in April 2013.

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1 Introduction

1.1 Description of Local Authority Area

Banbridge District covers approximately 180 square miles in the north west of County Down and has a population of around 41,392. It is a predominantly rural area with a largely agricultural economic base. The main centres of population are Banbridge town, the focus of administration and commercial activity in the District, and the smaller settlements of Dromore, Rathfriland, Gilford, Loughbrickland and Scarva.

The District is dissected by two major traffic routes. The A1 from Belfast to Dublin runs along the outskirts of Dromore, Banbridge town and Loughbrickland through a traditionally rural area. In recent years residential development has expanded in proximity to the carriageway. This is to some extent due to the area becoming a convenient satellite residential base for commuters to Belfast. The A50 from Castlewellan to Portadown passes through the centre of Banbridge town. It crosses the A1 via a flyover in the developing residential area to the east of the town.

There are four relatively large quarries located in the District. Activities include rock blasting, crushing, screening, manufacture of bitmac and asphalt coating products and cement and concrete production. Other industries include animal feed, cement and food production, timber processing, textile manufacturing and engineering works. Some of these processes are prescribed for authorisation under IPC.

Domestic fuel usage throughout the District has historically been based on solid fuel but, as with the province generally, the use of coal is declining.

1.2 Purpose of Report

This report fulfils the requirements of the Local Air Quality Management process as set out in the Environment (Northern Ireland) Order 2002, 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 Northern Ireland** are set out in the Air Quality Regulations (Northern Ireland) 2003, Statutory Rules of Northern Ireland 2003, no. 342, and are shown in Table 1.3. This table shows the objectives in units of micrograms per cubic metre $\mu g/m^3$ (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

Table 1.3 Air Quality Objectives included in Regulations for the purpose of LAQM in Northern Ireland

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 $\mu g/m^3$	Running annual mean	31.12.2003
	3.25 $\mu g/m^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu g/m^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu g/m^3$	Annual mean	31.12.2004
	0.25 $\mu g/m^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu g/m^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu g/m^3$	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 $\mu g/m^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu g/m^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu g/m^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu g/m^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu g/m^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

Table 1.4 – List of previous review and assessments completed by Banbridge District Council

Report Type	Date	Exceedences	Detailed Assessment Required	AQMA's Declared
Initial Review and Assessment	Jan 2001	None	No	None
Supplementary Report on SO2 and PM10	Nov 2004	None	No	None
Progress Report	April 2005	None	No	None
Updating & Screening Assessment	April 2006	None	No	None
Progress Report	April 2007	None	No	None
Progress Report	April 2008	None	No	None
Updating and Screening Assessment	April 2009	None	No	None
Progress Report	April 2010	None	No	None
Progress Report	April 2011	None	No	None

Figure 1.1 Map of AQMA Boundaries (if applicable)

N/A

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

There are no automatic monitoring sites within the Banbridge District Council area.

2.1.2 Non-Automatic Monitoring Sites

Banbridge District Council carries out monitoring of NO_2 by diffusion tubes at seven sites within the District. The NO_2 diffusion tubes were prepared and analysed by Harwell Scientifics (ESG). Harwell Scieintifics (ESG) was contracted to supply and analyse the diffusion tubes from the beginning of April 2011. This laboratory takes part in the NO_2 Network QA/QC Field Intercomparison survey. Harwell Scieintifics diffusion tubes are prepared by coating the grids in 50% TEA in Acetone. Analysis is carried out using a colorimetric technique.
None of the sites were co-located with an automatic NO_2 analyser. Details are given in Table 2.1.2a.

Diffusion Tube Bias Adjustment Factors

The NO_2 diffusion tubes were prepared and analysed by Harwell Scientifics (ESG) from the beginning of April 2011. This laboratory takes part in the NO_2 Network QA/QC Field Intercomparison survey. Harwell Scientifics (ESG) diffusion tubes are prepared by coating the grids in 50% TEA in Acetone. Banbridge District Council obtained the appropriate bias factor from the Defra Website. A factor of 0.84 was taken from the drop down menus available on the excel spreadsheet matrix.

Factor from Local Co-location Studies (if available)

Banbridge District Council did not use a Bias Factor from a local Co-location study. Banbridge does not have an automatic NO_2 analyser in the district to carry out a co-location assessment.

Discussion of Choice of Factor to Use

Banbridge District Council used the Bias Factor from the Defra Website. This was calculated by using the matrix available on the site by selecting the appropriate

laboratory, year of monitoring and significant methodology. Banbridge District Council used a bias factor for 2011 (0.84)

QA/QC of diffusion tube monitoring

See Appendix A for Harwell Scientifics (ESG) WASP data

Table 2.1.2a Details of Non- Automatic Monitoring Sites

Site Name	**Site Type**	**Pollutants Monitored**	**In AQMA ?**	**Relevant Exposure?** *(Y/N with distance (m) to relevant exposure)*	**Distance to kerb of nearest road** *(N/A if not applicable)*	**Worst-case Location ?**
Site 1 Church St Dromore	Roadside	NO_2	N	Y (5m)	2m	Y
Site 2 Kenlis St Banbridge	Roadside	NO_2	N	Y (5m)	2m	Y
Site 3 Mill St Gilford	Roadside	NO_2	N	Y (5m)	2m	Y
Site 4 Fortfield Dr Dromore	Urban background	NO_2	N	Y (10m)	50m+	Y
Site 5 Springfields Banbridge	Urban Background	NO_2	N	Y (10m)	50m+	Y
Site 6 Dromore St Banbridge	Roadside	NO_2	N	Y (10m)	3m	Y
Site 7 Newry Rd Banbridge	Roadside	NO_2	N	Y (10m)	3m	Y

Figure 2.2 Map(s) of Non-Automatic Monitoring Sites (if applicable)

See Appendix B

Table 2.1.2b Details of Non-Automatic Monitoring Sites with Grid Co-ordinates

Pollutant	Equipment	Location	Eastings	Northings	Site Type	Within AQMA	Worst Case Location	Distance to Receptor
NO2	Diffusion Tubes	Church Street Dromore	320013	353392	Roadside	N	Y	<1m
		Kenlis Street Banbridge	312596	345554	Roadside	N	Y	<1m
		Mill Street Gilford	306680	348346	Roadside	N	Y	<1m
		17 Springfields, Banbridge BT32 3LT	312010	344249	Urban Background	N	Y	20m
		7 Hillview Terrace, Dromore Street, Banbridge BT32 4BS	312845	346275	Roadside	N	Y	<1m
		9 Fortfield, Maypole Hill, Dromore BT25 1DD	319800	353508	Urban Background	N	Y	20m
		1 Newry Road Banbridge	312009	344245	Roadside	N	Y	<1m

2.2 Comparison of Monitoring Results with AQ Objectives

Table 2.2 Results of Nitrogen Dioxide Diffusion Tubes 2011

Site ID	Location	Within AQMA?	Data Capture for full calendar year 2011 %	Data Capture for monitoring period %	Annual mean concentrations 2011 (μg/m^3) Adjusted for bias (Bias Factor 2011= 0.84)
Site 1	Church Street	N	100	100	30
Site 2	Kenlis Street	N	100	100	32
Site 3	Mill St, Gilford	N	100	100	30
Site 4	9 Fortfield	N	100	100	11
Site 5	17 Springfields	N	100	100	12
Site 6	Dromore Street	N	100	100	30
Site 7	1 Newry Road	N	100	75	26

Diffusion tube monitoring for 1 Newry Road, Banbridge began at the beginning of April 2011. There was 100% data capture during these 9 months.

2.2.1 Nitrogen Dioxide

Table 2.2.1 Results of Nitrogen Dioxide Diffusion Tubes in previous years

Site ID	Location	Within AQMA?	Annual mean concentrations (μg/m^3) Adjusted for bias		
			2008 Bias Factor = 0.90	2009 Bias Factor = 0.86	2010 Bias Factor = 0.95
Site 1	Church Street	N	-	30	39
Site 2	Kenlis Street	N	-	32	38
Site 3	Mill St, Gilford	N	-	30	38
Site 7	9 Fortfield	N	12	12	17
Site 8	17 Springfields	N	13	14	15
Site 10	Dromore Street	N	32	30	32
Site 11	A1 By-pass Dromore	N	41	38	**42**

None of the sites in Table 2.2.1are co-location or Triplicate monitoring sites.

Automatic Monitoring Data

Banbridge District Council does not have any automatic monitoring sites in the Council district

2.2.2 PM_{10}

Banbridge District Council does not monitor for PM_{10} within the district.

2.2.3 Sulphur Dioxide

Banbridge District Council does not monitor for Sulphur Dioxide within the district.

2.2.4 Benzene

Banbridge District Council does not monitor for Benzene within the district.

2.2.5 Other pollutants monitored

Banbridge District Council does not monitor any other pollutants within the district.

2.2.6 Summary of Compliance with AQS Objectives

Banbridge District Council has examined the results from monitoring in the district. Concentrations are all below the objectives, therefore there is no need to proceed to a Detailed Assessment.

3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

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

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

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

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

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

3.4 Junctions

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

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

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

3.6 Roads with Significantly Changed Traffic Flows

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

3.7 Bus and Coach Stations

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

4 Other Transport Sources

4.1 Airports

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

4.2 Railways (Diesel and Steam Trains)

4.2.1 Stationary Trains

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

4.2.2 Moving Trains

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

4.3 Ports (Shipping)

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

5 Industrial Sources

5.1 Industrial Installations

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

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

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

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

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

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

5.2 Major Fuel (Petrol) Storage Depots

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

5.3 Petrol Stations

Banbridge District Council confirms that there are no petrol stations meeting the specified criteria**.**

5.4 Poultry Farms

Banbridge District Council confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

Banbridge District Council confirms that there are no biomass combustion plant in the Local Authority area.

6.2 Biomass Combustion – Combined Impacts

Banbridge District Council confirms that there are no biomass combustion plant in the Local Authority area.

6.3 Domestic Solid-Fuel Burning

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

7 Fugitive or Uncontrolled Sources

Banbridge District 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

Diffusion Tube monitoring during 2011 at 7 locations within Banbridge District Council's area has demonstrated that there are no sites with NO_2 levels exceeding the objective limit of 40ug/m^3. Therefore no AQMA's will be declared at this time for any of the sites monitored by Banbridge District Council. No detailed assessments are required for NO_2 at this time.

8.2 Conclusions from Assessment of Sources

This Updating and Screening Assessment has determined that there are no impacts on local air quality from the assessment of sources in sections 3,4,5,6 & 7 of this Updating and Screening Assessment.

8.3 Proposed Actions

This Updating and Screening Assessment has not identified the need to proceed to a detailed assessment. No new additional monitoring is required and the next course of action to be completed by Banbridge District Council is to submit a Progress Report in April 2013.

9 References

Local Air Quality Management Technical Guidance – LAQM.TG(09)

Appendices

Appendix A: QA/QC Data & WASP Data

Appendix B: Diffusion Tube Monitoring Maps 2011

Appendix C: 2011 Diffusion Tube Results and Historical Graph of Emissions

Appendix A: QA:QC Data

Factor from Local Co-location Studies (if available)

N/A

Diffusion Tube Bias Adjustment Factors

The NO_2 diffusion tubes were prepared and analysed by Harwell Scientifics from the beginning of April 2011. This laboratory takes part in the NO_2 Network QA/QC Field Intercomparison survey. Harwell Scientifics diffusion tubes are prepared by coating the grids in 50% TEA in Acetone. Banbridge District Council obtained the appropriate bias factor from Defra's LAQM Website. A factor of 0.84 was taken from the drop down menus available on the excel spreadsheet matrix.

Discussion of Choice of Factor to Use

Banbridge District Council used the Bias Factor from the Defra LAQM Website. This was calculated by using the matrix available on the site by selecting the appropriate laboratory, year of monitoring and significant methodology. Banbridge District Council used a bias factor for 2011 (0.84)

PM Monitoring Adjustment

N/A

Short-term to Long-term Data adjustment

N/A

QA/QC of automatic monitoring

N/A

QA/QC of diffusion tube monitoring

The Summary of Precision Results Nitrogen Dioxide Collocation Studies as displayed at Defra's website http://laqm.defra.gov.uk/documents/Tube_Precision_2011 (version 03/12) shows that Harwell Scientifics demonstrated good precision in 16 out of 16 collocation studies completed in 2011.

WASP Data

The 2011 WASP data for Harwell Scientifics (ESG) is contained in the table below.

Table 1: Laboratory summary performance for WASP NO2 PT rounds 108 - 115

The following table lists those UK laboratories undertaking LAQM activities that have participated in recent HSL WASP NO2 PT rounds and the percentage (%) of results submitted which were subsequently determined to be satisfactory based upon a z-score of < ± 2 as defined above.

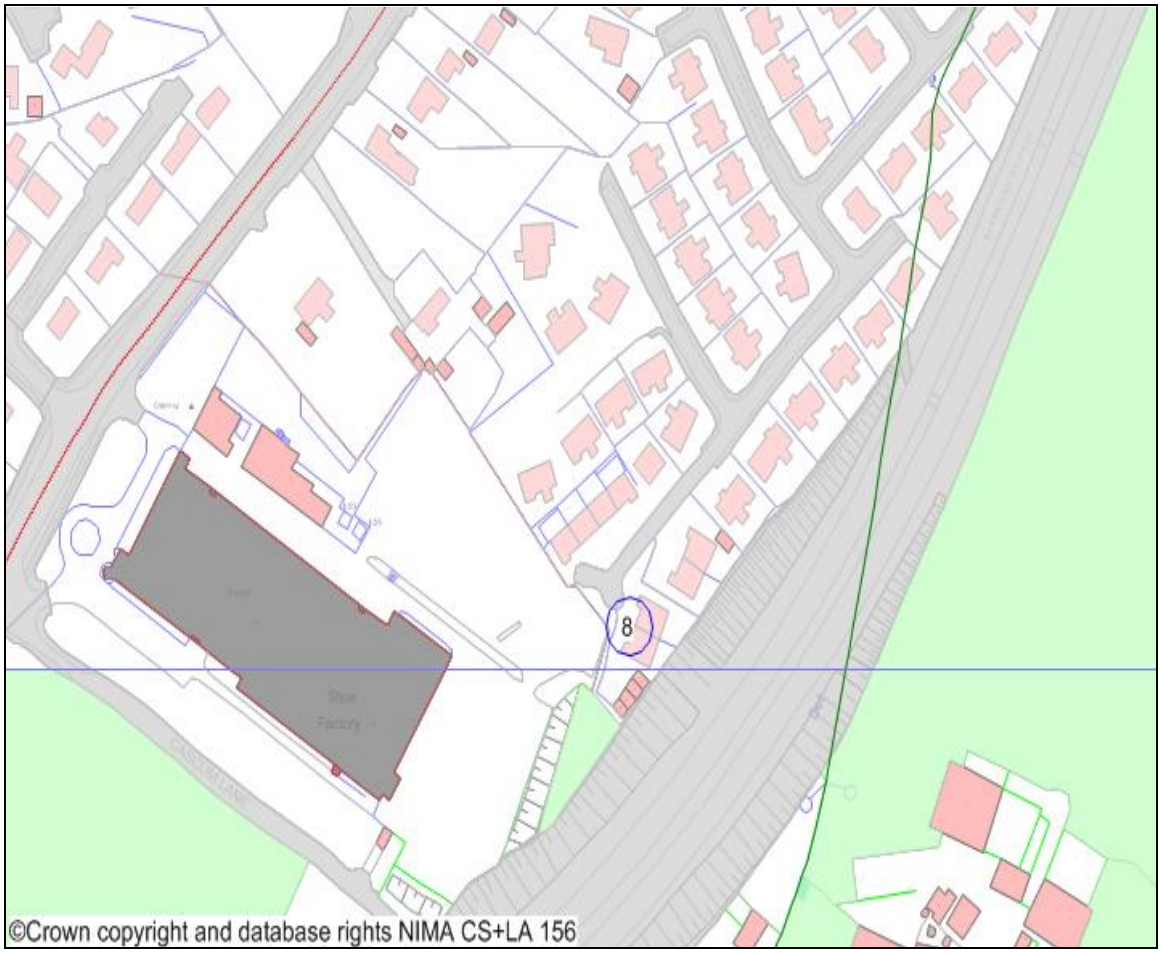
WASP Round	WASP R108	WASP R109	WASP R110	WASP R111	WASP R112	WASP R113	WASP R114	WASP R115
Round conducted in the period	Jan – March 2010	April – June 2010	June – August 2010	Oct – Dec 2010	Jan -March 2011	April - June 2011	July - Sept 2011	October - December 2011
Aberdeen Public Analysts	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Bristol City Council	75 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Cardiff Scientific Services	100 %	50 %	100 %	75 %	100 %	100 %	100 %	75 %
Edinburgh City Council	100 %	100 %	75 %	100 %	100 %	100 %	100 %	0 %
Environmental Services Group, Didcot (formerly Bureau Veritas Laboratories, Glasgow and Harwell Scientifics) [1] [2]	**100 %**	**100 %**	**100 %**	**100 %**	**100 %**	**100 %**	**100 %**	**100 %**
Exova (formerly Clyde Analytical)	100 %	50 %	50 %	100 %	100 %	100 %	0 %	75 %
Glasgow Scientific Services	50 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Gradko International [2]	100 %	87.5 %	100 %	100 %	100 %	100 %	100 %	37.5 %
Kent Scientific Services	100 %	100 %	100 %	100 %	50 %	100 %	100 %	75 %
Kirklees MBC	100 %	100 %	100 %	0 %	100 %	0 %	0 %	50 %
Lambeth Scientific Services	50 %	100 %	100 %	100 %	50 %	25 %	100 %	25 %
Lancashire County Analysts [3]	100 %	75 %	50 %	100 %	75 %	-	-	-
Milton Keynes Council	100 %	25 %	50 %	100 %	100 %	75 %	100 %	100 %
Northampton Borough Council	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Somerset Council [4]	-	-	-	-	-	-	-	100 %
South Yorkshire Council Laboratory [5]	25 %	-	-	-	-	-	-	-
South Yorkshire Air Quality Samplers [6]	-	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Staffordshire County Council	100 %	100 %	50 %	100 %	100 %	100 %	100 %	100 %
Tayside (formerly Dundee CC)	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Walsall MBC [7]	-	100 %	100 %	100 %	-	-	-	-
West Yorkshire Analytical Services	100 %	100 %	100 %	100 %	75 %	75 %	100 %	100 %

[1] Bureau Veritas laboratory and Harwell Scientific now part of ESG Group.
[2] Participant subscribes to two sets of test samples (2 x 4 test samples) in each WASP PT round.
[3] No longer involved in NO2 diffusion tube measurements from R113.
[4] New participant from R115.
[5] No longer involved in NO2 diffusion tube measurements from R109.
[6] New participant from R109.
[7] Results for WASP R107, R108 and R112 not submitted. No longer involved in NO2 diffusion tube measurements from R113.

Appendix B: Diffusion Tube Monitoring Maps 2011

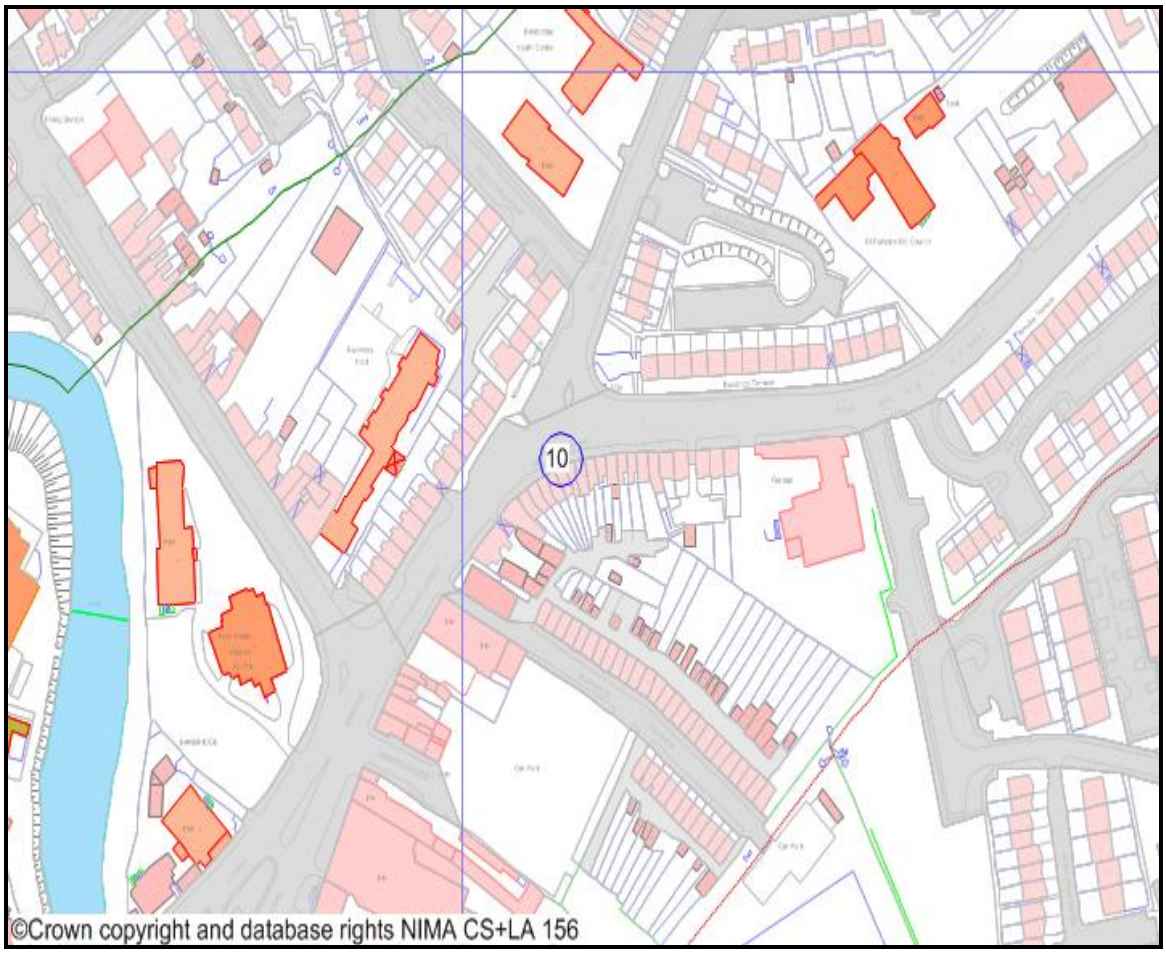
Map 1

Site at 17 Springfields, Banbridge BT32 3LT



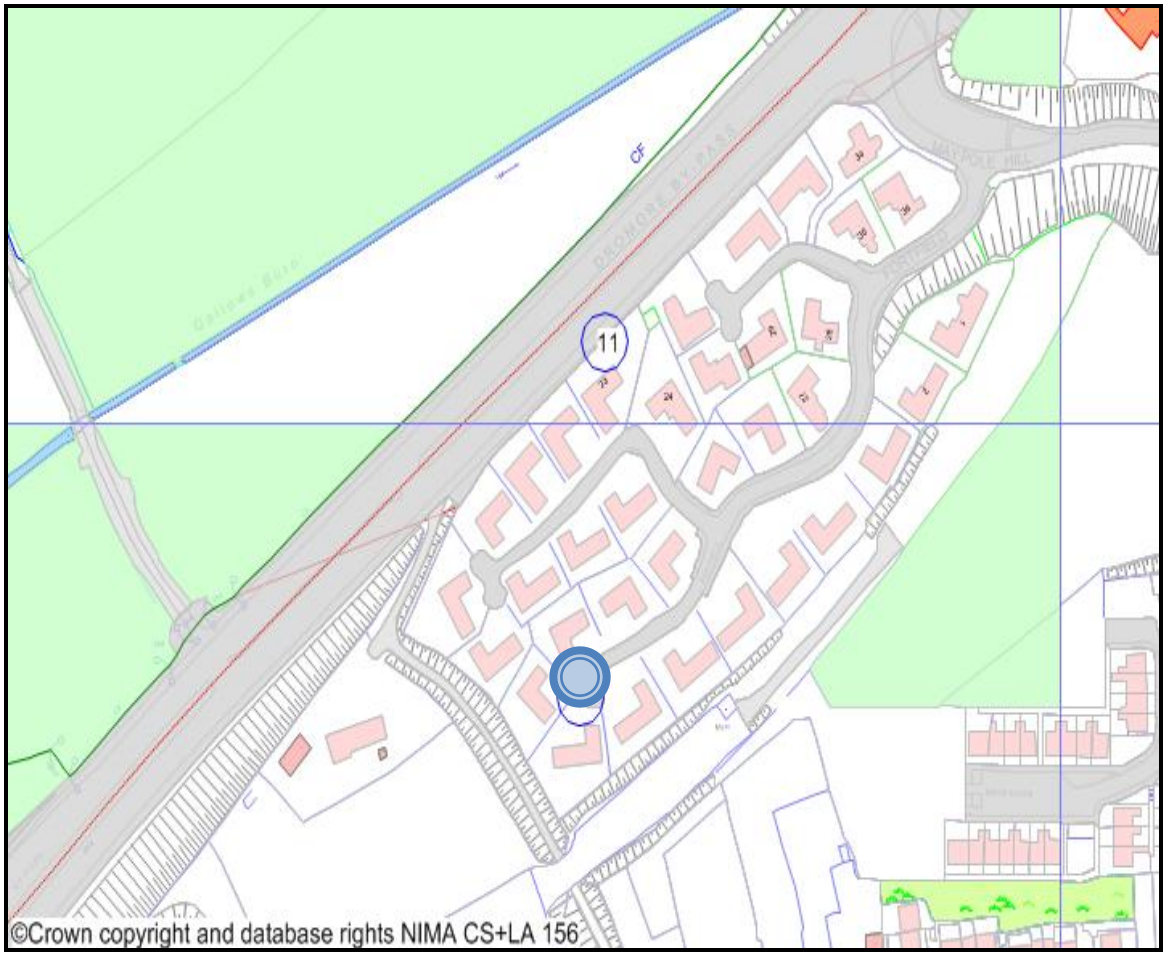
Map 2

Site at 7 Hillview Terrace, Dromore Street, Banbridge BT32 4BS



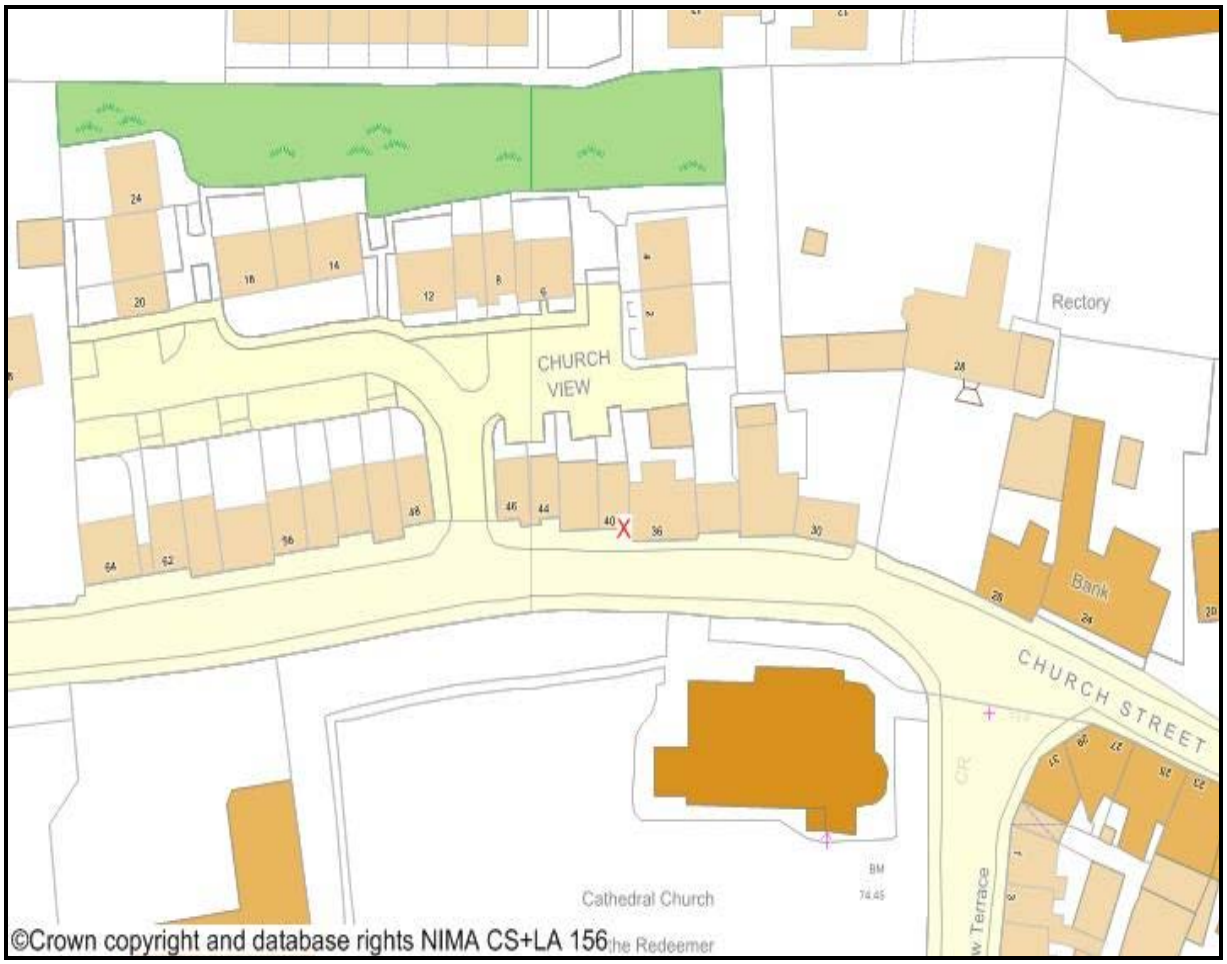
Map 3

Sites at 9 Fortfield, Maypole Hill, Dromore BT25 1DD and A1 Dromore By-Pass



MAP 4

Site at Church Street, Dromore.

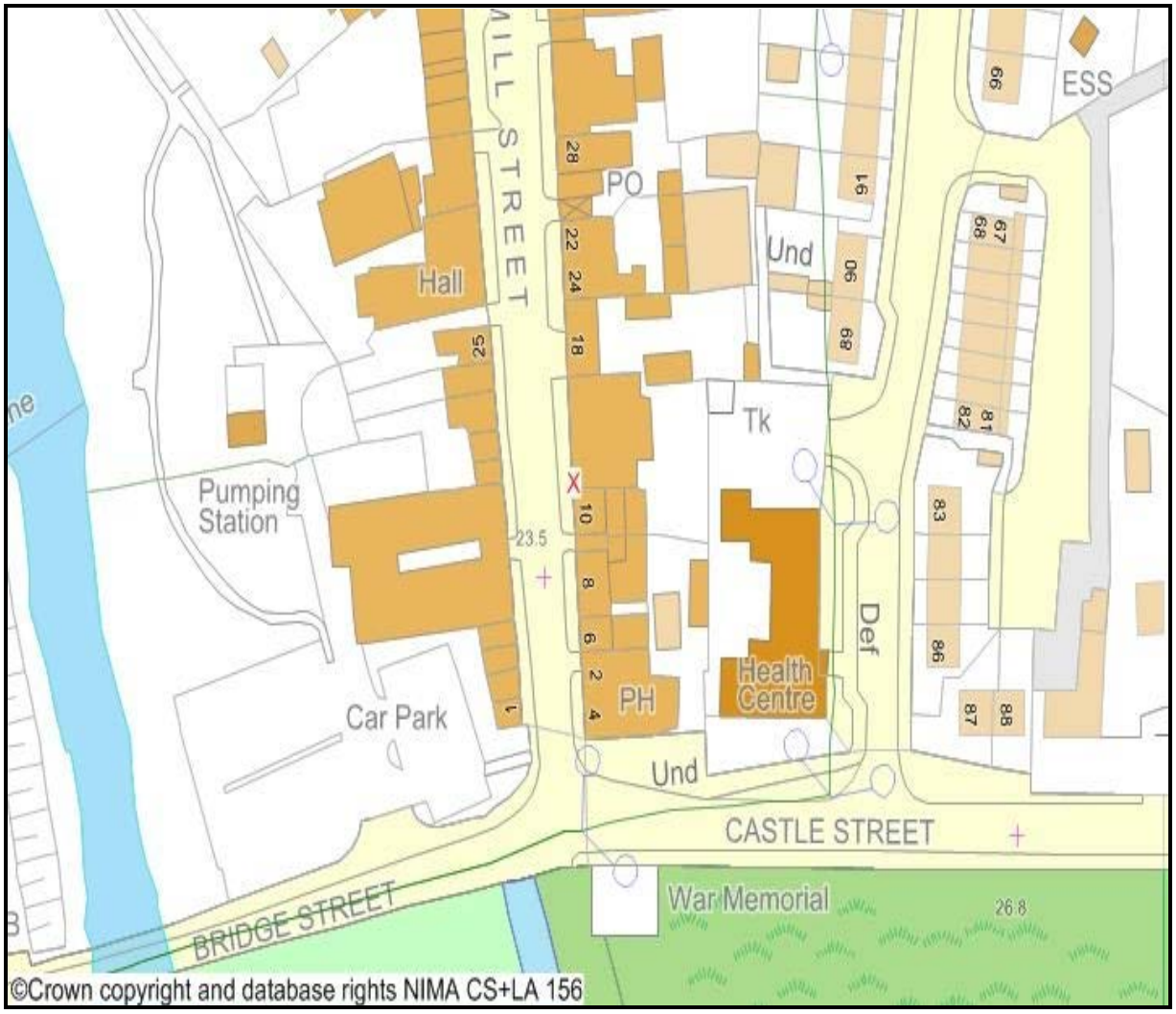


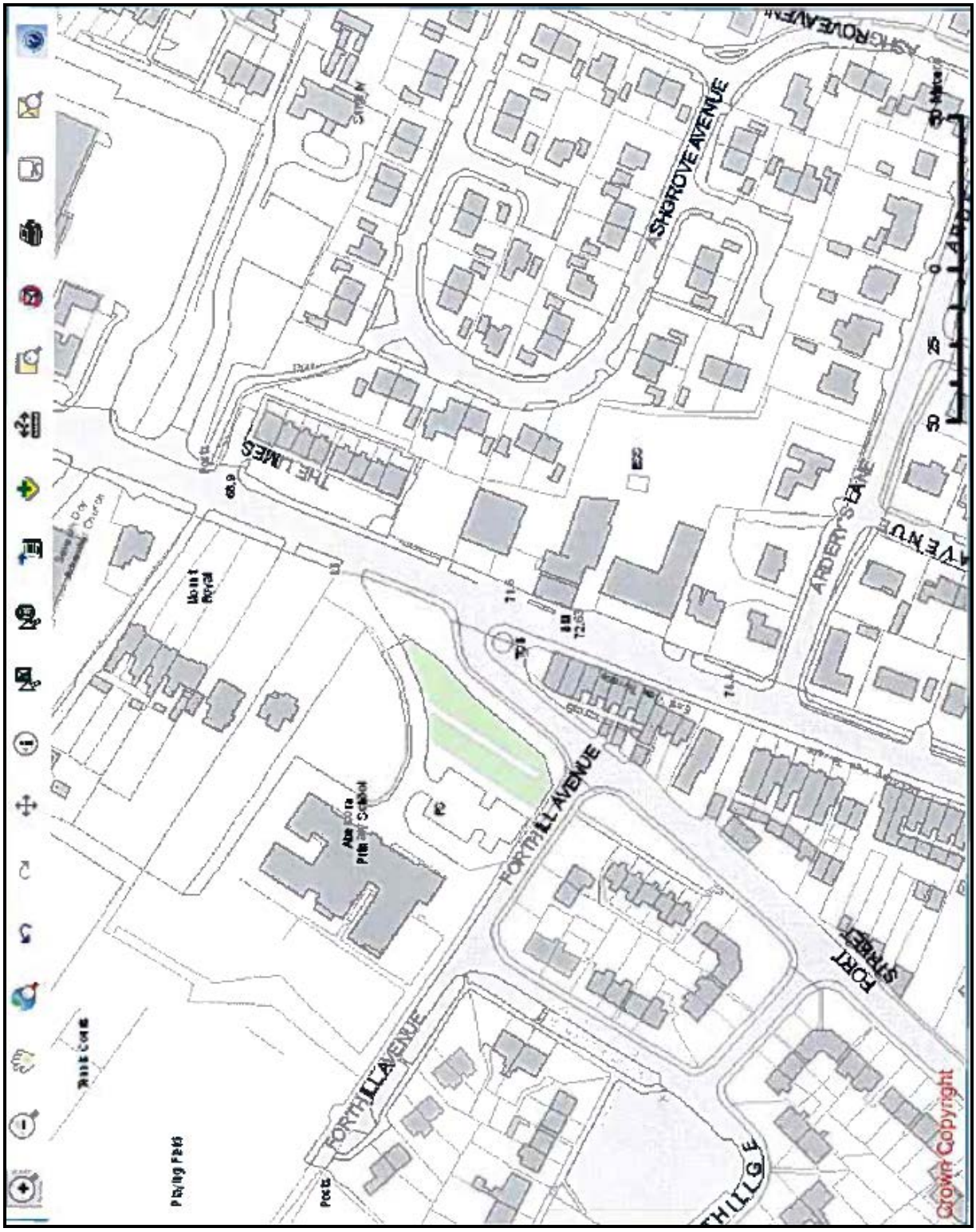
MAP 5

Site at Kenlis Street, Banbridge.

MAP 6

Site at Mill Street, Gilford



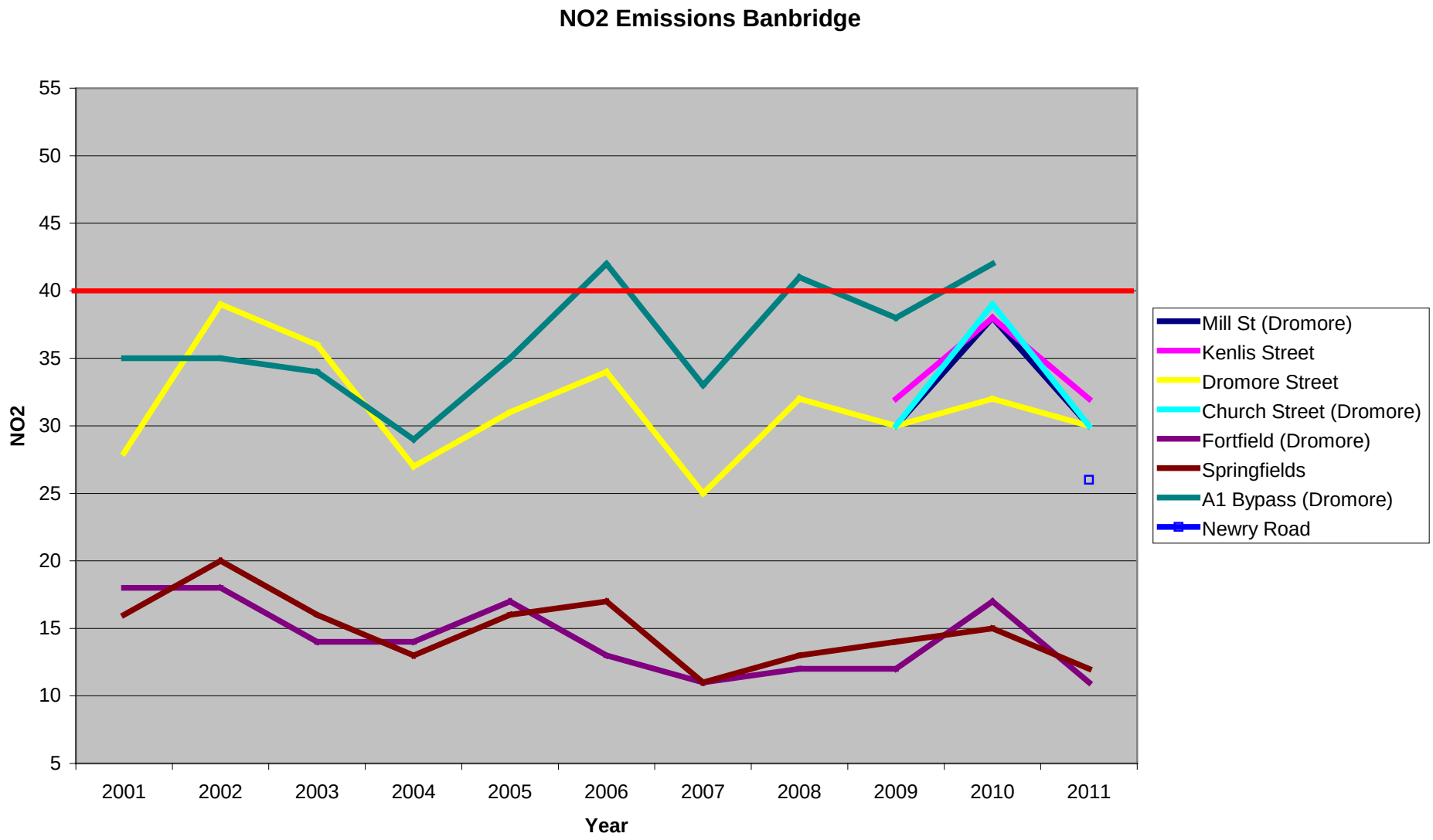

ASHGROVE AVENUE
THE LAWNS
ARDERY'S LANE
FORTHILL AVENUE
FORTHILL AVENUE
FORT STREET
Crown Copyright

Appendix C – Diffusion Tube Results 2011

NO2 DIFFUSION TUBE RESULTS 2011 (µg/m^3)

	Mill St (Gilford)	Kenlis St	Dromore St	Church St (Dromore)	Fortfield (Dromore)	Springfields	Newry Road
JANUARY	45	48	47	55	27	22	
FEBRUARY	42	46	49	43	18	20	
MARCH	37	38	39	38	17	16	
APRIL	43	45	38	50	13	15	33
MAY	26	27	27	25	7	10	27
JUNE	34	42	30	33	10	12	28
JULY	35	31	24	27	8	10	22
AUGUST	32	34	24	32	10	9	29
SEPTEMBER	32	38	33	24	9	10	26
OCTOBER	38	31	42	33	11	15	37
NOVEMBER	49	37	41	42	18	21	41
DECEMBER	21	33	33	27	14	11	40
AVERAGE	36	38	36	36	14	14	31
Adjusted Ave	30	32	30	30	11	12	26

BIAS FACTOR 2011 – 0.84


NO2 Emissions Banbridge
NO2
55
50
45
40
35
30
25
20
15
10
5
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
Year
Mill St (Dromore)
Kenlis Street
Dromore Street
Church Street (Dromore)
Fortfield (Dromore)
Springfields
A1 Bypass (Dromore)
Newry Road