



# 2010 Air Quality Progress Report for Craigavon Borough Council

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

May 2010

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## **Executive Summary**

Monitoring at 13 locations within Craigavon Borough Council's area has demonstrated that there are two sites where  $\text{NO}_2$  levels exceeded the objective limit of  $40\mu\text{g}/\text{m}^3$ . Craigavon Borough Council will now proceed to a Detailed Assessment of Lurgan Road (Portadown) and King Street (Lurgan) where the  $\text{NO}_2$  objective was exceeded.

No other pollutants were assessed to have an impact on air quality within the borough at this time.

Craigavon Borough Council has not seen any significant changes from any pollution sources since the last round of review and assessment and no other sources of pollution have been identified. Therefore the likely impact from such sources is negligible.

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# **1 Introduction**

## **1.1 Description of Local Authority Area**

In 1995 the Environment Act provided for a national air quality strategy requiring local authorities to carry out reviews and assessments of the air quality in their area for seven specific pollutants which are; carbon monoxide (CO), benzene, 1,3-butadiene, nitrogen dioxide (NO<sub>2</sub>), lead, sulphur dioxide (SO<sub>2</sub>) and PM<sub>10</sub> (Particles under 10µm in diameter). Guidance on how to carry out the reviews and assessments was published by the Department of Environment, Food and Regions Affairs (DEFRA). The review and assessment procedure was divided into four stages. The first was an initial desk-top study to identify significant sources of pollution in areas where there are relative “receptors”. Where potential exceedences were identified the second stage was to include simple monitoring and modelling of the identified pollutants to identify whether there were likely to be exceedences of the air quality standards. Where such exceedences were thought likely, a stage three study required more detailed and complex modelling and monitoring of the relevant pollutants. Following the third stage, Local Authorities were expected to come to a conclusion about whether the air quality objectives would be achieved. If the air quality objectives were not met an Air Quality Management Area (AQMA) would have to be declared. Stage four studies were carried out where further investigation was required following the declaration of Air Quality Management Areas.

In Craigavon Borough Council’s area, the first stage of the review and assessment process was published in 2000 and identified two pollutants (NO<sub>2</sub> and SO<sub>2</sub>) with potential to result in an exceedence of the air quality standards, and thus a stage two study was carried out to assess them in more detail. The third stage report was appraised by the University of West England (UWE) on behalf of the Department of Environment’s Environment and Heritage Service (EHS), and accepted without any conditions. The conclusions reached in the Stage 2/3 Review and Assessment and the subsequent supplementary document, were that no further detailed assessments were required at that time for any of the pollutants reviewed and that there was currently no requirement for any statutory Air Quality Management Areas (AQMA’s) to be declared.

In 2007 and 2008 Progress Reports were completed by Craigavon Borough Council. The conclusions reached in these assessments, were that no further detailed assessments were required at that time for any of the pollutants reviewed and that there was currently no requirement for any statutory Air Quality Management Areas (AQMA’s) to be declared.

An Updating and Screening Assessment was completed by Craigavon Borough Council in 2009. The conclusions reached in the assessment, were that no further detailed assessments were required at that time for any of the pollutants reviewed and that there was currently no requirement for any statutory Air Quality Management Areas (AQMA’s) to be declared.

Preparation of this Updating and Screening Assessment is the first activity prescribed in the timetable for the Third Round of reviews and assessments as set out in LAQM Policy Guidance LAQM TG(09). This report summarises the findings of the LAQM

activities undertaken by the Council including the currently available air quality monitoring results for 2009.

## 1.2 Purpose of Progress Report

Progress Reports are required in the intervening years between the three-yearly Updating and Screening Assessment reports. Their purpose is to maintain continuity in the Local Air Quality Management process.

They are not intended to be as detailed as Updating and Screening Assessment Reports, or to require as much effort. However, if the Progress Report identifies the risk of exceedence of an Air Quality Objective, the Local Authority (LA) should undertake a Detailed Assessment immediately, and not wait until the next round of Review and Assessment.

## 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 1.1. This table shows the objectives in units of microgrammes per cubic metre  $\mu\text{g}/\text{m}^3$  (milligrammes per cubic metre,  $\text{mg}/\text{m}^3$  for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

**Table 1.1 - Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in Northern Ireland.**

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



## 1.4 Summary of Previous Review and Assessments

**Table 1.4-** Summary of Previous Review and Assessment Report completed by Craigavon Borough Council

Report Type	Date	Exceedences	Detailed Assessment Required	AQMA's Declared
Initial Review and Assessment	Jan 2001	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 & Screening Assessment	April 2009	None	No	None

## **2 New Monitoring Data**

### **2.1 Summary of Monitoring Undertaken**

#### **2.1.1 Automatic Monitoring Sites**

There are no automatic monitoring sites within the Craigavon Borough Council area.

#### **2.1.2 Non-Automatic Monitoring**

During 2009 Craigavon Borough Council carried out monitoring of NO<sub>2</sub> by diffusion tubes at thirteen sites within the Borough. The NO<sub>2</sub> diffusion tubes were prepared and analysed by Lambeth Scientific Services Limited. The tubes are prepared by coating the grids in a 50% v/v solution of the absorbent, triethanolamine (TEA) in Acetone. Analysis is carried out using a colorimetric technique.

None of the sites were co-located with an automatic NO<sub>2</sub> analyser. Details are given in Table 2.2.

### **Diffusion Tube Bias Adjustment Factors**

The bias factor being used to adjust the diffusion tube results is taken from the Review and Assessment website <http://www.uwe.ac.uk/aqm/review/R&Asupport/diffusiontube310310.xls>. The factor was generated using the spreadsheet and drop down menus from the site available for 2009. The council could have used a bias factor generated by co-location studies being carried out by two neighbouring councils. However, since those councils both use laboratories and diffusion tube suppliers it was deemed more prudent to use the bias factor from the Review and Assessment website.

### **Factor from Local Co-location Studies (if available)**

Craigavon Borough Council did not use a Bias Factor from a local Co-location study. Craigavon does not have an automatic NO<sub>2</sub> analyser in the district to carry out a co-location assessment. Also, although a co-location factor may be available from two other neighbouring councils (Armagh & Newry), both of these councils use a different diffusion tube supplier and analysing laboratory to Craigavon.

### **Discussion of Choice of Factor to Use**

Craigavon Borough Council used the Bias Factor from the UWE Air Quality Website. This was calculated by using the matrix available on the site by selecting the appropriate laboratory, year of monitoring and significant methodology. Craigavon Borough Council used a bias factor for 2009 (1.03)

### **QA/QC of diffusion tube monitoring**

WASP data not available from Laboratory at time of progress report submission.

**Table 2.2 Details of Non- Automatic Monitoring Sites**

<b>Site Name</b>	<b>Site Type</b>	<b>OS Grid Ref</b>	<b>Pollutants Monitored</b>	<b>In AQMA ?</b>	<b>Relevant Exposure? (Y/N with distance (m) to relevant exposure)</b>	<b>Distance to kerb of nearest road (N/A if not applicable)</b>	<b>Worst-case Location ?</b>
Union Street Lurgan	Urban background	-	NO <sub>2</sub>	N	Y(15)	3m	Y
West Street Portadown	Roadside	-	NO <sub>2</sub>	N	Y(3)	3m	Y
Ardboe Drive Lurgan	Urban Background	-	NO <sub>2</sub>	N	Y(<1)	15m	N
Ballyhannon Rd Portadown	Urban Background	-	NO <sub>2</sub>	N	Y(4)	10m	N
Ashgrove Community Centre Portadown	Urban Background	-	NO <sub>2</sub>	N	Y(10)	10m	N
Castle Lane Lurgan	Roadside	-	NO <sub>2</sub>	N	Y	2m	N
Lord Lurgan Park Lurgan	Urban Background	-	NO <sub>2</sub>	N	Y(4)	15m	N
Cluandara Derrymacash	Roadside	-	NO <sub>2</sub>	N	Y(<1)	20	Y
Corcrain Road Portadown	Roadside	-	NO <sub>2</sub>	N	Y (2m)	2m	Y
Lurgan Road Portadown	Roadside	-	NO <sub>2</sub>	N	Y (<5m)	2m	Y
Queen St Lurgan	Roadside	-	NO <sub>2</sub>	N	Y (<5m)	2m	Y
King St Lurgan	Roadside	-	NO <sub>2</sub>	N	Y (<5m)	2m	Y
Lough Rd Lurgan	Roadside	-	NO <sub>2</sub>	N	Y (<5m)	2m	Y

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

See Appendix B for Maps

## 2.2 Comparison of Monitoring Results with Air Quality Objectives

### 2.2.1 Nitrogen Dioxide

There are no automatic monitoring sites within the Craigavon Borough Council Area

#### Automatic Monitoring Data

Craigavon Borough Council does not have any automatic monitoring sites in the Council district

#### Diffusion Tube Monitoring Data

Craigavon Borough Council monitors NO<sub>2</sub> pollution using diffusion tubes at 13 sites through the borough. These sites are located in Lurgan, Portadown and Craigavon. All of the tubes are positioned in accordance with the practical guidelines published by AEA Energy and Environment in a report to Defra and the Devolved Administrations.

**Table 2.4a Results of Nitrogen Dioxide Diffusion Tubes**

Site ID	Location	Within AQMA?	Data Capture for full calendar year 2008 %	Data Capture for monitoring period %	Annual mean concentrations
					2009 (µg/m <sup>3</sup> ) Adjusted for bias
82760	Union Street, Lurgan	N	100	100	16
82979	West Street Portadown	N	100	100	20
82762	Ardboe Drive Lurgan	N	100	100	11
82763	Ballyhannon Rd Portadown	N	100	100	10
82764	Ashgrove Community Centre Portadown	N	100	100	10
82765	Castle Lane Lurgan	N	100	100	15
82766	Lord Lurgan Park Lurgan	N	100	100	11
82767	Cluandara Derrymacash	N	100	100	14
82768	Corcrain Road Portadown	N	100	100	27
82769	Lurgan Road Portadown	N	100	100	<b>42</b>
82770	Queen St Lurgan	N	100	100	34
82771	King St Lurgan	N	100	100	<b>44</b>
82772	Lough Rd Lurgan	N	100	100	35

Note: Sites 82768, 69, 70, 71 & 72 were added to the monitoring programme at the beginning of January 2009.

**Table 2.4b Historical Results of Nitrogen Dioxide Diffusion Tubes**

Site ID	Location	Within AQMA?	Annual mean concentrations ( $\mu\text{g}/\text{m}^3$ ) Adjusted for bias			
			2006 *	2007 *	2008	2009
82760	Union Street, Lurgan	N	16	20	21	16
82979	West Street	N	8	24	22	20
82762	Ardboe Drive	N	12	12	13	11
82763	Ballyhannon Road	N	15	12	12	10
82764	Ashgrove Centre	N	10	13	15	10
82765	Castle Lane	N	10	15	18	15
82766	Lord Lurgan Park	N	18	11	13	11
82767	Cluandara, Derrymacash	N	11	20	18	14

### 2.2.2 PM<sub>10</sub>

Craigavon Borough Council does not carry out monitoring for PM10 pollution at this time

### 2.2.3 Sulphur Dioxide

Craigavon Borough Council does not carry out monitoring for Sulphur Dioxide at this time.

### 2.2.4 Benzene

Craigavon Borough Council does not carry out monitoring for Benzene at this time.

### 2.2.5 Other pollutants monitored

Not Applicable

### **2.2.6 Summary of Compliance with AQS Objectives**

Craigavon Borough 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 New Local Developments**

Craigavon Borough Council confirms that there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area.

## 4 Local / Regional Air Quality Strategy

Craigavon Borough Council's Local Air Quality Management Strategy 2006 – 2010 was launched in tandem with the 4 neighbouring councils (Armagh, Banbridge, Dungannon & South Tyrone and Newry) in Southern Group in March 2006. It was issued for public consultation and Craigavon Borough Council consulted the community, statutory consultees and key organisations that have an interest in local air quality affecting the Craigavon Borough Area

Since the launch of the Strategy the key responsibility of the Southern Group Local Air Quality Manager along with the corresponding council officers has been to implement the objectives outlined in Section 4 of the strategy document. The objectives served to act as a guide for the councils on how to minimise the impact of pollution on air quality from a variety of sources and details actions on how best to achieve these objectives.

The strategy highlights the lead role being played in the delivery of each objective and the relevant partners required to work together in order to achieve successful delivery of each objective aim and the respective cost of doing so.

The Council has found it difficult to implement the strategy due to budgetary constraints both within Council and with the strategic partner organisations, particularly since the beginning of the international economic downturn in late 2007. Other constraints include a lack of power or authority by the Council and it's neighbouring LA's to encourage the uptake of the objectives contained within the strategy. However, the Council has had some success in delivering several actions. These are listed below;

### ***To Promote and Maximise the use of public transport, car-sharing, walking and cycling as a means to get to School***

- Launch of Walk to School Competition May 2006
- News article on Walk to School completed by Brian Black for UTV news November 2006
- Walk to School Competition and Presentation with Guest Speaker Brian Black (UTV environment correspondent) November 2006.
- Walk to School Competition photos and press release sent to main newspaper in each district.
- Schools Air Quality Conference programmed for April 2008 had to be cancelled due to low response from schools. New air quality conference scheduled for 24<sup>th</sup> September 2008. Broader in perspective but schools will still take part in some role.
- Walk to school, Cycle to School and use of public transport to school High visibility campaign launched to raise awareness at school level.

### ***To Promote and Maximise the use of public transport, car-sharing, walking and cycling as a means to get to Work***



- Questionnaire sent in payslip to all Council Staff about travel to work preferences. Questionnaire reported to council and agreement reached upon implementation of CarShare Scheme for council staff.
- Southern Group CarShare Scheme rolled out and promoted to each council within Southern Group during 2007.
- Launch of Southern Group CarShare Scheme promotional drive. Newly joined members entered into draw for 2 mountain bikes. Both bikes won by staff from Newry and Mourne District Council. Pictures and editorial of bike winners published in Newry newspapers. Issue to be tackled as part of STAQ campaign.

***To actively target the population in general with relevant air quality messages and information.***

- Completed under the STAQ campaign also. STAQ is being promoted by the Local Air Quality Management Officer as a project of high visibility with posters and banners, media and press releases throughout the entire southern group area with the aim of bringing the air quality agenda to everyone. It will be mostly demonstrated in areas where there is a higher risk of exceedences of the objective limits in the air quality legislation and guidance (LAQM TG03).

The Southern Group Local Air Quality Strategy is available upon request from the Council.

The Strategy will be reviewed at the end of 2010.

## **5 Planning Applications**

N/A

## **6 Air Quality Planning Policies**

N/A

## **7 Local Transport Plans and Strategies**

### **Regional Transportation Strategy**

The Regional Transportation Strategy (RTS) for Northern Ireland 2002- 2012 identifies strategic transportation investment priorities and considers potential funding sources and affordability of planned initiatives. The RTS focuses on three geographic areas and one overlying Network. These are as follows:

- Belfast Metropolitan Area (BMA), containing the continuous area comprising Belfast City Council and the built-up areas within the Council areas of Carrickfergus, Castlereagh, Lisburn, Newtownabbey and North Down;
- Other Urban Areas (OUAs): collectively those towns described as main or local hubs in the RDS (including Craigavon) and other towns outside the BMA with a population greater than 5,000);
- Rural Area – the remainder of Northern Ireland; and
- Regional Strategic Transport Network (RSTN) comprising the complete rail network and all motorway and trunk road links (including the Key Transport Corridors and Link Corridors).

The RTS is a “daughter document” of the Regional Development Strategy (RDS), which sets out the spatial development framework for Northern Ireland up to 2025. Implementation of the Strategy will be through three Transport Plans covering the Regional Strategic Transport Network (RSTN), the Belfast Metropolitan Area (BMA), and the Sub-Regional Transport Plan (SRTP). Transport studies undertaken to support the RSTN Transport Plan will take due account of current and future cross-border inter-urban transport demands and the roles of the gateway cities and towns, including Craigavon.

### **3.4 Regional Strategic Transport Network Transport Plan**

The Regional Strategic Transport Network (RSTN) Transport Plan prepared by the Department for Regional Development (DRD) covers the complete rail network, five Key Transport Corridors (KTCs), four Link Corridors, the Belfast Metropolitan Transport Corridors and the remaining trunk network across Northern Ireland. The Plan is based on the guidance set out in the Regional Development Strategy (RDS) and the Regional Transportation Strategy (RTS), as described in Sections 3.2 and 3.3 of the RSTNT Plan.

The RSTN Transport Plan consists of proposals for transport schemes and measures for the maintenance, management and development of the RSTN until 2015. The RSTN Transport Plan also includes a number of measures for rail, bus, roads, walking and cycling.

### **3.5 Sub-Regional Transport Plan 2015**

The Sub-Regional Transport Plan (SRTP) was prepared by the Department for Regional Development (DRD) and completed in 2007. The SRTP is based upon the guidance provided by the Regional Development Strategy (RDS) and the Regional Transportation Strategy (RTS). Proposed public transport measures for Craigavon (within category of Other Urban Areas (OUA)) contained within the SRTP are as follows:

- Improved walk/cycle
- Improved local bus services
- Bus stop Improvement Strategy
- Bus based Park and Ride
- Increased parking at bus/rail station
- Taxi rank
- Transport Programme for People with Disabilities

### **Spatial Development Strategy for Northern Ireland**

The Spatial Development Strategy (SDS) guides the physical development of the Region to 2025. The SDS will contribute to meeting a number of key regional challenges emerging from the significant local, national and international forces, which will drive change over the next 25 years, including:

#### ***Transport:***

- Promote a change in travel culture and particularly manage the effects of a possible 100% growth in the number of vehicles by 2025;
- Contribute to the creation of a modern, sustainable, safe transportation system for the Region, meeting the travel needs of all groups in society;
- Accommodate the growing volume of freight moving to and from the regional gateways; and
- Strengthen the regional gateways to handle the increasing flow of people and goods in and out of the Region.

#### ***Environment:***

- Accommodate future development growth while protecting and caring for the environment;
- Reduce the consumption of resources;
- Continue to maintain or, where needed, to improve the quality of air, water and land resources within the Region;
- Seek to maintain local landscape character and to conserve cultural assets; and
- Take particular care to sustain and, where required, to enhance the biodiversity of the Region, its natural habitats, high quality landscapes and built heritage.

## Developing a Regional Transportation System

Creating an upgraded and integrated transport system, built around the Regional Strategic Transport Network of the key transport corridors with their main public transport services providing the framework for future development is recognised as one of the key assets to accommodate growth. Strategic planning guidelines relating to the development of a Regional Transport System (RTS) are as follows:

- **SPG-TRAN 1:** To develop a Regional Strategic Transport Network (RSTN), based on Key Transport Corridors (KTCs), to enhance accessibility to regional facilities and services. Two major roads within the Borough are identified in the RDS as part of the Key Transport Corridors in Northern Ireland: -
  - A4 Dungannon - Fivemiletown Road: The South Western Corridor; and
  - A5 Aughnacloy - Omagh Road: The Western Corridor.
- In addition, the A29 Cookstown to Moy Road is identified as part of one of three additional Link Corridors in the RTS.
- **SPG-TRAN 2:** To extend travel choice for all sections of the community by enhancing public transport. Including the strengthening of the regional bus network (including the promotion of public transport routes and Park and Ride schemes) and the regional rail system;
- **SPG-TRAN 3:** To integrate land use and transportation to provide a much better range of travel choices for all, and reduce the demand for travel; and
- **SPG-TRAN 4:** To change the regional travel culture and contribute to healthier lifestyles, such as giving greater priority to encouraging more walking and cycling.

## **8 Climate Change Strategies**

N/A

## **9 Implementation of Action Plans**

N/A



## 10 Conclusions and Proposed Actions

Monitoring at 13 locations within Craigavon Borough Council's area has demonstrated that there are two sites where NO<sub>2</sub> levels exceeded the objective limit of 40ug/m<sup>3</sup>. Craigavon Borough Council will now proceed to a Detailed Assessment of Lurgan Road (Portadown) and King Street (Lurgan) where the NO<sub>2</sub> objective was exceeded.

No other pollutants were assessed to have an impact on air quality within the borough at this time.

Craigavon Borough Council has not seen any significant changes from any pollution sources since the last round of review and assessment and no other sources of pollution have been identified. Therefore the likely impact from such sources is negligible.

## **11      References**

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

# **Appendices**

Appendix A: QA/QC Data

Appendix B: Diffusion Tube Monitoring Maps

Appendix C: 2009 NO<sub>2</sub> Diffusion Tube Monitoring Data

## **Appendix A: QA:QC Data**

### **Diffusion Tube Bias Adjustment Factors**

The NO<sub>2</sub> diffusion tubes were prepared and analysed by Lambeth Scientific Services Ltd from the beginning of June 2007. This laboratory takes part in the NO<sub>2</sub> Network QA/QC Field Intercomparison survey. Lambeth Scientific Services diffusion tubes are prepared by coating the grids in 50% TEA in Acetone. Craigavon Borough Council obtained the appropriate bias factor from the UWE Review and Assessment Website. A factor of 1.03 was taken from the drop down menus available on the excel spreadsheet matrix.

### **Factor from Local Co-location Studies (if available)**

N/A

### **Discussion of Choice of Factor to Use**

Craigavon Council used the Bias Factor from the UWE Air Quality Website. This was calculated by using the matrix available on the site by selecting the appropriate laboratory, year of monitoring and significant methodology. Craigavon Borough Council used a bias factor for 2009 (1.03)

### **PM Monitoring Adjustment**

N/A

### **Short-term to Long-term Data adjustment**

N/A

### **QA/QC of automatic monitoring**

N/A

## **APPENDIX B**

### **Diffusion Tube Monitoring Maps**



## Air Monitoring Sites



Date: 13/05/2009

Scale: 1:1250



Town Hall, Union Street, Lurgan  
Nitrogen Dioxide  
Tube No. 82760

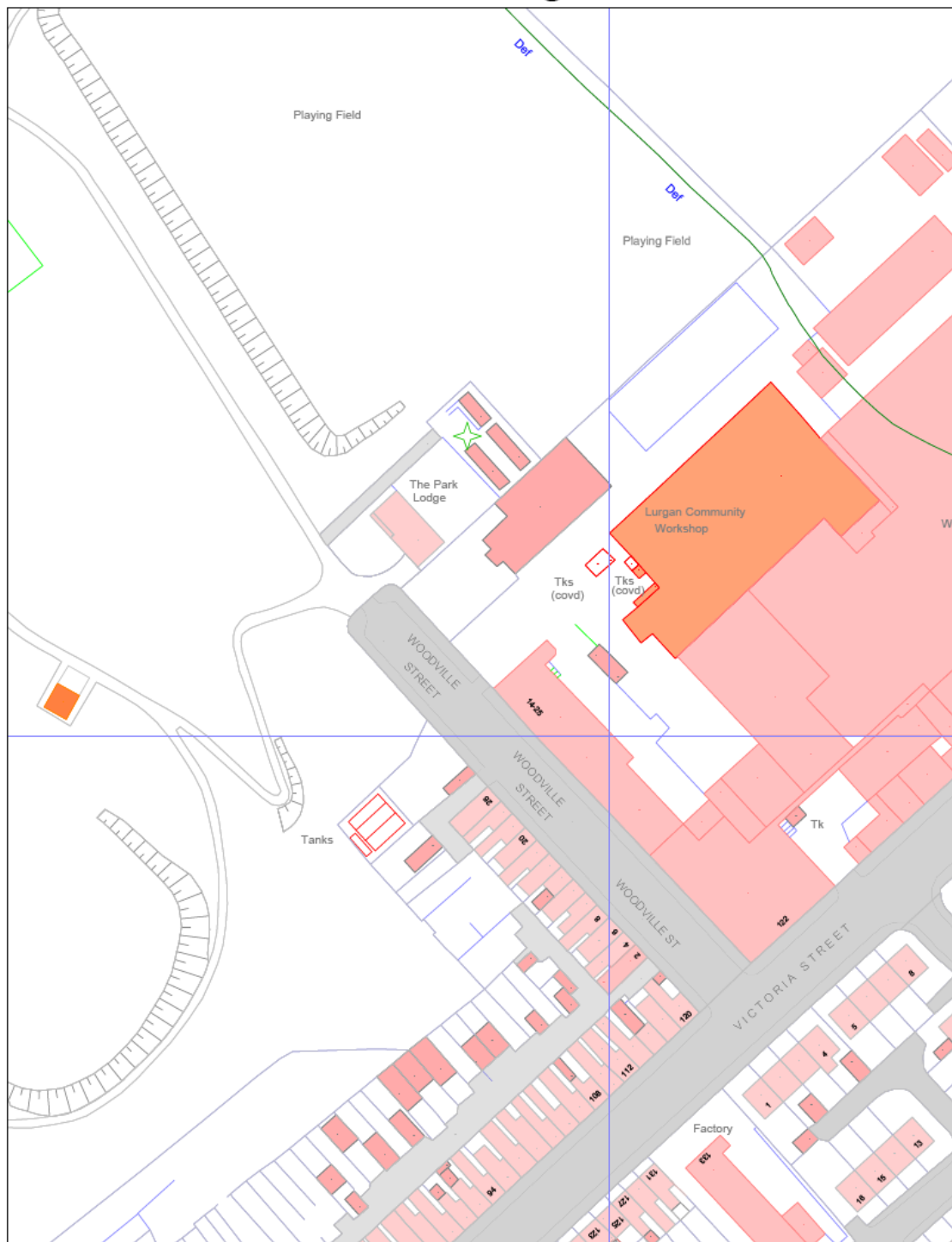


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## Air Monitoring Sites



Date: 13/05/2009

Scale: 1:1250



Lord Lurgan Park, Lurgan  
Nitrogen Dioxide  
Tube No.82766



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## Air Monitoring Sites



Date: 13/05/2009

Scale: 1:1250



Castle Lane, Lurgan  
Nitrogen Dioxide  
Tube No. 82765



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## Air Monitoring Sites



Date: 13/05/2009 Scale: 1:1250



4 Cluandara, Derrymacash, Lugan  
Nitrogen Dioxide  
Tube No. 82767



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## Air Monitoring Site



Date: 13/05/2009

Scale: 1:1250



Ashgrove Community Centre, Portadown  
Nitrogen Dioxide  
Diffusion Tube No. 82764

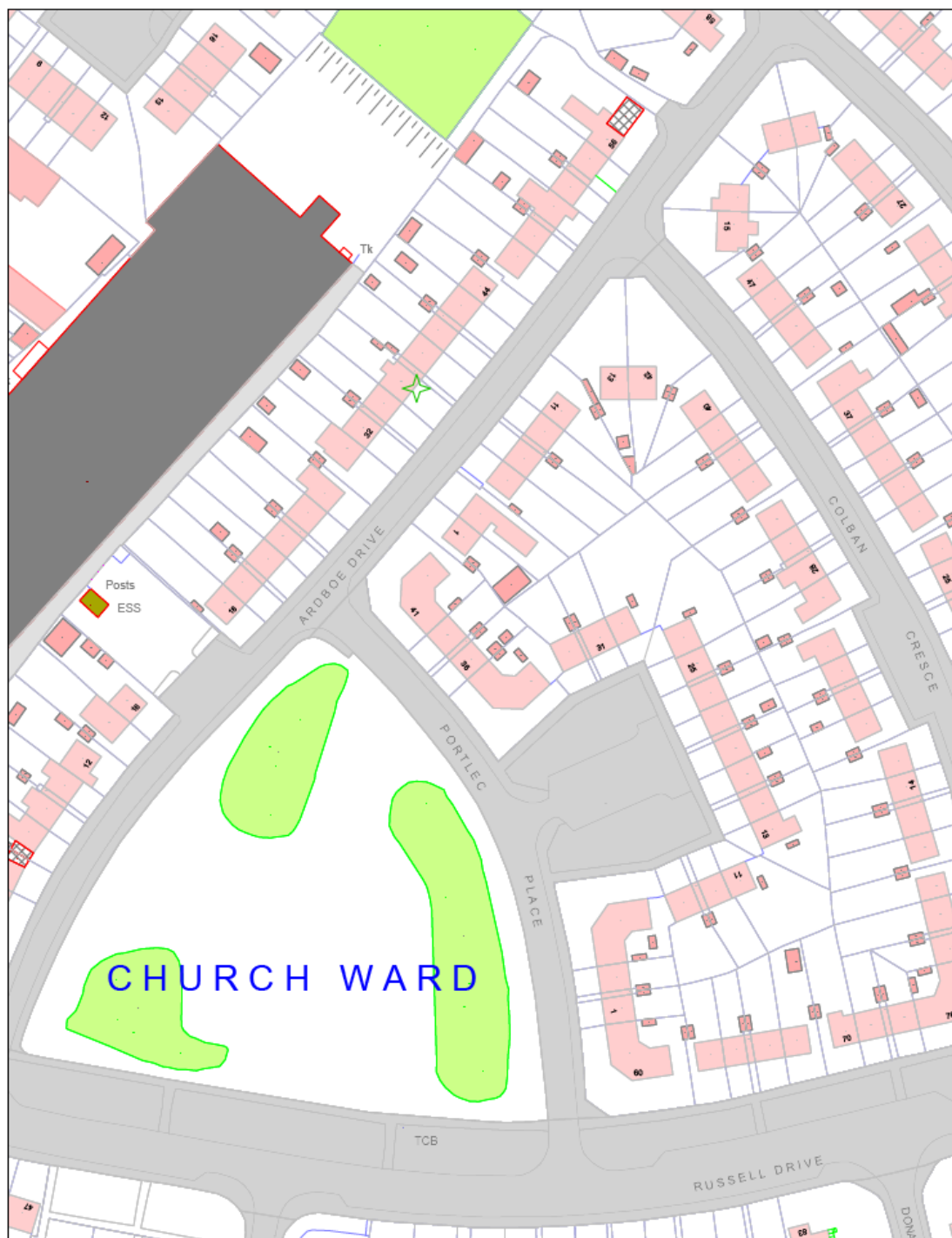


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## Air Monitoring Sites



Date: 13/05/2009

Scale: 1:1250



36 Ardboe Drive, Lurgan  
Nitrogen Dioxide  
Tube No. 82762



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## Air Monitoring Sites



Date: 13/05/2009 Scale: 1:1250



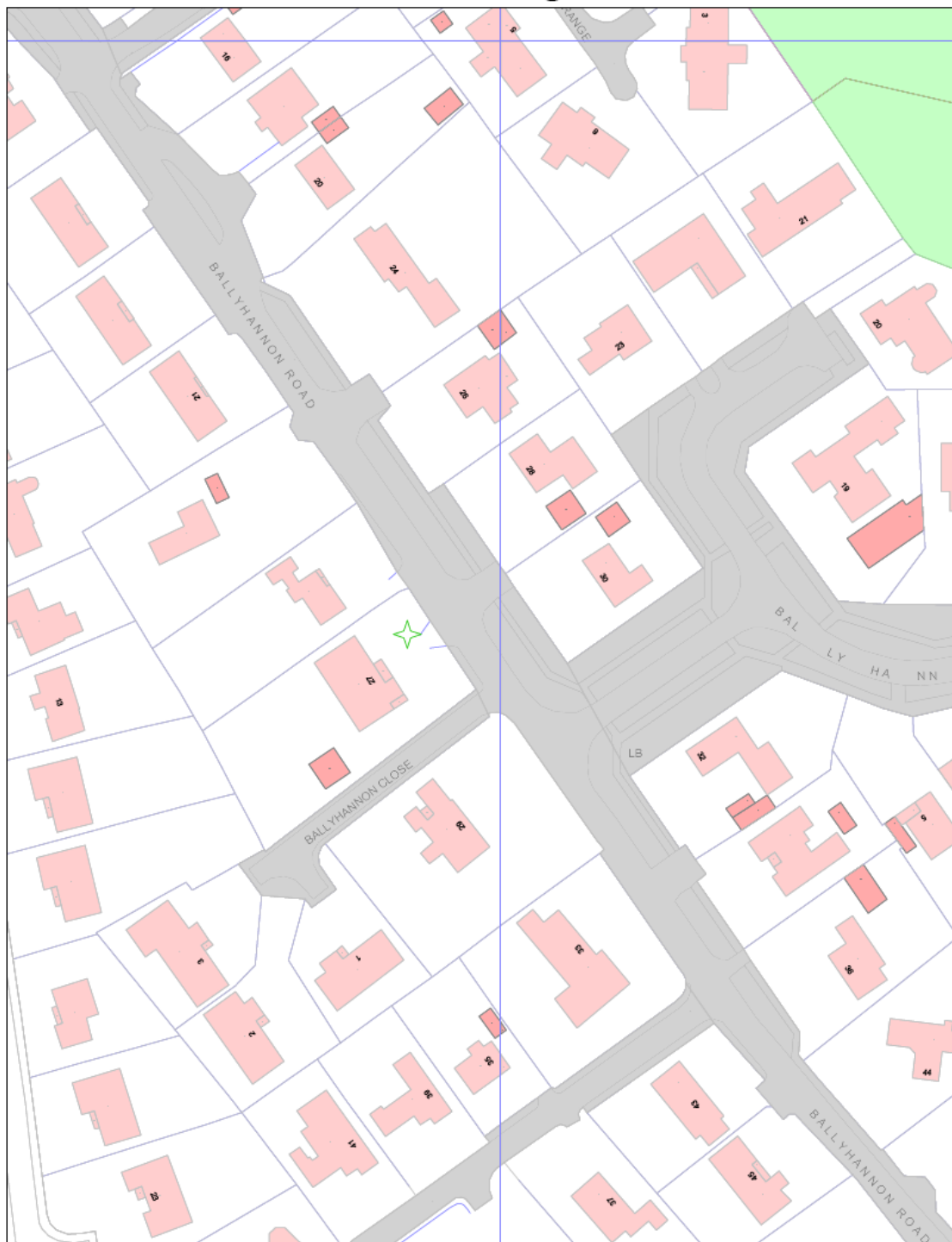
16 West Street, Portadown  
Nitrogen Dioxide  
Tube No. 82979



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## Air Monitoring Sites



Date: 13/05/2009 Scale: 1:1250

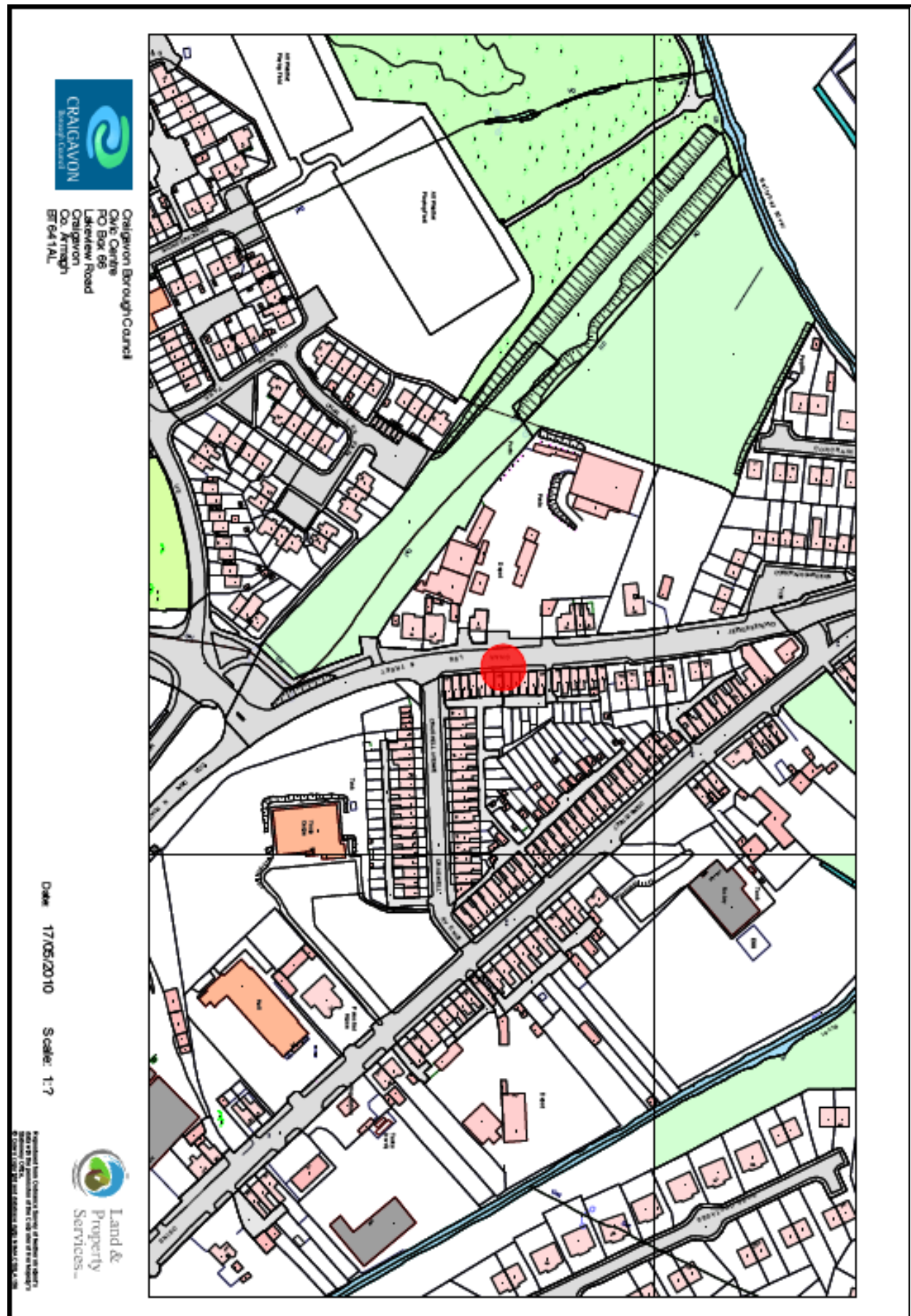


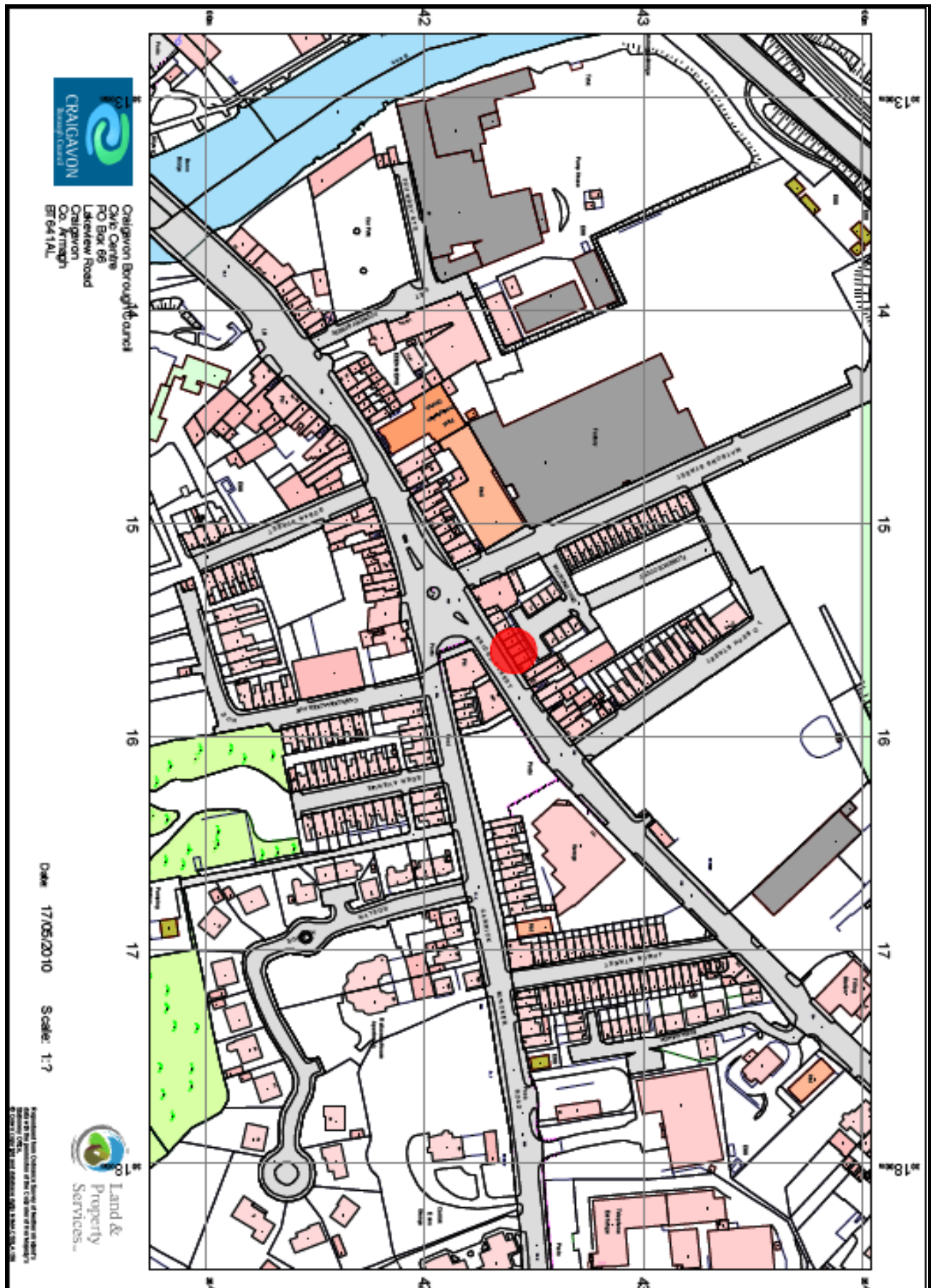
★ 27 Ballyhannon Road, Portadown  
Nitrogen Dioxide  
Tube No.82763



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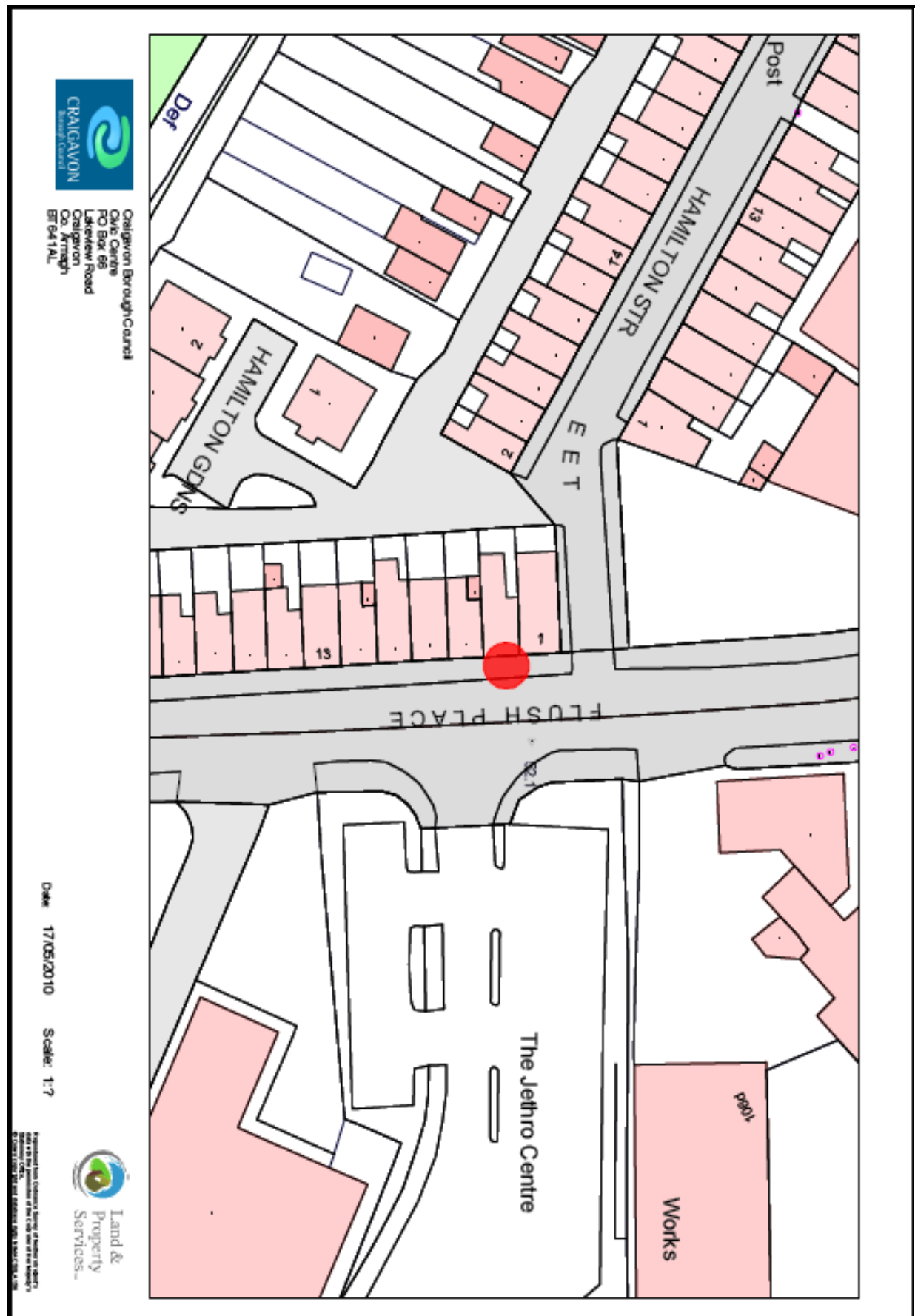
Lurgan Road - Portadown



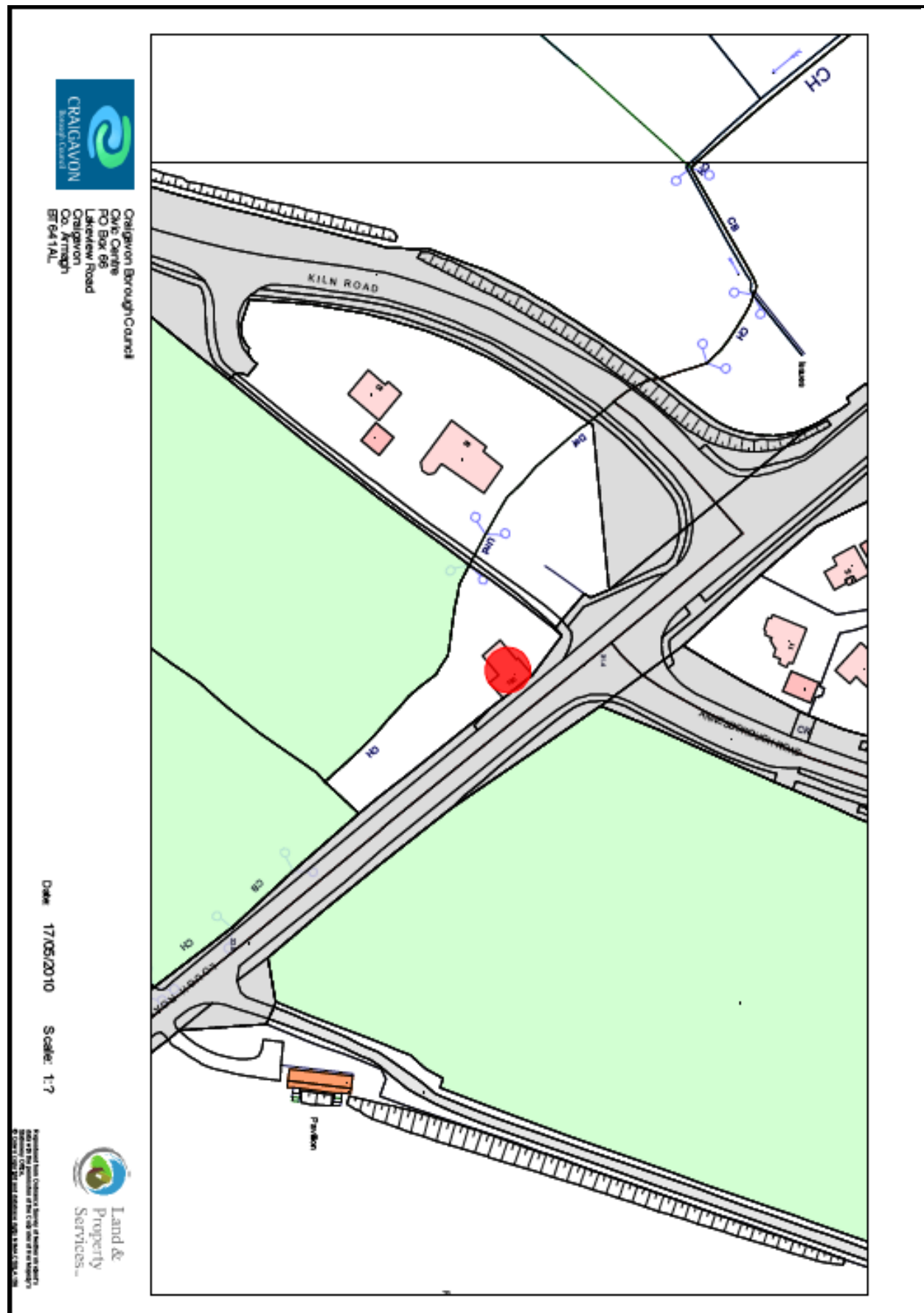












**Lough Road - Lurgan**

## **APPENDIX C**

### **2009 NO2 DIFFUSION TUBE MONITORING DATA**

Craigavon Borough Council - Ratified N02 Results (January 2009 - December 2009)

Site No.	1	2	3	4	5	6
	Union St	West St	Ardboe Drive	Ballyhannon	Ashgrove Com.	Castle Lane
Month	ug m-3	ug m-3	ug m-3	ug m-3	ug m-3	ug m-3
Jan-09	22	29	18	16	3	ns
Feb-09	26	28	15	16	17	27
Mar-09	19	28	11	11	14	18
Apr-09	20	27	15	13	16	16
May-09	13	13	7	8	10	13
Jun-09	15	22	9	9	9	13
Jul-09	13	14	8	8	9	13
Aug-09	12	16	5	5	6	13
Sep-09	18	21	10	9	11	17
Oct-09	6	7	4	3	3	6
Nov-09	19	28	18	18	17	16
Dec-09	32	33	24	22	24	28
Mean	18	22	12	12	12	16
R Mean	18	23	12	12	12	17

	Site Ref
1 Town Hall, Union Street	82760
2 West Street (Bakery)	82979
3 Ardboe Drive	82762
4 Ballyhannon Road	82763
5 Ashgrove Community Centre	82764
6 Castletlane Toilets	82765
7 Lord Lurgan Park	82766
8 Cluandara, Derrymacash	82767
9 Corcrain Road	82768
10 Lurgan Road	82769
11 Queen Street	82770
12 King Street	82771
13 Lough Road	82772

NS = No Sample

Bias Adjustment Factor 2009 -  
1.03 (Cm/Dm)

May 2010

Craigavon Borough Council - Northern Ireland

7	8	9	10	11	12	13
Lord Lurgan Park	Cluandara	Corcrain Road	Lurgan Rd	Queen St	King St	Lough Rd
ug m-3	ug m-3	ug m-3	ug m-3	ug m-3	ug m-3	ug m-3
19	18	29	38	38	50	41
13	22	28	57	41	65	47
11	18	23	43	35	44	37
13	23	32	38	33	39	39
4	12	20	25	21	20	23
14	14	27	33	35	35	33
8	12	17	28	20	30	24
7	9	17	31	20	37	ns
10	15	19	40	23	38	37
3	4	9	11	10	12	8
26	19	31	44	42	48	38
22	25	39	57	49	49	49
13	16	26	40	33	42	34
13	16	27	42	34	44	35