

2014 Air Quality Progress Report for Suffolk Coastal District Council

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

December 2014

Local Authority Officer	Mrs Denise Lavender Mr Andrew Reynolds
Department	Environmental Protection
Address	Suffolk Coastal District Council Melton Hill Woodbridge Suffolk IP12 1AU
Telephone	01394 444624
e-mail	environmental.protection@eastsoffolk.gov.uk
Report Reference number	
Date	31 st December 2014

Executive Summary

This report fulfils the requirements of the Local Air Quality Management (LAQM) 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 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.

Previous rounds of review and assessment for the district have culminated in the declaration of three AQMAs. The first was declared in 2006 and encompasses several properties on the junction of Lime Kiln Quay Road, Thoroughfare and St. John's Street in Woodbridge (Woodbridge Junction). The second was declared in 2009 for The Dooley Inn, Ferry Lane, Felixstowe - this is a single property close to the Port of Felixstowe. The third was declared earlier this year in June 2014 and encompasses the four residential properties within Long Row, Main Road, Stratford St Andrew.

This report consists of an air quality update Progress Report which covers the whole district, together with the annual Action Plan Progress Reports required for the AQMAs declared at Woodbridge and Felixstowe. There is also a separate section providing an update on the newly declared AQMA at Stratford St Andrew.

There are 3 nitrogen dioxide (NO₂) **monitoring sites** situated at relevant receptor locations which show concentrations above the annual mean Air Quality Objective. All are located within declared AQMAs.

There are a number of **planning applications** which have been recently approved or are currently waiting to be determined, and which may impact on air quality. Each has been assessed, or is in the process of being assessed, for air quality impacts by this department.

The Action Plan for the **Woodbridge junction AQMA** consists of 20 measures, one has been removed from the plan, 6 have been completed, and one new measure has been added. A feasibility study has been completed for the 5 options which involve 'physical junction alterations'. This has shown 1 to have a negative impact and the remaining 4 to have a negligible impact on NO₂ concentrations in the AQMA. It is therefore unlikely that any of them will be implemented. The feasibility study has 2 recommendations; to install a weather station for 3 months within the AQMA, and to trial holding back traffic a distance from the lights (therefore away from the AQMA) and pulse it through the junction. Both of these recommendations are being investigated and will be implemented if possible.

A new Working Group has been set up consisting of Officers and relevant Councillors from both Suffolk County Council and Suffolk Coastal District Council. The Group has decided that the Action Plan needs to be updated to remove those measures which have been shown to be unlikely to have any impact. There are also a number of alternative options which have been suggested for possible inclusion in the Action Plan. Discussions and investigations into each are beginning. Once agreed, the Action Plan will be formally updated and put out to full Consultation.

The **Action Plan for the Felixstowe AQMA** consists of 13 measures of which 7 have now been completed. Six of the measures are the responsibility of Suffolk Coastal District Council (3 of these have been completed) and 7 are the responsibility of the Port of Felixstowe (4 of these have been completed). All other measures which are the responsibility of the Port of Felixstowe have been started and are on-going. The results of diffusion tube monitoring for 2013 confirm that **annual mean NO₂ concentrations within the Felixstowe AQMA continue to be below the air quality Objective**. The diffusion tube results for 2014 will be assessed to confirm whether concentrations continue to be below the Objectives. If they are, Defra will be approached to determine if, and at what point, the AQMA could be revoked.

An AQMA was declared at Long Row in **Stratford St Andrew** in June 2014. Work is underway on the required Further Assessment, which should hopefully be completed in early 2015. A Working Group has been set up with representatives from Suffolk Coastal District Council and Suffolk County Council to begin early discussions on possible options for reducing emissions within the AQMA. Once the Further Assessment is received a draft Action Plan will be drawn up in conjunction with Suffolk County Council and other relevant stakeholders.

For further information concerning this report please contact:
Environmental Protection, Suffolk Coastal District Council, Melton Hill, Woodbridge
IP12 1AU
Tel: (01394) 444624
Email: environmental.protection@eastsuffolk.gov.uk

Non - Technical Summary

All Councils must assess air quality within their district on a regular basis to see whether levels set by the Government for a number of specified pollutants are being exceeded anywhere. If they are, there is a set procedure to follow which ends in the declaration of an Air Quality Management Area and the production of a long term Action Plan to try and reduce these levels. An air quality report must be produced every year and this is our Progress Report due for 2014. Once every three years the report required is more in-depth and is known as an Updating and Screening Assessment, the last one produced was in 2012.

Historic assessment of air quality in the district has led to 3 areas being identified which are above the levels set by the Government for the pollutant nitrogen dioxide (NO₂). These are;

- Several houses on the road junction of Lime Kiln Quay Road, Thoroughfare and St. John's Street in Woodbridge (Woodbridge Junction);
- The Dooley Inn, Ferry Lane, Felixstowe (a single property close to the Port of Felixstowe).
- The four residential properties within Long Row, Main Road in Stratford St Andrew

Each area has been officially declared as an Air Quality Management Area (AQMA) - Woodbridge in 2006, Felixstowe in 2009 and Stratford St Andrew in 2014. We have produced Action Plans for the Woodbridge and Felixstowe AQMAs and, included in sections 9 and 10 of this report, are the official annual 'Action Plan Progress Reports' required.

The information which needs to be provided in this Progress Report for the district is set by Government guidance and consists of;

- monitoring results collected in 2013;
- information on any new sources of pollutants including road traffic, other transport sources (rail, air, shipping), industry, use of solid fuel in biomass boilers and domestic houses and sources where emissions cannot be controlled such as quarries, landfill sites etc.
- On-going planning applications with air quality implications
- Planning Policies
- Transport Plans
- Climate Change Strategies

Monitoring results

In 2013 NO₂ was the only pollutant measured in the district. This was undertaken using 2 different techniques; automatic analyser (1 site at the Woodbridge junction) which measures an average level every 15 minutes, and diffusion tube (45 sites) which measures an average level over a month.

In 2013, levels were measured in 8 areas within the district – Felixstowe, Kesgrave, Melton, Woodbridge, Martlesham, Little Glemham, Farnham and Stratford St.

Andrew. The specific locations have been chosen following assessments of air quality (past and present) which have shown they could be at risk of exceeding the Government's set level for nitrogen dioxide.

The results of monitoring show 3 relevant locations where NO₂ is above the set level of 40 µg/m³ as an annual mean. Each location is situated within one of the declared AQMAs. Work is on-going at these sites to try and reduce the levels through the Action Plan produced (or to be produced) for each area.

Road traffic and other transport sources

There are no new sources of road traffic or other transport sources (air, rail, shipping) in the district since the 2013 air quality report.

Industry

There are 2 new or newly authorised industrial premises on the district since our last assessment. Emissions from these sites have been investigated and are not large enough to cause exceedence of any of the set levels and no further investigations are needed.

There are 2 sites within the district, which could emit levels of NO₂ and Particulate Matter (PM₁₀) that could cause the Objectives to be breached. Emissions from these sites for 2013 have been studied and there are no exceedences of the Objectives.

Commercial and Domestic sources

There are no new commercial or domestic sources of pollutants (such as biomass boilers) within the Suffolk Coastal district since the 2013 Progress Report. There are no areas within the district with sufficient use of solid fuel in houses to cause any levels to be exceeded.

Uncontrolled emissions

There are no new industrial sites in the district with uncontrolled emissions (such as quarries, landfill sites) since our last assessment.

Action Plan Progress Report for the Woodbridge Junction

The **Action Plan for the Woodbridge Junction AQMA** currently consists of 20 measures that could be undertaken at the junction to hopefully ease the congestion / reduce the overall traffic flows, and therefore in turn reduce the elevated levels of nitrogen dioxide being experienced. The measures can be split into 2 types; 'on the ground works' (mainly to be undertaken by Suffolk County Council with Suffolk Coastal District Council input) and more 'softer measures' to be undertaken mainly by Suffolk Coastal District Council.

Updates on each of the measures are included in this report. One of the measures (install a right hand turning lane at the traffic lights on Melton Hill) has now been removed from the Action Plan, as studies have shown it to not be viable, six of the

measures have now been completed and one new measure has been added for investigation (remove the ability of traffic to go straight on from Melton Hill).

The 'on the ground works' started with the installation of a new computerised system (MOVA) to the traffic lights whose aim is to reduce congestion and therefore queue lengths. This has reduced the extreme queue lengths at each arm of the junction but not the average number of vehicles queuing at the junction. The MOVA system has not been successful in reducing NO₂ levels within the AQMA to below the Objective.

A feasibility study was completed for the 5 measures remaining which involve 'physical junction alterations'. This shows 1 measure to have a negative impact and the remaining 4 to have a negligible impact on NO₂ concentrations in the AQMA. It is therefore unlikely that any of them will be implemented. The feasibility study has 2 recommendations; to install a weather station for 3 months within the AQMA, and to trial holding back traffic a distance from the lights (therefore away from the AQMA) and pulse it through. Both of these recommendations are being investigated and will be undertaken if possible.

A new Working Group has been set up consisting of Officers and relevant Councillors from both Suffolk County Council and Suffolk Coastal District Council. The Group has decided that the Action Plan needs to be updated to remove those measures which have been shown to be unlikely to have any impact. There are also a number of alternative options which have been suggested by the Working Group for possible inclusion in the Action Plan. Discussions and investigations into each are beginning. When we reach the stage of being able to provide the updated Action Plan this will go out for a full Consultation with all relevant stakeholders.

Individual updates for each measure in the Action Plan can be seen in the table in section 9 of this report.

Action Plan Progress Report for the Dooley Inn, Ferry Lane, Felixstowe

This AQMA was declared in 2009. The Action Plan consists of 13 measures to try and reduce nitrogen dioxide levels in the area, of which seven have now been completed. Six measures are the responsibility of Suffolk Coastal District Council (three of these have been completed) and seven are the responsibility of the Port of Felixstowe (four of these have been completed). All other measures which are the responsibility of the Port of Felixstowe have been started and are on-going.

Updates for each measure can be seen in the table in section 10 of this report.

The monitoring results for 2013 show that **nitrogen dioxide levels within the Felixstowe AQMA continue to be below the air quality Objective** (highest recorded at 37µg/m³). The diffusion tube results for 2014 will be assessed to confirm whether concentrations continue to be below the Objectives. If they are, Defra will be approached to determine if, and at what point, the AQMA could be revoked.

Update for Stratford St Andrew AQMA

An AQMA was declared at Long Row in **Stratford St Andrew** in June 2014. The Council is now legally required to produce a Further Assessment and an Action Plan. Work is underway on the Further Assessment, which should hopefully be completed in early 2015. A Working Group has been set up with representatives from Suffolk Coastal District Council and Suffolk County Council to begin early discussions on possible options for reducing emissions within the AQMA to include within the Action Plan. Once the Further Assessment is received the Action Plan will be drawn up in conjunction with Suffolk County Council and other relevant stakeholders.

Table of Contents

1	Introduction	1
1.1	Description of Local Authority Area	1
1.2	Purpose of Progress Report	1
1.3	Air Quality Objectives	2
1.4	Health effects	3
1.5	Summary of Previous Review and Assessments	4
2	New Monitoring Data	13
2.1	Summary of Monitoring Undertaken	13
2.1.1	Automatic Monitoring Sites	13
2.1.2	Non-Automatic Monitoring Sites	15
2.2	Comparison of Monitoring Results with Air Quality Objectives	19
2.2.1	Nitrogen Dioxide (NO ₂)	19
	Summary of Compliance with AQS Objectives	26
3	New Local Developments	32
3.1	Road Traffic Sources	32
3.2	Other Transport Sources	32
3.3	Industrial Sources	33
3.3.1	New Installations	33
3.3.2	Industrial Installations with substantially increased emissions	33
3.4	Commercial and Domestic Sources	35
3.5	New Developments with Fugitive or Uncontrolled Sources	36
4	Local / Regional Air Quality Strategy	38
5	Planning Applications	39
6	Air Quality Planning Policies	44
7	Local Transport Plans and Strategies	46
8	Climate Change Strategies	48
9	Action Plan Progress Report for Woodbridge AQMA	51
9.1	Introduction	51
9.2	Updated Monitoring Data	52
9.3	Action Plan update for 2014	53
9.4	Joint Environmental Policy 2013 (JEP)	69
9.5	Planning Applications	70
9.6	List of relevant stakeholders	71

10 AQMA Action Plan Progress Report for The Dooley Inn, Ferry Lane, Felixstowe 72

10.1 Introduction 72

10.2 Monitoring Data 73

10.3 Action Plan Measures update 74

10.4 Joint Environmental Policy 2013 (JEP) 85

10.5 Planning Applications 86

10.6 List of relevant stakeholders 86

11 Stratford St Andrew AQMA update..... 88

12 Conclusions and Proposed Actions..... 91

12.1 Conclusions from New Monitoring Data..... 91

12.2 Conclusions relating to New Local Developments 91

12.3 Other Conclusions 91

12.4 Proposed Actions..... 93

13 Air Quality Consultation responses 94

14 References 97

Appendices

Appendix A	QA:QC Data
Appendix B	Maps showing NO2 diffusion tube locations
Appendix C	NOx analyser results summary
Appendix D	Diffusion tube results for 2013
Appendix E	AQMA Order – Stratford St Andrew
Appendix F	Permitted Processes
Appendix G	Woodbridge Emissions Assessment – July 2014
Appendix H	Port of Felixstowe monitoring locations for nitrogen dioxide and sulphur dioxide

List of Tables

Table 1.1	Air Quality Objectives included in Regulations for the purpose of LAQM in England	2
Table 1.2a	Main findings from the first round of air quality review and assessment	8
Table 1.2b	Main findings from the second round of air quality review and assessment	9
Table 1.2c	Main findings from the third round of air quality review and assessment	10
Table 1.2d	Main findings from the fourth round of air quality review and assessment	11
Table 1.2e	Main findings from the fourth round of air quality review and assessment	12
Table 2.1	Details of automatic monitoring sites	14
Table 2.2	Details of non-automatic monitoring sites	16
Table 2.3	Results of automatic monitoring for NO₂: comparison with annual mean Objective	20
Table 2.4	Results of automatic monitoring for NO₂: comparison with 1-hour mean Objective	20
Table 2.5	Results of NO₂ diffusion tubes 2013	22
Table 2.6	Results of NO₂ diffusion tubes (2008 to 2012)	27
Table 3.1	Biomass boilers within the Suffolk Coastal district and stage of assessment	37
Table 9.1	Results of automatic monitoring of nitrogen dioxide: comparison with annual mean and 1-hour mean Objectives	52
Table 9.2	Results of nitrogen dioxide diffusion tube monitoring	52
Table 9.3	Woodbridge Junction Action Plan progress summary table 2013/14	56
Table 10.1	Results of nitrogen dioxide diffusion tube monitoring at sites near to the Dooley Inn, Ferry Lane, Felixstowe AQMA (2008-2013)	75
Table 10.2	Action Plan progress summary table 2013/14	76
Table 10.3	Port of Felixstowe NO₂ monitoring results 2007-2013	85
Table 10.4	Port of Felixstowe SO₂ monitoring results 2007-2013	85
Table 11.1	Results of nitrogen dioxide diffusion tube monitoring at sites along the A12 (2011-2013)	90
Table 13.1	Summary of Consultation responses received in 2013 and 2014	95

List of figures

Figure 1.1	Map showing the boundary of the AQMA declared at the junction of Lime Kiln Quay Road, Thoroughfare and St. John's Street in Woodbridge	5
Figure 1.2	Map showing the boundary of the AQMA declared at the Dooley Inn, Ferry Lane, Felixstowe	6
Figure 2.1	Location of the automatic NO_x analyser, AQMA, and NO₂ diffusion tubes sited at the Woodbridge junction	13
Figure 2.2	Main Road, Stratford St. Andrew showing the location of the AQMA and the diffusion tube monitoring points	24
Figure 2.3a	Trends in annual mean nitrogen dioxide concentrations measured at permanent diffusion tube sites in Felixstowe	29
Figure 2.3b	Trends in annual mean nitrogen dioxide concentrations measured at permanent diffusion tube sites in Woodbridge	30
Figure 2.3c	Trends in annual mean nitrogen dioxide concentrations measured at permanent diffusion tube sites in Melton and Kesgrave	31
Figure 9.1	Location of the AQMA declared at the Woodbridge junction (hatched in red)	55
Figure 10.1	AQMA declared at the Dooley Inn, Ferry Lane, Felixstowe (hatched in dark red) and locations of diffusion tube monitoring	73
Figure 11.1	Main Road, Stratford St Andrew showing the location of the AQMA at Long Row and diffusion tube monitoring points	89

1 Introduction

1.1 Description of Local Authority Area

Suffolk Coastal is a diverse district incorporating thirty miles of coast, expansive areas of countryside, much of which still forms a working landscape, five market towns including Woodbridge, the resort and port of Felixstowe as well as many villages. The district supports over 4,000 businesses, including large employers like the Port of Felixstowe, BT and Sizewell Power Station, as well as a high proportion of small and medium sized businesses that are vital to the local economy. Tourism is also a major driver for the local economy. Much of the district is within the Haven Gateway that is identified for significant growth.

The main source of emissions, within the majority of the district, is road traffic. Within the town of Felixstowe, emissions from and associated with the Port of Felixstowe are a large source of pollutants. While the quality of our air is generally very good and well within the limits set by Government for the protection of human health, there are now three areas within the district where levels of pollution give rise for concern. As such, three Air Quality Management Areas (AQMAs) have been declared in the District, one in Woodbridge (road traffic related), one in Felixstowe (associated with emissions from and associated with the Port of Felixstowe) and the third on a small stretch of the A12 at Stratford St Andrew.

1.2 Purpose of Progress Report

This report fulfils the requirements of the Local Air Quality Management (LAQM) 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.

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

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

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	5.00 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.50 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
	0.25 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2005
Particulate Matter (PM ₁₀) (gravimetric)	50 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Health effects

There are two pollutants, from the list of seven contained within the Air Quality Objectives, which are relevant to the Suffolk Coastal District and are detailed in the report – nitrogen dioxide (NO₂) and Particulate Matter (PM₁₀). Information regarding the health effects of both pollutants is quite difficult to find and interpret as it is a continually developing field. There is much more information about the short term health effects of exposure to very high levels than longer term exposure to lower levels (as experienced in outdoor air).

The Department for Environment, Food and Rural Affairs (Defra) advise that generally if you are young and in a good state of health, moderate air pollution levels are unlikely to have any serious short term effects. However, elevated levels and/or long term exposure to air pollution can lead to more serious symptoms and conditions affecting human health. This mainly affects the respiratory and inflammatory systems, but can also lead to more serious conditions such as heart disease and cancer. People with lung or heart conditions may be more susceptible to the effects of air pollution.

The table below shows the types of health effects experienced with **short term elevated** levels:

Pollutant	Health effects at very high levels
Nitrogen Dioxide	These gases irritate the airways of the lungs, increasing the symptoms of those suffering from lung diseases
Particles (e.g PM ₁₀)	Fine particles can be carried deep into the lungs where they can cause inflammation and a worsening of heart and lung diseases

The effects of long term exposure to lower concentrations of each pollutant is less well known and knowledge is continually developing. Current information only represents the best we know at present. The World Health Organisation advises there is no safe level of exposure for PM₁₀. long-term exposure to particles (especially PM_{2.5}) is associated with premature mortality, especially from heart and lung conditions. Recent studies have also suggested that high levels of PM_{2.5} in childhood can permanently impair lung function. High levels of particles can affect asthma sufferers.

The World Health Organisation advises that the health evidence around the long term effects of NO₂ is inconclusive as it is difficult to extricate the effects of long term exposure from those of fine particles like PM₁₀. There is growing evidence however that it does have its own health effects. It is an irritant to the respiratory system and studies have shown that symptoms of bronchitis in asthmatic children increase in

association with long-term exposure to NO₂. Reduced lung function growth is also linked to NO₂ at concentrations currently measured (or observed) in cities of Europe and North America.

There is also growing evidence that air pollution can actually cause people to develop asthma rather than merely triggering attacks.

The government Committee on the Medical Effects of Air Pollutants (COMEAP) is due to publish a report on the number of premature deaths caused by nitrogen dioxide pollution in 2015. When these are combined with existing PM_{2.5} mortality estimates it is expected to result in a significant increase in the official overall estimate of premature deaths caused by air pollution. For further information regarding this report go to <http://www.airqualitynews.com/2014/12/05/uk-nitrogen-dioxide-mortality-figures-due-next-year/>

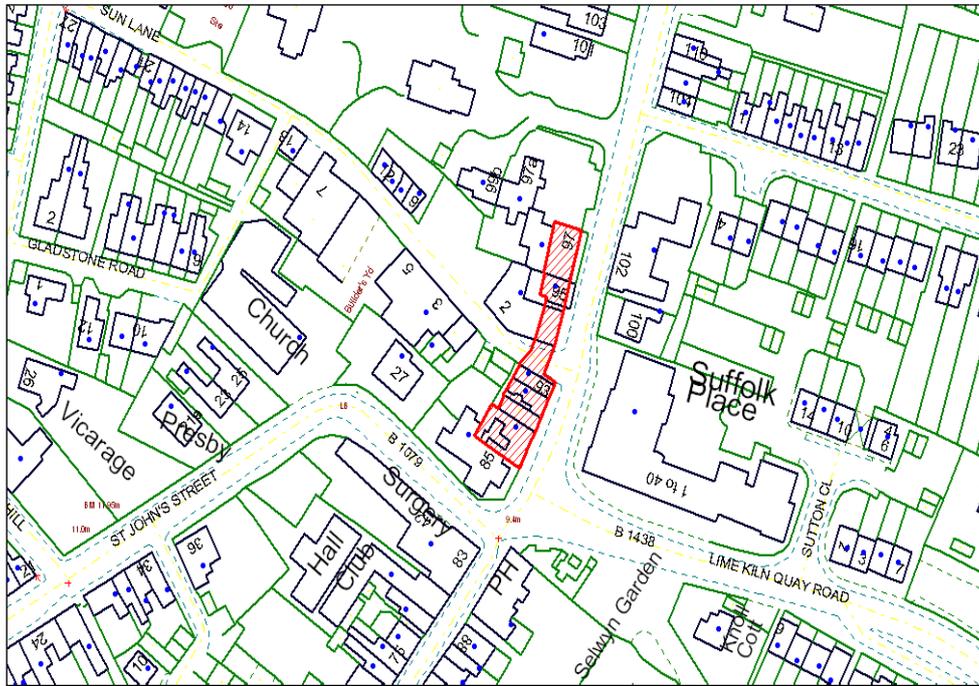
1.5 Summary of Previous Review and Assessments

Suffolk Coastal has completed four rounds of review and assessment and this report is the last to be produced in the fifth round. The findings of the review and assessment reports completed to date are summarised in Tables 1.2a – 1.2e and key findings are outlined below:

The first round of review and assessment was completed in 2001. No AQMAs were declared as part of the first round.

The second round of review and assessment was completed in 2005. This round concluded that there was a potential risk of the air quality objectives for nitrogen dioxide (NO₂), particulate matter with an aerodynamic diameter of less than 10 microns (PM₁₀) and sulphur dioxide (SO₂) being exceeded within the Suffolk Coastal district. Following completion of a Detailed Assessment; no AQMA was required on the A1214 at the junction of Bell Lane in Kesgrave; an **AQMA was declared for exceedence of the annual mean NO₂ objective concentration at Lime Kiln Quay Road/The Thoroughfare/St John's Street junction, Woodbridge in March 2006.** The AQMA boundary is shown in Figure 1.1 overleaf.

Figure 1.1 Map showing the boundary of the AQMA declared at the junction of Lime Kiln Quay Road, Thoroughfare and St. John's Street in Woodbridge.



The third round of review and assessment consisted of an Updating and Screening Assessment, a Detailed Assessment, a Progress Report and a Further Assessment Report for the AQMA declared at the Woodbridge Junction. The 2006 Updating and Screening Assessment identified a potential risk of exceedence of the air quality objectives for NO₂, PM₁₀ and SO₂ resulting from emissions from activities on and associated with the Port of Felixstowe. The Further Assessment for the Woodbridge Junction AQMA confirmed the boundary extent was correct, advised that a NO_x reduction of 16.4% was necessary to eliminate exceedence and that the key was to reduce queuing and heavy duty vehicles. Following completion of a Detailed Assessment for Adastral Close and Ferry Lane in Felixstowe an **AQMA was declared in 2009 for exceedence of the annual mean NO₂ objective concentration in the vicinity of the Dooley Inn Public House on Ferry Lane, Felixstowe.** The AQMA boundary is shown in Figure 1.2 overleaf.

Figure 1.2 Map showing the boundary of the AQMA declared at The Dooley Inn, Ferry Lane, Felixstowe (hatched in red).



The fourth round of review and assessment consisted of an Updating and Screening Assessment, Progress Reports, and a Further Assessment and Draft Air Quality Action Plan for the Ferry Lane, Felixstowe AQMA. The Further Assessment report confirmed the findings of the 2008 Detailed Assessment; with exceedence of the NO₂ annual average objective predicted at the Dooley Inn PH, and that the existing AQMA boundary is appropriate. Source apportionment found that the main NO_x contribution is from container handling and vehicle activities in the Port, together with emissions from Heavy Duty Vehicles on roads outside the Port boundary. The final Action Plan was completed and can be viewed at:

<http://www.suffolkcoastal.gov.uk/assets/Documents/District/Air-quality/FelixstoweFerryLaneAQAPSeptember2012.pdf>

No new areas of concern were identified in the Progress Reports.

The fifth round of review and assessment was started in 2012 with the **Updating and Screening Assessment**. This did not identify the need to proceed to a Detailed Assessment for any pollutant. It advised that;

- Results of NO₂ monitoring at Stratford St. Andrew show one site with levels above the Air Quality Objective of 40µg/m³. A further year of monitoring will be undertaken to determine whether it is necessary to proceed to a Detailed Assessment.

- Work is continuing in order to identify the required information in order to undertake a screening assessment of 2 biomass combustion installations within the district.

The Air Quality Action Plan Progress Report was included for the AQMA declared at the Woodbridge Junction which provided updates on work to date on the Action Plan implementation.

The Final Action Plan for the AQMA at Ferry Lane in Felixstowe was included which recommends 13 measures for implementation.

The **2013 Progress Report** advised that:

- **NO₂ levels at Stratford St Andrew are above the Air Quality Objective of 40µg/m³. A Detailed Assessment was undertaken which concluded that an Air Quality Management Area would need to be declared at this location.** These findings were sent to Defra for approval.
- A screening assessment of the biomass combustion installation at Heveningham Hall concluded that the air quality objectives are not likely to be exceeded at nearby receptor locations and no further action is required.
- A Detailed Assessment was required for Geaters straw burner, West End Nurseries, Leiston, this concluded that the air quality objectives are not likely to be exceeded at nearby receptor locations and no further action is required.

The Air Quality Action Plan Progress Report was included for the AQMA declared at the Woodbridge Junction. One of the measures has been removed from the Action Plan, four of the measures have now been completed, and one new measure has been added. A number of traffic surveys were undertaken at the junction and results of a Drive Cycle Analysis and computer modelling for the junction is awaited.

The Air Quality Action Plan Progress Report was included for the AQMA declared at Ferry Lane, Felixstowe. The **Action Plan** consists of 13 measures of which 7 have now been completed.

Table 1.2a Main findings from the first round of air quality review and assessment

Report and reference	Main outcomes
Report on the First Stage review and assessment of air quality in Suffolk Coastal (SCDC, 1999)	<p><u>Negligible risk</u> of exceedence of the air quality objectives for benzene and 1,3-butadiene, no further action needs to be taken.</p> <p>The risk of exceedence of the air quality objectives for lead, carbon monoxide (CO), NO₂, PM₁₀ and SO₂ is such that a second stage review and assessment will need to be undertaken to determine the risk more precisely.</p>
Report on the Second Stage review and assessment of air quality in the Suffolk Coastal District (SCDC, 2000)	<p><u>Negligible risk</u> of exceedence of the air quality objectives for lead and CO and further review and assessment is not necessary at this time.</p> <p><u>Significant risk</u> of exceedence of the air quality objectives for NO₂, PM₁₀ and SO₂ at relevant locations and <u>further review and assessment is necessary</u>.</p>
Report on the Third Stage review and assessment of air quality in the Suffolk Coastal District (SCDC, 2001)	<p><u>Negligible risk</u> of exceedence of the air quality objectives and further assessment not necessary at this time for:</p> <p>NO₂ from traffic using the A14 trunk road and traffic using High Road West, Felixstowe.</p> <p>PM₁₀ from: traffic using the A1152 (specifically the crossroads of the A1152 and B1438 at Melton); traffic using High Road West, Felixstowe; traffic using the Lime Kiln Quay Road/The Thoroughfare/St John's Street junction, Woodbridge; and the combined emission 'footprint' of White Mountain Roadstone Limited, A12 traffic, Foxhall Four Quarry and Foxhall Landfill Site.</p> <p>Insufficient information to date and therefore <u>further review and assessment required for</u>:</p> <p>SO₂ and PM₁₀ emissions from shipping at the Port of Felixstowe.</p> <p>PM₁₀ emissions from the combined emission 'footprint' of Roadworks (1952) Limited and Sinks Pit Quarry.</p> <p><u>Risk of NO₂ air quality objectives being exceeded and further review and assessment required for</u>:</p> <p>Emissions from traffic using the A1152 (specifically the crossroads of the A1152 and B1438 at Melton)</p> <p>Emissions from traffic using Lime Kiln Quay Road/The Thoroughfare/St John's Street junction, Woodbridge.</p>
Air quality review and assessment Stage 3 (AEA Technology, 2001)	<p><u>Unlikely risk</u> of exceedence of the air quality objectives for NO₂ at the Melton and Woodbridge road junctions and an AQMA is not required.</p>

Table 1.2b Main findings from second round of air quality review and assessment

Report and reference	Main outcomes
Report on the Updating and Screening Assessment of air quality in the Suffolk Coastal District (SCDC, 2003)	<p><u>Unlikely risk</u> of exceedence of the air quality objectives for CO, benzene and 1,3-butadiene. No further assessment necessary.</p> <p><u>Potential risk</u> of exceedence of the air quality objectives for lead, NO₂, PM₁₀ and SO₂. <u>Further investigation is necessary.</u></p>
Report on the Detailed Assessment and Continued Updating and Screening Assessment of air quality in the Suffolk Coastal District (SCDC, 2004)	<p><u>Unlikely risk</u> of exceedence of the air quality objectives for lead and no further assessment is necessary.</p> <p><u>Unlikely risk</u> of exceedence of the air quality objectives for NO₂ on the A1214 at the Bell Lane junction in Kesgrave confirmed by Detailed Assessment – no AQMA required.</p> <p><u>Potential risk</u> of exceedence of the air quality objectives for NO₂, PM₁₀ and SO₂ at receptor locations. <u>Further investigation of:</u> Emissions of NO₂ from traffic using the junction of Lime Kiln Quay Road/Thoroughfare/St John's Street junction, Woodbridge. Emissions of NO₂, PM₁₀ and SO₂ from activities on and associated with the Port of Felixstowe, incorporating assessment of emissions generated by Bathside Bay and FSR</p>
Progress Report: Air Quality in the Suffolk Coastal District (SCDC, 2005)	<p>Outlines the findings of detailed modelling undertaken for the Felixstowe South Reconfiguration (FSR) planning application:</p> <p><u>No risk of exceedence</u> of the air quality objective for PM₁₀ at receptors from emissions resulting from activities on and associated with the Port of Felixstowe. No further review and assessment necessary.</p> <p><u>Exceedence of the air quality objective for annual average NO₂</u> in 2005 at receptor locations situated in The Downs (close to the Port of Felixstowe Road) and Spriteshall Lane (close to Dock Spur roundabout).</p> <p><i>NO₂ diffusion tube monitoring undertaken in 2004 does not correspond with the above modelling results. Seven new diffusion tube sites established at the start of 2005 to obtain further information for receptor locations close to the Port of Felixstowe and along the A14.</i></p> <p><u>Exceedence of the air quality objective for annual average NO₂</u> predicted for the end of 2005 at the Dooley Inn, Ferry Lane. Two new NO₂ diffusion tube sites established on the building.</p> <p>At the end of 2005, SCDC to determine if declaration of an AQMA is necessary for receptor locations near to the Port of Felixstowe and/or along the A14 based on 12 months of monitoring information from the new NO₂ diffusion tube sites in Felixstowe and the Trimleys. The findings to be reported in the next updating and screening assessment.</p>
Detailed Assessment of the Woodbridge Junction (AEA Technology, 2005)	<p>Declaration of an AQMA for the annual average objective for NO₂ is required for Lime Kiln Quay Road/The Thoroughfare/St John's Street junction, Woodbridge.</p>
Declaration of AQMA at the Woodbridge Junction (SCDC, 2006)	<p>AQMA declared for Lime Kiln Quay Road/The Thoroughfare/St John's Street junction, Woodbridge in March 2006. Copy of AQMA boundary included in Figure 1.1.</p>

Table 1.2c Main findings from the third round of air quality review and assessment

Report and reference	Main outcomes
Report on the Updating and Screening Assessment of air quality in the Suffolk Coastal District (SCDC, 2006)	<p><u>Unlikely risk</u> of exceedence of the air quality objectives for CO, benzene, 1,3-butadiene and lead, no further assessment necessary.</p> <p><u>Potential risk</u> of exceedence of the air quality objectives for NO₂, PM₁₀ and SO₂ at receptor locations resulting from emissions from activities on and associated with the Port of Felixstowe. A <u>Detailed Assessment is required</u> to investigate these emissions.</p>
Further Assessment Report for Woodbridge Junction AQMA (AEA Technology, 2007)	Confirmed AQMA boundary is correct. Reduction of NO _x by 16.4% necessary to eliminate exceedences. Source apportionment concludes that queuing and Heavy Duty Vehicle reductions will be key to improve air quality.
Air quality review and assessment: Detailed Assessment for Adastral Close and Ferry Lane, Felixstowe (SCDC, 2008a)	<p>AQMA declaration for SO₂ <u>not required</u>.</p> <p>AQMA declaration for PM₁₀ <u>not required</u>.</p> <p><u>Exceedence of the annual average objective for NO₂</u> at the Dooley Inn, Ferry Lane, Felixstowe (modelling indicated that this the only relevant receptor location at which the objective was not met).</p> <p><u>Risk of exceedence</u> of the annual average objective for NO₂ at fifteen properties at the west end of Adastral Close in 2010 and beyond following the FSR.</p> <p>Source apportionment studies indicated that container handling operations by rubber tyred gantry (RTG) crane and internal movement vehicles (IMVs) will potentially make the greatest contribution to oxides of nitrogen (NO_x) concentrations in 2010 both at Adastral Close and the Dooley Inn, Ferry Lane.</p> <p>Declaration of an AQMA for the annual average objective for NO₂ is required for the Dooley Inn, Ferry Lane, Felixstowe.</p>
Progress Report: air quality in the Suffolk Coastal District (SCDC, 2008b)	<p>Work on production of the draft Action Plan for the Lime Kiln Quay Road/Thoroughfare/St John's Street junction, Woodbridge is continuing. Public consultation will be undertaken following Defra's approval of the completed draft.</p> <p>Public Consultation on the findings of the 2008 Detailed Assessment (SCDC, 2008a) for Ferry Lane, Felixstowe is to be undertaken following approval of the report by Defra.</p> <p>No new areas of concern identified.</p>
Declaration of AQMA at Ferry Lane, Felixstowe (SCDC, 2009)	AQMA declared for the Dooley Inn PH, Ferry Lane, Felixstowe in March 2009. Copy of AQMA boundary included in Figure 1.2.

Table 1.2d Main findings from the fourth round of air quality review and assessment

Report and reference	Main outcomes
Report on the Updating and Screening Assessment of air quality in the Suffolk Coastal District (SCDC, 2009)	No new areas of concern identified within the district, no Detailed Assessment required. Work continuing to obtain information on biomass combustion plant within the district. Work ongoing on Woodbridge AQMA Action Plan and Further Assessment for AQMA declared at Ferry Lane, Felixstowe.
Draft Air Quality Action Plan for Woodbridge Junction (AEA Technology, 2009)	Draft Action Plan produced for full Public Consultation. Action Plan considered 79 options to improve air quality and recommends 20 of these for implementation.
Progress Report: air quality in the Suffolk Coastal District (SCDC, 2010)	No new areas of concern identified within the district, no Detailed Assessment required. Work continuing to obtain information on biomass combustion plant within the district. Work ongoing on Woodbridge AQMA Final Action Plan and Further Assessment for AQMA declared at Ferry Lane, Felixstowe.
Further Assessment Report for Ferry Lane, Felixstowe AQMA (TRL, 2010)	Confirmed the findings of the 2008 Detailed Assessment, with exceedence of the NO ₂ annual average objective predicted at the Dooley Inn public house. No further concern regarding Adastral Close properties – monitoring is ongoing there. A modelling assessment concluded that the existing AQMA boundary is appropriate. Source apportionment found main contribution from container handling and vehicle activities in the Port together with emissions from Heavy Duty Vehicles on roads outside the Port boundary.
Final Air Quality Action Plan for Woodbridge Junction (AEA Technology, 2011)	Includes results of Public Consultation which initiated changes to 5 of the 20 measures. Implementation Plan included for all 20 measures adopted.
Progress Report: air quality in the Suffolk Coastal District (SCDC, 2011)	No new areas of concern identified within the district, no Detailed Assessment required. Assessment still required for 4 pieces of biomass combustion plant within the district. Air Quality Action Plan Progress Report included for the AQMA declared at the Woodbridge Junction.
Draft Air Quality Action Plan for Ferry Lane, Felixstowe (TRL, 2011)	Draft Action Plan produced for full Public Consultation. Action Plan considered 26 options to improve air quality and recommends 13 of these for implementation.
Final Air Quality Action Plan for Ferry Lane, Felixstowe (TRL, 2012)	Includes results of Public Consultation which has not initiated any changes to the 13 measures for implementation.

Table 1.2e **Main findings from the fifth round of air quality review and assessment**

Report and reference	Main outcomes
Report on the Updating and Screening Assessment of air quality in the Suffolk Coastal District (SCDC, 2012)	<p>No new areas of concern identified within the district, no Detailed Assessment required.</p> <p>NO₂ concentrations on the A12 at Stratford St. Andrew are above the Objective level, a further year of data to be collected to determine whether Detailed Assessment is required.</p> <p>Work continuing to obtain information on 2 biomass combustion installations within the district.</p> <p>Work ongoing on Woodbridge AQMA Action Plan.</p> <p>Final Action Plan for AQMA declared at Ferry Lane, Felixstowe now completed and approved by Defra.</p>
2013 Air Quality Progress Report for Suffolk Coastal District Council	<p>No new areas of concern identified within the district.</p> <p>NO₂ concentrations on the A12 at Stratford St. Andrew continue to be above the Objective level. Detailed Assessment undertaken confirming Air Quality Management Area required. Results awaiting Defra approval.</p> <p>Assessment of 2 biomass combustion installations on the district confirm no further action required.</p> <p>Woodbridge AQMA Action Plan -1 measure has been removed, 4 completed, and 1 new measure added. Traffic surveys undertaken and results of Drive Cycle Analysis and computer modelling awaited. Work on-going.</p> <p>Felixstowe AQMA Action Plan – consists of 13 measures, 7 of which completed. Work on-going.</p>

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

In 2013 an automatic analyser measuring oxides of nitrogen continued monitoring at the junction of Lime Kiln Quay Road, Thoroughfare, St. John's Street and Melton Hill in Woodbridge (Woodbridge Junction) within the declared Air Quality Management Area.

Further detail regarding the site is provided in Table 2.1 overleaf. The location of the analyser is shown in Figure 2.1 below. Details of Quality Assurance/ Quality Control carried out for the analyser is provided in Appendix A.

Figure 2.1 Location of the Automatic NO_x analyser, AQMA, and NO₂ diffusion tubes sited at the Woodbridge Junction

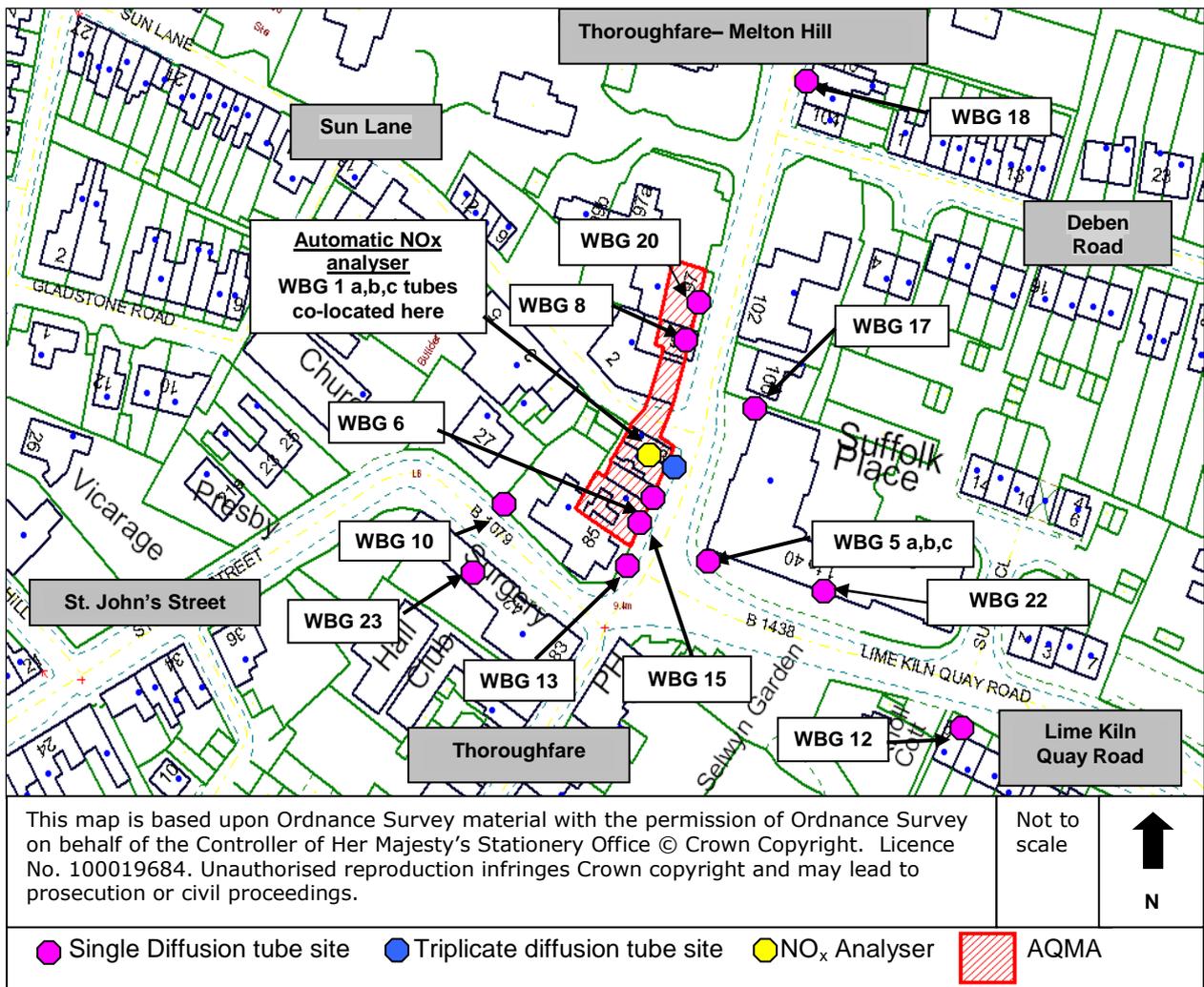


Table 2.1 Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Inlet Height (m)	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
WBG 1	Woodbridge Junction	Kerbside	X 62759	Y 24926	2.6	Nitrogen dioxide (NO ₂)	Yes	ozone chemi.- luminescence	Yes (0.1m)	1m	Yes

2.1.2 Non-Automatic Monitoring Sites

During 2013 there were 3 new monitoring sites added within the district, 1 old site re-instated and 1 site removed, bringing the total number of sites to 45. All sites measure concentrations of NO₂ using passive diffusion tubes which are exposed on a monthly basis. Further details regarding each monitoring site are provided in Table 2.2 below and their locations can be seen on the maps in Appendix B.

The 3 new monitoring sites were located as follows;

- **Felixstowe 39** - 424 High Road, Trimley St Mary. This site was located due to a number of planning applications submitted in this area, the traffic from which would use High Road. It is located where High Road crosses the A14 trunk Road (Port of Felixstowe Road).
- **Stratford St. Andrew 6** – Jacob’s Cottage, Main Road, Stratford St Andrew
- **Stratford St. Andrew 7** – 30mph sign just past 5 Long Row, Main Road, Stratford St Andrew.

Both Stratford St Andrew sites were all located to provide additional information along this stretch of the A12 trunk road following elevated NO₂ concentrations recorded at Stratford St Andrew 1 (STA 1). The monitoring sites were located either side of Long Row (where STA 1 is located).

The monitoring site which was re-instated was;

- **Woodbridge 20** – 97 Thoroughfare, Woodbridge. This site was able to be re-instated following new owners who were happy to allow monitoring to start again.

The monitoring site which was removed was;

- **Stratford St. Andrew 5** – located again on the Northern side of the road on the ‘Great Glemham’ Sign, Main Road, Stratford (opposite 1-5 Long Row). This site was situated too low to provide useful data due to restrictions on the sign to which it was attached. This was borne out in the data collected which showed very low NO₂ levels.

Diffusion tubes can over or under read and the annual average obtained needs to be corrected to take account of laboratory bias thus improving accuracy. This can be done either by using a combined ‘national’ bias adjustment factor for the laboratory, or calculated from a co-location study with a continuous analyser carried out locally by the authority. For this reason diffusion tubes are co-located in triplicate alongside the automatic monitoring site in Woodbridge so that a local bias adjustment factor can be obtained for this location.

Information regarding the analytical laboratory, Quality Assurance/ Quality Control and bias adjustment factors are provided in Appendix A. Maps showing all diffusion tube sites are provided in Appendix B.

Table 2.2 Details of Non- Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
FLX 12 a,b,c	Felixstowe 12	Roadside	630363	234890	2.30	NO ₂	No	N	Y (0m)	5m	Yes
FLX 14	Felixstowe 14	Industrial Site	628604	232847	2.00	NO ₂	No	N	Y (0m)	n/a	No
FLX 17	Felixstowe 17	Roadside	628817	236323	2.00	NO ₂	No	N	Y (0m)	31m	Yes
FLX 20	Felixstowe 20	Industrial / Roadside	628669	233979	2.00	NO ₂	No	N	Y (10m)	54m	Yes
FLX 21	Felixstowe 21	Urban Background	629253	234431	2.30	NO ₂	No	N	N	n/a	n/a
FLX 22	Felixstowe 22	Industrial	629172	233446	1.80	NO ₂	No	N	Y (0m)	n/a	Yes
FLX 23	Felixstowe 23	Roadside	628542	236592	2.00	NO ₂	No	N	Y (0m)	25m	Yes
FLX 24	Felixstowe 24	Roadside	628358	234634	2.50	NO ₂	No	N	Y (2.5m)	32m	Yes
FLX 26 a,b,c	Felixstowe 26	Industrial / Roadside	627959	234246	3.40	NO ₂	Yes	N	Y (0m)	75m from roundabout	Yes
FLX 27 a,b,c	Felixstowe 27	Industrial / Roadside	627960	234238	2.80	NO ₂	Yes	N	Y (0m)	75m from roundabout	No
FLX 29	Felixstowe 29	Industrial	628712	232892	2.00	NO ₂	No	N	Y (0m)	n/a	No
FLX 31 a,b,c	Felixstowe 31	Industrial	628640	232795	2.00	NO ₂	No	N	Y (0m)	n/a	Yes
FLX 32 a,b,c	Felixstowe 32	Industrial	627971	234242	2.00	NO ₂	Yes	N	Y	75m from roundabout	No
FLX 33	Felixstowe 33	Roadside	627884	234238	1.74	NO ₂	No	N	N	5m from roundabout	n/a
FLX 34	Felixstowe 34	Industrial / Roadside	627934	234257	1.93	NO ₂	No	N	N	25m from roundabout	n/a
FLX 35	Felixstowe 35	Industrial / Roadside	627959	234258	1.82	NO ₂	Yes	N	N	77m from roundabout	No
FLX 36	Felixstowe 36	Industrial / Roadside	627989	234279	1.90	NO ₂	No	N	N	110m from roundabout	n/a
FLX 37	Felixstowe 37	Industrial / Roadside	628012	234272	1.66	NO ₂	No	N	N	133m from roundabout	n/a

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
FLX 38	Felixstowe 38	Industrial / Roadside	628130	234280	1.65	NO ₂	No	N	N	220m from roundabout	n/a
FLX 39	Felixstowe 39	Roadside	628760	236071	1.60	NO ₂	No	N	Y (0m)	11m	Yes
MEL 5	Melton 5	Roadside	628614	250417	1.90	NO ₂	No	N	Y (1m)	3.6m	Yes
KSG 9	Kesgrave 9	Roadside	621680	245796	1.90	NO ₂	No	N	Y (27m)	2.6m	Yes
WBG 1 a,b,c	Woodbridge 1	Kerbside	627596	249261	2.35	NO ₂	Yes	Y	Y (0m)	1.3m	Yes
WBG 3	Woodbridge 3	Urban Background	626997	248488	1.90	NO ₂	No	N	N	1.5m	n/a
WBG 5	Woodbridge 5	Roadside	627604	249243	2.30	NO ₂	No	N	Y (0m)	2.5m	Yes
WBG 6	Woodbridge 6	Roadside	627593	249255	2.20	NO ₂	Yes	N	Y (0m)	2m	Yes
WBG 8	Woodbridge 8	Roadside	627601	249283	2.35	NO ₂	Yes	N	Y (0m)	3m	Yes
WBG 10	Woodbridge 10	Roadside	627570	249240	2.10	NO ₂	No	N	Y (1m)	2m	Yes
WBG 12	Woodbridge 12	Roadside	627664	249203	1.80	NO ₂	No	N	Y (0m)	5m	Yes
WBG 13	Woodbridge 13	Roadside	627585	249239	1.90	NO ₂	No	N	Y (5m)	2.5m	Yes
WBG 15	Woodbridge 15	Roadside	627590	249249	2.50	NO ₂	Yes	N	Y (0m)	2m	Yes
WBG 17	Woodbridge 17	Roadside	627614	249271	1.85	NO ₂	No	N	Y (0m)	7m	Yes
WBG 18	Woodbridge 18	Roadside	627627	249339	2.15	NO ₂	Yes	N	Y (0m)	1.5m	Yes
WBG 20	Woodbridge 20	Roadside	627604	249295	1.5	NO ₂	No	N	Y (0m)	1.5m	Yes
WBG 22	Woodbridge 22	Roadside	627633	249233	2.15	NO ₂	No	N	Y (0m)	8	Yes
WBG 23	Woodbridge 23	Kerbside	627562	249235	2.10	NO ₂	No	N	Y (1m)	1	Yes

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
MRT 1 a,b,c	Martlesham 1	Roadside	624633	245447	1.65	NO ₂	No	N	Y (0m)	21	Yes

LGM 1 a,b,c	Little Glemham 1	Roadside	634203	258820	1.45	NO ₂	No	N	Y (0m)	19	Yes
FAR 1 a,b,c	Farnham 1	Roadside	636273	260134	1.75	NO ₂	No	N	Y (0m)	3	Yes
FAR 2 a,b,c	Farnham 2	Roadside	636274	260120	1.90	NO ₂	No	N	Y (0m)	2	Yes
STA 1 a,b,c	Stratford St. Andrew 1	Roadside	635753	260002	1.60	NO ₂	No	N	Y (0m)	2	Yes
STA 2	Stratford St. Andrew 2	Roadside	635732	259995	1.80	NO ₂	No	N	N	1.7	Yes
STA 4	Stratford St. Andrew 4	Roadside	635878	260117	1.80	NO ₂	No	N	N	3.8	Yes
STA 6	Stratford St. Andrew 6	Roadside	635794	260042	1.30	NO ₂	No	N	Y (0m)	7	Yes
STA 7	Stratford St Andrew 7	Roadside	635736	259984	1.65	NO ₂	No	N	Y (14m)	1.9	Yes

2.2 Comparison of Monitoring Results with Air Quality Objectives

Within the Suffolk Coastal district in 2013 monitoring was undertaken for nitrogen dioxide using both an automatic analyser and diffusion tubes. No other pollutants were monitored.

2.2.1 Nitrogen Dioxide (NO₂)

Automatic Monitoring Data

A summary of the results of automatic monitoring of NO₂ at the Woodbridge Junction can be seen in tables 2.3 and 2.4. Table 2.3 presents results comparable with the annual mean Objective of 40µg/m³, and Table 2.4 presents results comparable with the 1-hour mean Objective of 200µg/m³. In addition to the most recent monitoring, results for 2009, 2010, 2011 & 2012 have also been included in the tables for comparison purposes. Detailed summary tables and graphs of the 2013 monitoring results are presented in Appendix C.

The automatic analyser at Woodbridge is sited within a declared Air Quality Management Area (AQMA) and shows that the annual mean concentration, at 42µg/m³, is still above the Air Quality Objective (Table 2.3).

Table 2.3 shows that the annual mean concentration has fluctuated in the period 2009 to 2013 between 44/45µg/m³ and 42µg/m³. These fluctuations do not appear to correspond with any particular Action Plan measures implemented. More detailed discussion regarding the trends in NO₂ levels seen at the junction and the Action Plan implementation can be seen in Section 9 of this report.

The 1-hour mean Objective is set at 200µg/m³ not to be exceeded more than 18 times per year. The limit of 200µg/m³ was not exceeded in 2013 (see Table 2.4). The maximum number of exceedences of the 1-hour mean Objective has been steady between 2009 and 2013 with a maximum of 1 exceedence in any year.

Table 2.3 Results of Automatic Monitoring for NO₂: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % ^a	Valid Data Capture 2013 % ^b	Annual Mean Concentration (µg/m ³)				
					2009 ^c	2010 ^c	2011 ^c	2012 ^c	2013 ^c
Woodbridge	Kerbside	Yes	97.3%	97.3%	45	45	42	44	42

In bold, exceedence of the relevant NO₂ objective (annual mean AQS objective of 40 µg/m³ and 1-hour mean AQS objective of 200 µg/m³)

^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\(09\) \(http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38\)](http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), if valid data capture is less than 75%

^d If the data capture for full calendar year is less than 90%, include the 99.8th percentile of hourly means in brackets

Table 2.4 Results of Automatic Monitoring for NO₂: Comparison with 1-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % ^a	Valid Data Capture 2013 % ^b	Number of Hourly Means > 200µg/m ³				
					2009 ^d	2010 ^d	2011 ^d	2012 ^d	2013 ^d
Woodbridge	Kerbside	Yes	97.3%	97.3%	1	0	0	1	0

Diffusion Tube Monitoring Data

A summary of the results of diffusion tube monitoring for NO₂ at sites within the district can be seen in Table 2.5 overleaf. Detailed tables showing the monthly monitoring results for all sites in 2013 are presented in Appendix D.

The annual mean NO₂ concentrations shown in Table 2.5 have had a bias adjustment factor applied. The choice of bias adjustment factor is explained in Appendix A and the bias adjustment factor used at each site is presented in Appendix D.

Some diffusion tube sites failed to achieve full data capture, mainly due to stolen tubes. Where there was less than 90% data capture for the year (because two or more diffusion tube results were missing or invalid), the mean of the 2012 data has been “annualised” using the procedure set out in LAQM.TG(09) to produce the best estimate of the annual mean. The method is as follows:

- Identify 2-4 nearby, long term, continuous monitoring sites, ideally those forming part of the national network. These should be background sites to avoid any very local effects that may occur, and should wherever possible lie within a radius of about 50 miles. The two sites used here are St. Osyth (Rural) and Wicken Fen (Rural). Both sites are part of the UK Automatic Urban and Rural Network (AURN).
- Obtain the unadjusted (not corrected for bias) annual mean (Am) for the calendar year for these sites. As this calculation is to estimate the annual mean for a diffusion tube site, the diffusion tube calendar year for 2013 was based on the diffusion tube exposure periods rather than 1st Jan – 31st Dec 2013.
- Work out the period mean (Pm) for the period of interest with diffusion tube results at each of the comparison sites separately.
- All data is presented in Appendix C.
- Calculate the ratio of the annual mean to the period mean (Am:Pm) for each period at each location.
- Calculate the average of these ratios (R_a). This is the adjustment factor.
- Multiply the measured period mean (M) for the short term monitoring location by the adjustment factor (R_a) to give the estimate of the annual mean for 2013.

FLX 39: the (unadjusted) measured period mean (M) was 39.0 µg/m³:
39.0 µg/m³ (M) x 0.86 (R_a) = **33.5 µg/m³ (annualised mean)**

WBG 8: the (unadjusted) measured period mean (M) was 32.2 µg/m³:
32.2 µg/m³ (M) x 0.81 (R_a) = **26.1 µg/m³ (annualised mean)**

- This annualised mean will then be bias adjusted as for all other sites.

Table 2.5 Results of NO₂ Diffusion Tubes 2013

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months or %) ^a	2013 Annual Mean Concentration (µg/m ³) Bias Adjustment factors: Woodbridge: 0.89 All other sites: 0.81 ^b
FLX 12	Hamilton Rd	Roadside	N	Triplicate	12	28
FLX 14	1 Adastral Close	Industrial	N	~	12	25
FLX 17	Spriteshall Lane	Roadside	N	~	12	25
FLX 20	Glemsford Close	Industrial / Roadside	N	~	12	22
FLX 21	Kingsfleet Road	Urban Background	N	~	12	22
FLX 22	Levington Road	Industrial	N	~	12	22
FLX 23	Heathgate Piece, Trimely	Roadside	N	~	12	28
FLX 24	Brandon Road	Roadside	N	~	12	28
FLX 26 a,b,c	The Dooley Inn (front), Ferry Road	Industrial / Roadside	Y	Triplicate	12	37
FLX 27 a,b,c	The Dooley Inn (side), Ferry Road	Industrial / Roadside	Y	Triplicate	12	32
FLX 29	18 Adastral Close	Industrial	N	~	12	22
FLX 31 a,b,c	44 Adastral Close	Industrial	N	Triplicate	12	25
FLX 32a,b,c	Dooley Inn (rear), Ferry Lane	Industrial	Y	Triplicate	12	32
FLX 33	Dock Gate 2 Roundabout	Roadside	N	~	12	58
FLX 34	Ferry Lane towards roundabout	Industrial / Roadside	Y	~	12	42
FLX 35	Dooley Inn (signpost) Ferry Lane.	Industrial / Roadside	N	~	12	41
FLX 36	Street Sign Hodgkinson Road.	Industrial / Roadside	N	~	12	36
FLX 37	Lampost, corner of Hodgkinson Rd.	Industrial / Roadside	N	~	12	41
FLX 38	Lampost on Ferry Lane, past PH	Industrial / Roadside	N	~	12	32
FLX 39	424 High Road, Trimley	Roadside	N	~	10	21
KSG 9	118 Main Road	Roadside	N	~	12	28
WBG 1 a,b,c	93 Thoroughfare	Kerbside	Y	Triplicate + Co-located	12	41
WBG 3	8 Kingston Farm Road	Urban Background	N	~	12	14
WBG 5	Suffolk Place, Lime Kiln Quay Rd	Roadside	N	~	12	26
WBG 6	87 Thoroughfare	Roadside	Y	~	12	38
WBG 8	95 Thoroughfare	Roadside	Y	~	10	30

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months or %) ^a	2013 Annual Mean Concentration ($\mu\text{g}/\text{m}^3$) Bias Adjustment factors: Woodbridge: 0.89 All other sites: 0.81 ^b
WBG 10	St John's Street signpost	Roadside	N	~	12	30
WBG 12	8 Lime Kiln Quay Road	Roadside	N	~	12	23
WBG 13	Traffic lights at 85 Thoroughfare	Roadside	N	~	12	35
WBG 15	87 Thoroughfare	Roadside	Y	~	12	41
WBG 17	Suffolk Place, Lime Kiln Quay Rd	Roadside	N	~	12	27
WBG 18	106/108 Thoroughfare	Roadside	Y	~	12	35
WBG 20	97 Thoroughfare	Roadside	N	~	12	31
WBG 22	Suffolk Place, Lime Kiln Quay Rd	Roadside	N	~	12	22
WBG 23	Lamppost at 50 St. John's Street	Kerbside	N	~	12	25
MEL 5	6 The Street	Roadside	N	~	12	29
MRT 1 a,b,c	Horseman Court, Eagle Way	Roadside	N	Triplicate	12	21
LGM 1 a,b,c	Pear Tree House, Main Rd, Glemham	Roadside	N	Triplicate	12	15
FAR 1 a,b,c	Turret House, The Street, Farnham	Roadside	N	Triplicate	12	29
FAR 2 a,b,c	Post Office Stores, The Street, Farnham,	Roadside	N	Triplicate	12	31
STA 1 a,b,c	Long Row, Main Road, Stratford	Roadside	N	Triplicate	12	41
STA 2	Road sign opposite Long Row, Main Road, Stratford	Roadside	Y	~	12	27
STA 4	Lowestoft Street Sign bend, Main Road, Stratford	Roadside	N	~	11	17
STA 6	Jacobs Cottage, Main Road Stratford	Roadside	N	~	11	24
STA 7	30mph sign past 5 Long Row, Main Road, Stratford	Roadside	N	~	11	34

In bold and shaded grey, exceedence of the NO₂ annual mean AQS objective of 40 $\mu\text{g}/\text{m}^3$

Underlined, annual mean > 60 $\mu\text{g}/\text{m}^3$, indicating a potential exceedence of the NO₂ hourly mean AQS objective

^a Means should be "annualised" [as in Box 3.2 of TG\(09\)](http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38) (<http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38>), if full calendar year data capture is less than 75%

^b If an exceedence is measured at a monitoring site not representative of public exposure, NO₂ concentration at the nearest relevant exposure should be estimated based on the "[NO₂ fall-off with distance](http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html)" calculator (<http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html>), and results should be discussed in a specific section. The procedure is also explained [in Box 2.3 of Technical Guidance LAQM.TG\(09\)](http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=30) (<http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=30>).

After annualisation (where applicable) and bias adjustment, 7 sites had annual mean NO₂ concentrations above the Objective of 40µg/m³ in 2013 and two sites were borderline (any site above 36µg/m³), these were:

- FLX 26 – The Dooley Inn (front) , Ferry Road – within the declared AQMA **(borderline result – 37µg/m³)**
- FLX 33 - lamppost at Dock Gate 2 Roundabout - **not a relevant receptor.**
- FLX 34 – lamppost in Ferry Lane, midway between roundabout and Dooley Inn PH - **not a relevant receptor.**
- FLX 35 - The Dooley Inn Signpost at front of building, Ferry Lane – **not a relevant receptor.**
- FLX 37 - lamppost in Ferry Lane on corner of Hodgkinson Road - **not a relevant receptor.**
- WBG 1 - 93 Thoroughfare, Woodbridge - co-located with the Woodbridge automatic monitoring site and within the declared AQMA.
- WBG 6 – 87 Thoroughfare, Woodbridge (end of house) **(borderline result – 38µg/m³)**
- WBG 15 – top guttering of 87 Thoroughfare, Woodbridge (middle of house)
- STA 1 - 1 Long Row, Main Road, Stratford St. Andrew.

Felixstowe

All sites within the AQMA declared at Felixstowe - Felixstowe 26, 27 and 32 are now within the Air Quality Objective – at 37µg/m³, 32µg/m³ and 32µg/m³ respectively. Felixstowe 26 is the site recording the highest annual mean at 37µg/m³ and this is classed as a borderline site as it is near to the Objective limit.

The four other sites at Felixstowe which are above the Objective level (Felixstowe 33, 34, 35 and 37) are not situated at relevant receptors. These sites are located to help ascertain NO₂ levels around the declared AQMA at the Dooley Inn PH; whether the local road network (Ferry Lane and Hodgkinson Road) is producing more emissions than originally estimated, and whether there is a gradient from Dock Gate 2 roundabout up to The Dooley Inn. For this reason the NO₂ fall-off with distance calculator has not been used for these sites as they were not located to represent receptor locations.

Further discussions regarding the Felixstowe AQMA and the 2013 monitoring results can be seen in Section 10 of this report.

Woodbridge

The Woodbridge sites (1, 6 and 15) are all within the declared AQMA. The monitoring results for 2012 were generally higher and showed Woodbridge 6 and 8 to also be above the Objectives but these have now decreased. This is the first year that Woodbridge 15 has exceeded the Objective. Further discussions regarding the Woodbridge AQMA and the 2013 monitoring results can be seen in Section 9 of this report.

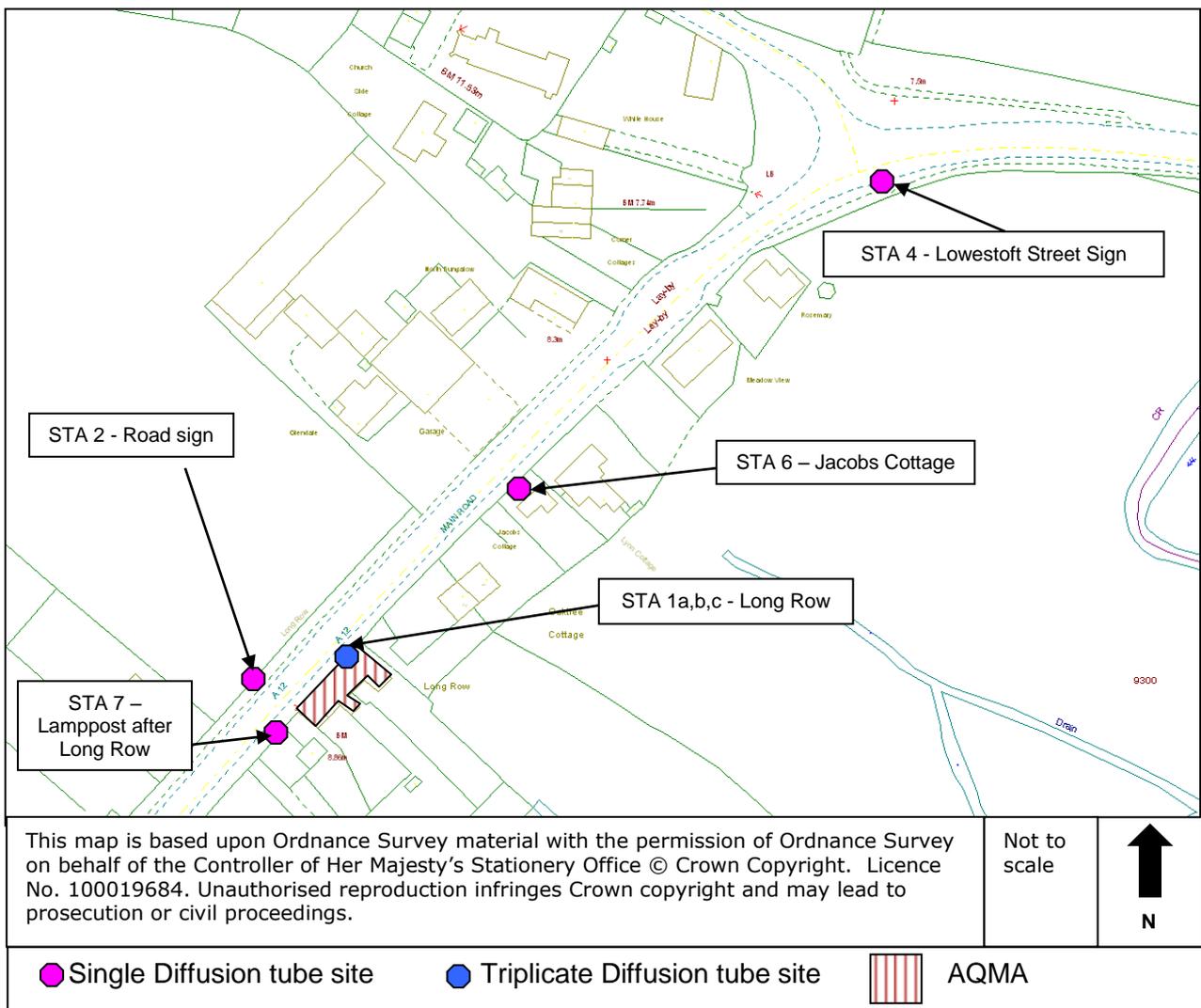
Stratford St. Andrew

The Stratford St Andrew site (STA 1), at 41µg/m³, shows a reduction from the previous levels of 42-43 µg/m³ seen in 2011 and 2012. All other sites are within the Objective level. Following approval by Defra, an AQMA Order was made on 18th

June 2014 for the 4 properties at 1-5 Long Row, Main Road, Stratford St Andrew. The location of the AQMA is shown in Figure 2.2 below and a copy of the Order can be seen in Appendix E.

Further discussions regarding the Stratford St Andrew AQMA and the 2013 monitoring results can be seen in Section 11 of this report.

Figure 2.2 Main Road, Stratford St Andrew showing the location of the AQMA and diffusion tube monitoring points



Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites

In addition to the most recent monitoring, historic diffusion tube results for 2009 to 2013 at all sites are presented in Table 2.6 overleaf for comparison purposes. For each of the 5 years presented the relevant different bias correction factors have been used and described.

Trend graphs have also been drawn, see Figures 2.3a -2.3c, showing annual mean NO₂ trends over time for diffusion tube sites with five or more years worth of data in the district. For more recent years, where local bias correction factors were available for Woodbridge and Felixstowe, these have been used for diffusion tubes in those particular areas. The national laboratory bias has been used for all other sites. For all other years the national laboratory bias has been used for all locations.

Each of the areas monitored (Felixstowe, Kesgrave, Woodbridge, Melton, Martlesham and the A12 villages) are very different. The majority of the Felixstowe sites are in place to measure concentrations around and associated with the Port of Felixstowe including both road traffic and other Port emissions. Kesgrave, Woodbridge and Melton are all at road junctions controlled by traffic lights, but again each is very different in terms of layout and the amount of congestion experienced. The sites at Kesgrave and Woodbridge are much more enclosed than that at Melton. The Martlesham site is set back from the A12 near to one of its roundabouts. The villages along the A12 have free flowing traffic with houses very close to the kerbside in places. The sites at Woodbridge and Felixstowe also have AQMAs and Action Plans in place which will be working towards trying to reduce concentrations in these areas.

The trend graphs show that, over the longer term, concentrations recorded in Felixstowe, Kesgrave, Woodbridge (sites outside the AQMA), and Melton have decreased over time, obviously with some fluctuations over the time period. Concentrations recorded at sites in the Woodbridge AQMA have fluctuated over the time period.

In **Felixstowe** (Figure 2.3a), the Urban Background site has fluctuated slightly between 2005 and 2013 with the overall trend being a reduction in levels. This trend is also seen in all of the other Felixstowe sites. All sites at Adastral Close, which is near to the Port boundary, have shown a steady reduction over time suggesting that emissions on and associated with the Port have also reduced. The only site with an unusual peak is that of Hamilton Road in 2009, the reason for this is thought to be roadworks that occurred throughout most of that year causing congestion at the monitoring site. More detailed discussions regarding the more recent trends seen at sites associated with the AQMA are presented in Section 10 of this report.

In **Woodbridge** (Figure 2.3b), the Urban Background site has fluctuated slightly but remained fairly steady between 2000-2013 with an overall reduction. The majority of sites outside of the AQMA have shown a reduction in levels over the monitoring period. WBG 13 and 15 within the AQMA have increased over the time period but only slightly. More detailed discussions regarding the more recent trends seen in Woodbridge are presented in Section 9 of this report.

Trends over time for both **Melton** and **Kesgrave** (Figure 2.3c) are much more stable, both showing an overall slight decrease over time. Melton shows a steady increase in concentrations in recent years (2009-2012) but the latest level for 2013 has now decreased, all levels are still well within the Objectives.

The monitoring site at **Martlesham** has been in place for 5 years and results are presented in Table 2.6 overleaf. These show low, steady levels well below the Objectives, which have decreased in the last 2 years.

Half of the monitoring sites along the **A12 villages** have been in place for only 3 years and the results are presented in Table 2.6. All sites show slight fluctuations with the overall trend being a slight reduction in concentrations. More detailed discussions regarding the trend seen at the AQMA site are presented in Section 11 of this report.

Summary of Compliance with AQS Objectives

Suffolk Coastal District Council has examined the results from monitoring in the district.

Concentrations within the AQMA in Woodbridge still exceed the annual mean objective for NO₂ at a number of sites and the AQMA should remain.

Concentrations within the AQMA in Felixstowe no longer exceed the annual mean objective for NO₂ in 2012 and 2013. The AQMA is retained at present and monitoring will continue in order to allow us to confirm whether revocation is required in the future.

Concentrations within the new AQMA at Stratford St Andrew have decreased over time but are still slightly above the Objective level. A Further Assessment and Action Plan will be completed for this AQMA.

Table 2.6 Results of NO₂ Diffusion Tubes (2008 to 2013)

Site ID	Site Type	Within AQMA?	Annual Mean Concentration ($\mu\text{g}/\text{m}^3$) - Adjusted for Bias ^a				
			2009 Bias Adjustment Factors Woodbridge: 0.82 All others: 0.9	2010 Bias Adjustment Factors Woodbridge: 0.89 All others: 0.85	2011 Bias Adjustment Factors Woodbridge: 0.84 All others: 0.84	2012 Bias Adjustment Factors Woodbridge: 0.88 All others: 0.79	2013 Bias Adjustment Factors Woodbridge: 0.89 All others: 0.81
FLX 12 a,b,c	Roadside	N	38	31	33	30	28
FLX 14	Industrial Site	N	28	27	25	25	25
FLX 17	Roadside	N	27	26	28	24	25
FLX 20	Industrial / Roadside	N	29	24	26	23	22
FLX 21	Urban Background	N	24	24	25	22	22
FLX 22	Industrial	N	25	25	25	23	22
FLX 23	Roadside	N	29	31	29	26	28
FLX 24	Roadside	N	31	31	31	28	28
FLX 26 a,b,c	Industrial / Roadside	Y	45	43	40	36	37
FLX 27 a,b,c	Industrial / Roadside	Y	38	33	36	33	32
FLX 29	Industrial	N	27	27	25	23	22
FLX 31 a,b,c	Industrial	N	28	30	27	26	25
FLX 32a,b,c	Industrial	Y	25	~	37	34	32
FLX 33	Roadside	N	~	~	66	60	58
FLX 34	Industrial / Roadside	Y	~	~	51	46	42
FLX 35	Industrial / Roadside	N	~	~	48	44	41
FLX 36	Industrial / Roadside	N	~	~	41	37	36
FLX 37	Industrial / Roadside	N	~	~	48	43	41
FLX 38	Industrial / Roadside	N	~	~	39	34	32
FLX 39	Roadside	N	~	~	~	~	21
KSG 9	Roadside	N	33	29	34	31	28
WBG 1 a,b,c	Roadside	Y	45	42	42	44	41
WBG 3	Kerbside	N	15	18	16	15	14
WBG 5	Roadside	N	28	29	25	26	26
WBG 6	Roadside	Y	41	41	37	40	38

Site ID	Site Type	Within AQMA?	Annual Mean Concentration ($\mu\text{g}/\text{m}^3$) - Adjusted for Bias ^a				
			2009 Bias Adjustment Factors Woodbridge: 0.82 All others: 0.9	2010 Bias Adjustment Factors Woodbridge: 0.89 All others: 0.85	2011 Bias Adjustment Factors Woodbridge: 0.84 All others: 0.84	2012 Bias Adjustment Factors Woodbridge: 0.88 All others: 0.79	2013 Bias Adjustment Factors Woodbridge: 0.89 All others: 0.81
WBG 8	Roadside	Y	42	41	38	43	30
WBG 10	Roadside	N	34	34	31	31	30
WBG 12	Roadside	N	26	26	24	25	23
WBG 13	Roadside	N	34	36	33	36	35
WBG 15	Roadside	Y	38	38	39	42	41
WBG 17	Roadside	N	31	30	28	28	27
WBG 18	Roadside	Y	38	38	32	34	35
WBG 20	Roadside	Y	38	43	~	~	31
WBG 22	Roadside	N	24	23	21	22	22
WBG 23	Kerbside	N	29	27	28	26	25
MEL 5	Roadside	N	24	28	31	31	29
MRT 1 a,b,c	Roadside	N	24	24	24	21	21
LGM 1 a,b,c	Roadside	N	~	~	17	14	15
FAR 1 a,b,c	Roadside	N	~	~	29	26	29
FAR 2 a,b,c	Roadside	N	~	~	33	31	31
STA 1 a,b,c	Roadside	N	~	~	43	42	41
STA 2	Roadside	Y	~	~	~	~	27
STA 4	Roadside	N	~	~	~	~	17
STA 6	Roadside	N	~	~	~	~	24
STA 7	Roadside	N	~	~	~	~	34

In bold and shaded grey, exceedence of the NO₂ annual mean AQS objective of 40 $\mu\text{g}/\text{m}^3$

Underlined, annual mean > 60 $\mu\text{g}/\text{m}^3$, indicating a potential exceedence of the NO₂ hourly mean AQS objective

^a Means should be "annualised" [as in Box 3.2 of TG\(09\) \(http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38\)](http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), if full calendar year data capture is less than 75%

Figure 2.3a - Felixstowe

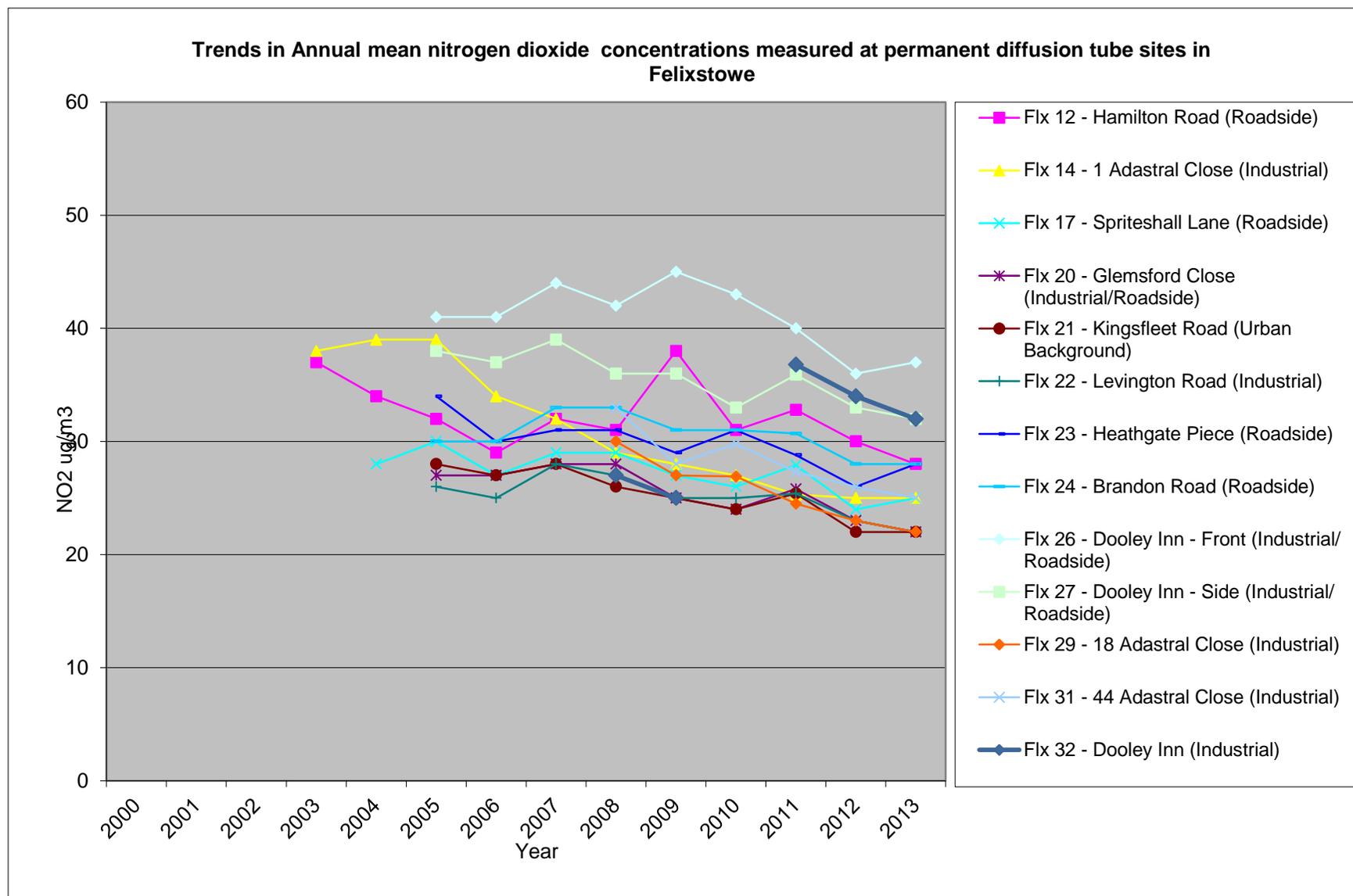


Figure 2.3b – Woodbridge

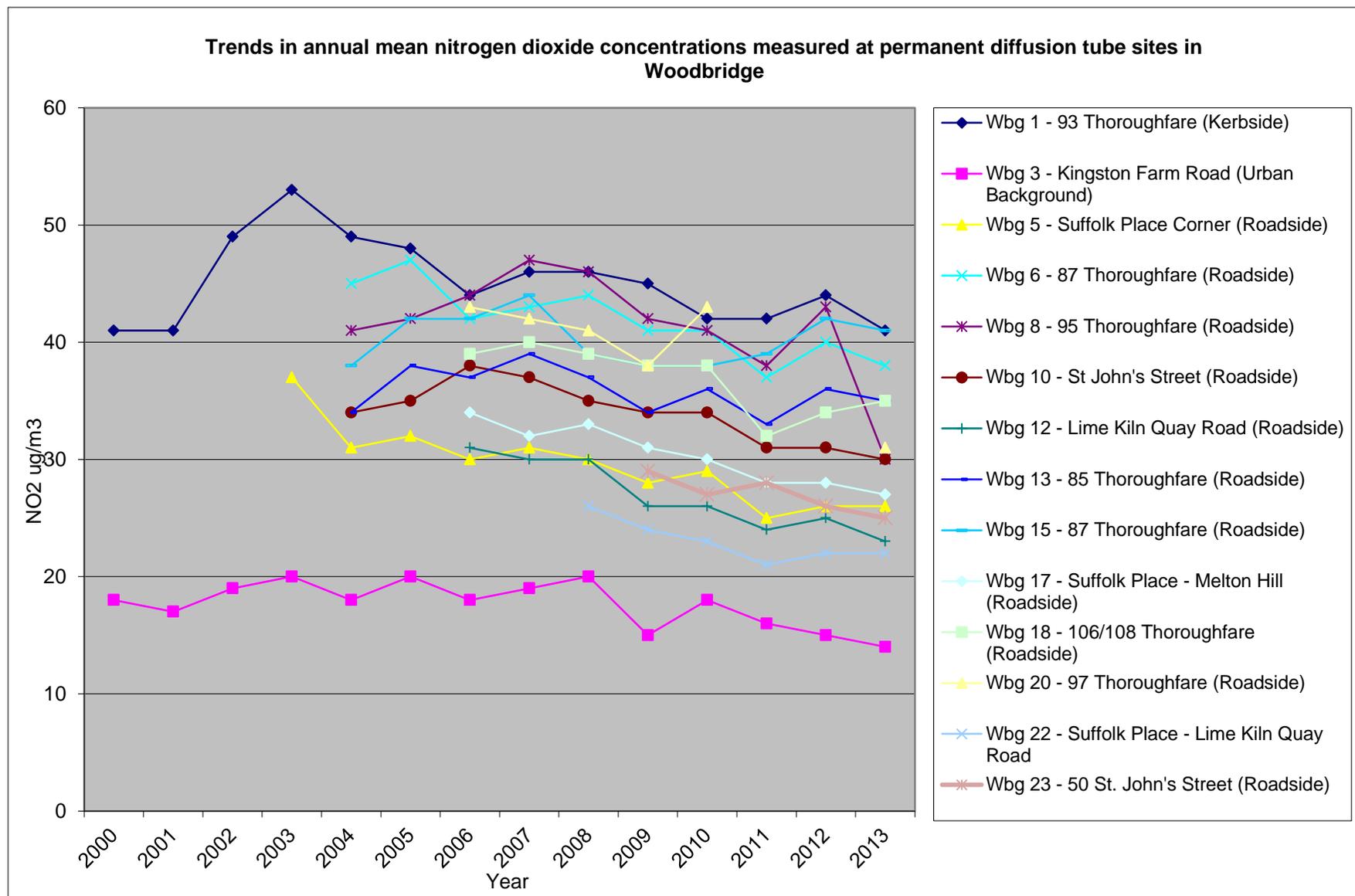
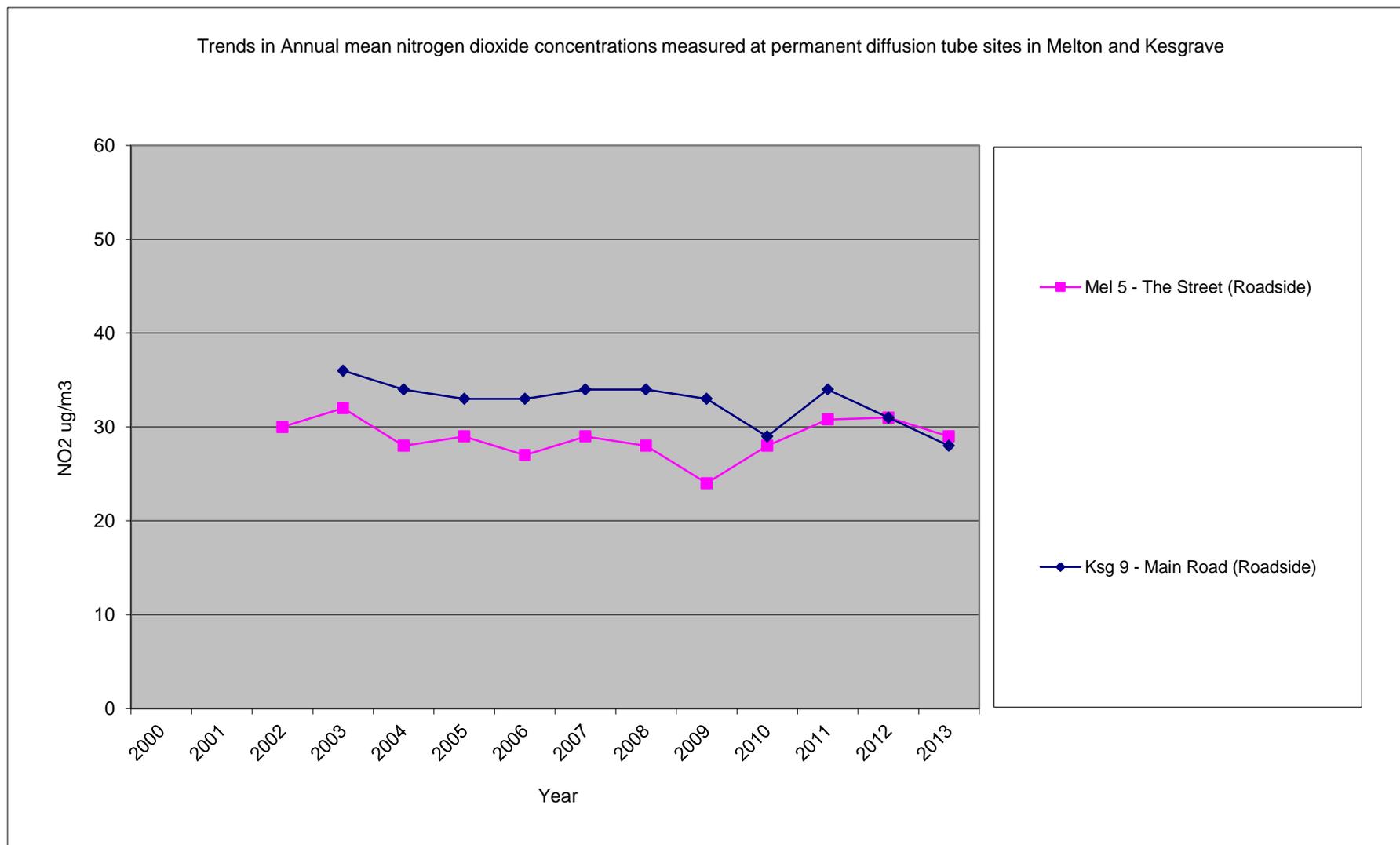


Figure 2.3c – Melton and Kesgrave



3 New Local Developments

Any new local developments, since the 2012 Updating and Screening Assessment Report, that may affect air quality within the Suffolk Coastal district are listed in this report so that they can be considered in more detail during the next full round of review and assessment. This includes developments that are now in operation or have been granted planning permission to be brought into operation in the near future.

3.1 Road Traffic Sources

Any new / newly identified road traffic sources within the Suffolk Coastal district since the 2012 Updating and Screening Assessment must be identified, this includes;

- Narrow congested streets with residential properties close to the kerb.
- Busy streets where people may spend one hour or more close to traffic.
- Roads with a high flow of buses and/or HGVs.
- Junctions.
- New roads constructed or proposed since the last Updating and Screening Assessment.
- Roads with significantly changed traffic flows.
- Bus or coach stations.

There are no new / newly identified road traffic sources within the Suffolk Coastal district since the 2012 Updating and Screening Assessment.

3.2 Other Transport Sources

Any new / newly identified transport sources within the Suffolk Coastal district since the 2012 Updating and Screening Assessment must be identified, this includes;

- Airports.
- Locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.
- Locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.
- Ports for shipping.

There are no new / newly identified transport sources within the Suffolk Coastal district since the 2012 Updating and Screening Assessment.

3.3 Industrial Sources

Any new / newly identified industrial sources within the Suffolk Coastal district since the 2012 Updating and Screening Assessment must be identified, this includes;

- **Industrial installations:** new or proposed installations for which an air quality assessment has been carried out.
- **Industrial installations:** existing installations where emissions have increased substantially (greater than 30%) or new relevant exposure has been introduced.
- **Industrial installations:** new or significantly changed installations with no previous air quality assessment.
- Major fuel storage depots storing petrol.
- Petrol stations.
- Poultry farms.

3.3.1 New Installations

Appendix F shows a list of all industrial processes within the district permitted under the Environmental Permitting Regulations 2010 by Suffolk Coastal District Council and the Environment Agency. Since the 2013 Progress Report, there have been 2 new industrial installations permitted by the Environment Agency for a Waste Management License, these are listed below:

- DJ Spall Recycling Ltd., Dallinghoo Garage, Woodbridge IP13 0LA
Disposal of Waste – end of life vehicles

This installation is a scrap yard dealing with end of life vehicles. This process does not emit significant quantities of any of the pollutants of concern. **No further assessment is required.**

- Tamar Composting (East Anglia) Ltd., Parham recycling Centre, Parham, Woodbridge IP13 9AF
Disposal of Waste – In vessel composting

This installation is a composting centre. This process does not emit significant quantities of any of the pollutants of concern. **No further assessment is required.**

3.3.2 Industrial Installations with substantially increased emissions

Appendix F shows a list of all industrial processes within the district permitted under the Environmental Permitting Regulations 2010 by Suffolk Coastal District Council and the Environment Agency. Within the Suffolk Coastal district there are two existing industrial installations, permitted under the Environmental Permitting Regulations 2010, with the potential to emit significant quantities PM₁₀ or NO₂;

- Eurovia Limited (previously Ringway Infrastructure Services), Foxhall Four Quarry, Foxhall Road, Brightwell (PM₁₀)
- Novera Energy, Foxhall Generation Plant, Foxhall Landfill Site, Foxhall Road, Brightwell (NO₂)

LAQM.TG (09) advises that it should be determined whether any of the installations have either experienced substantially increased emissions (greater than 30%) or have received new relevant exposure in their vicinity since the last review and assessment.

None of the installations have received any new relevant exposure. Recent emission testing reports (2013/14) for the installations have been obtained for comparison with emissions recorded in 2012/13.

Eurovia Limited sited at Foxhall Four Quarry, Brightwell

Annual emissions of Total Particulate Matter - TPM (assumed to all be PM₁₀ for this assessment) recorded from the road stone coating plant at Eurovia Limited in the last 3 emission testing reports are detailed below:

May 2013	0.53 tonnes TPM per annum
December 2013	4.13 tonnes TPM per annum
June 2014	5.0 tonnes TPM per annum

The May 2013 figure was used in the 2013 Progress Report to review the emissions from this site and emissions therefore increased by 679% in December 2013 and 843% in June 2014.

LAQM.TG(09) provides a calculation method for PM₁₀ emissions, in the form of nomograms, to estimate the emission rate (in tonnes per annum) that would produce a 1 µg/m³ contribution to the 90th percentile of 24-hour mean concentrations (for assessment against the 2004 objective). If the actual emission rate from the installation exceeds these thresholds then it will be necessary to proceed to a Detailed Assessment.

The following information was obtained for the chimney at Eurovia Limited:

- Actual stack height = 16.5m
- Effective stack height (as situated in a quarry) = 16.5m minus 7m (height of quarry face) x 1.66 = 15.77m
- Exit temperature (June 2014) = 66°C
- Stack diameter = 0.9m x 0.65m (rectangular stack). Advice obtained from the Defra emissions helpdesk calculated the stack diameter as 0.86m.

As the exit temperature from the stack is less than 100°C and the effective stack height is greater than 10m, LAQM.TG(09) advises to use the nomogram in Figure 5.5 for the assessment (pg 5-34). Using this nomogram, the emission rate that would produce a 1 µg/m³ contribution to the 90th percentile of 24-hour mean concentrations would be 0.37 tonnes per annum.

LAQM.TG (09) advises that for PM₁₀ emissions the impact will be largely dependant on the background concentrations in the locality. A precautionary method of taking the background concentration into account is to multiply the allowed emission by 32 minus the background. This will give a background-adjusted permitted emission for the installation.

- Grid reference for site – (6)24 (2)43
- The estimated annual mean background PM₁₀ concentration for 2014 at this location is 18.1µg/m³.

This calculation can be undertaken using a screening tool provided by Defra for low temperature stacks (<100°C) with stack heights >10m. The calculator estimates that the background permitted emission for Eurovia Limited is 6.3 tonnes PM₁₀ per annum. As the rate of emission in June 2014 for the installation was lower than this at 5.0 tonnes per annum a **Detailed Assessment is not required**.

Novera Energy

This is permitted by the Environment Agency under the Environmental Permitting Regulations 2007 as a Combustion Activity (under Section 1.1A (1) (b) (iii) of the Regulations). An Air Quality Assessment was undertaken for this process prior to its installation, which predicted no exceedences of the objectives at relevant receptor locations. Annual emissions testing of the Landfill Engine was undertaken for 2013 which showed the annual NO₂ emissions to be 9.2 Tonnes (compared with 11.7 Tonnes in 2011 and 17.3 Tonnes in 2012). This is a decrease in emissions and therefore **no further investigation is necessary for this installation**.

3.4 Commercial and Domestic Sources

Consideration must be given to the use of biomass combustion in the commercial and domestic sectors, and to other solid-fuel combustion in domestic use. Biomass burning can lead to an increase in both PM₁₀ and NO_x emissions due to the process of combustion.

Any of the following, newly identified must be listed in this report:

- Biomass combustion plant – individual installations.
- Areas where the combined impact of several biomass combustion sources may be relevant.
- Areas where domestic solid fuel burning may be relevant.

Individual installations

Table 3.1 overleaf shows a list of all biomass installations within the district that we are aware of, whether they have been assessed and the outcome of the assessment. There are no new biomass installations within the district that we are aware of. We have commented on several planning applications for biomass boilers. Screening assessments have been undertaken for each to ensure that when they are commissioned they will not cause any exceedences of the Air Quality Objectives.

Combined impacts of biomass combustion sources

There is no new information which would require us to be concerned regarding any areas within the district. It is concluded that there are no areas within the district that would trigger a Detailed Assessment for combined impacts of biomass use.

Domestic solid fuel burning

There are no new areas within the district which would trigger a Detailed Assessment for domestic solid-fuel burning.

3.5 New Developments with Fugitive or Uncontrolled Sources

Dust emissions from a number of fugitive and uncontrolled sources can give rise to elevated PM₁₀ concentrations. These sources include, but are not limited to:

- Landfill sites
- Quarries
- Unmade haulage roads on industrial sites
- Waste transfer station etc
- Other potential sources of fugitive particulate emissions

There are no new locations with significant emissions and no areas where there is any new relevant exposure that we are aware of within the district.

Suffolk Coastal District 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.

Suffolk Coastal District Council confirms that all the following have been considered:

- **Road traffic sources**
- **Other transport sources**
- **Industrial sources**
- **Commercial and domestic sources**
- **New developments with fugitive or uncontrolled sources.**

Table 3.1 Biomass boilers within the Suffolk Coastal district and stage of assessment

Address of biomass boiler	Size of boiler (kW thermal)	Screening Assessment undertaken?	Further action required?	Detailed Assessment undertaken?	Further action required?
Private residence, Sibton	60 kW	Yes	No		
Private Farm, Alderton Road, Hollesley	60 kW	Yes	No		
Private Farm, Theberton	70 kW	Yes	No		
Control tower, Bentwaters Airfield, Rendlesham	60 kW	Yes	No		
Private residence, Orford	60 kW	Yes	No		
Suffolk Punch Trust, Hollesley	75 kW	Yes	No		
Private residence, Wenhaston	120 kW	Yes	No		
Private residence, Playford Road, Little Bealings	Unknown but small	Yes	No		
Private residence, Aldeburgh	75 kW	Yes	No		
Felixstowe Road, Purdis Farm – wood burning stove	Unknown	Yes	No		
Rendlesham County Primary School	115 kW	Yes	No		
Eyke County Primary School	120 kW	Yes	No		
Cookley & Walpole County Primary School	80 kW	Yes	No		
Knodishall Coldfair Green County Primary School	80 kW	Yes	No		
Hollesley County Primary School	95 kW	Yes	No		
GR Green Cricket Bats, Bromeswell	154 kW	Yes	No		
Snape Maltings, Tunstall	550 kW	Yes	Yes	Yes	No
Aldeburgh Productions music offices, Snape Maltings, Tunstall	60 kW	Yes	Yes	Yes	No
Heveningham Hall and estate buildings, Heveningham	900 kW	Yes	No		
L F Geater & Sons Limited, West End Nurseries, Westward Ho, Leiston	1.5 MW	Yes	Yes	Yes	No
SuperSIPS, Newbourne Business Park, Newbourne	150kW	Yes	No		

4 Local / Regional Air Quality Strategy

Suffolk Coastal District Council has not drawn up a local Air Quality Strategy at the present time. We have three AQMAs declared in the district for annual mean nitrogen dioxide, each due to very localised and different sources. Air quality in these three areas will be dealt with most effectively by the individual Action Plans prepared. The need for a strategy will be considered as part of our ongoing review of air quality.

5 Planning Applications

It is important that any new developments are logged in the Air Quality Progress Reports so that their progress through the planning system can be monitored and any potential impacts on air quality assessed.

There are **6 developments** which have been detailed within previous Air Quality Reports for which either the Planning Application has still yet to be determined or Planning Permission has been granted but works on site have not yet been completed. As details have been provided previously only basic information is included below. There are **5 more recent planning applications** which have not as yet been detailed in our air quality reports. These applications could impact on air quality and air quality assessments have been included / requested for them. Details on each are provided below:

The **6 developments** previously detailed:

Land at junction of Station Road and Wilford Bridge Road and Girdlestone Pumps, Station Road, Melton – Planning Application (C09/0584)

Erection of 10,735m² of light and general industrial use buildings. The application obtained Planning consent but works have not yet begun.

The application provided an Air Quality Assessment which concluded that air quality does not constitute a material consideration in the assessment of the planning application. These findings were accepted.

Felixstowe Academy, Maidstone Road, Felixstowe (C11/2590)

A new High School to be built on a site previously occupied by Orwell High School. The site is now completed and in use.

Air quality assessment of emissions from a Biomass Boiler and traffic were undertaken. They concluded that a 15m stack was required for the biomass boiler, and that predicted levels of NO₂ and PM₁₀ at nearby houses due to traffic emissions were well within the Air Quality Objectives and therefore not a cause for concern.

Land between Rendham Road and A12, Rendham Road, Saxmundham (Planning Applications C10/0294, C12/1123, C12/2289)

Consent granted for building total of 167 dwellings on former agricultural land on the western edge of Saxmundham.

An air quality assessment was undertaken for all 167 houses. It concluded that traffic associated with all of the proposed dwellings will not significantly contribute to the local air quality and the Air Quality Objectives are unlikely to be exceeded. The occupiers of the new dwellings are also unlikely to be adversely affected by air quality. The Air Quality Assessment was accepted. Work has started on the site and a handful of homes are now occupied.

Redevelopment of Adastral Park, Martlesham Heath (Planning Application C09/0555)

A revised outline planning application for the regeneration of Adastral Park and land to the east and south was submitted in April 2009. This includes refurbishment of Adastral Park and development of adjoining land for the creation of a new residential community with its own infrastructure, services and facilities.

An Environmental Impact Assessment Statement was submitted in 2010, including an Air Quality Assessment for the application. This identifies 5 sources of emissions that have the potential to influence air quality – construction dust and construction traffic emissions, additional traffic once site is operational, an energy centre and quarrying activities.

The conclusions of the Environmental Impact Assessment Statement with regard to air quality are summarised as follows:

- Construction activities - potential to cause dust emissions at nearby sensitive receptors. Measures for control of dust will be included within a Construction Environmental Management Plan to be submitted and agreed with SCDC prior to construction commencing.
- Additional traffic flows once operational - the development will have a negligible impact on ambient air quality.
- Negligible impacts from the introduction of new residential occupants in terms of exposure to poor air quality.
- 3 junctions on the A12 are to be signalised – air quality assessment shows negligible or slight beneficial impact on air quality.
- Combined Heat and Power and biomass boilers - inadequate information available to complete a Detailed Assessment. The impact will be assessed in detail at the detailed planning application stage.
- Some areas of the site may be utilised for sand and gravel extraction at the same time as the remainder of the site is developed - potential for high emissions of dust. A phased approach to the mineral extraction works and the proposed development, good site management and mitigation techniques will significantly reduce any impacts.

It was recommended that the application is not refused on the grounds of air quality. The applicants submitted further information and revised documentation including altered traffic predictions, this did not affect the original conclusions.

Details of the application can be viewed on the Council's website at www.suffolkcoastal.gov.uk/yourdistrict/planning/devcontrol/adastralpark/default.htm. This application has not yet been determined and no further information is available at this time.

Proposed food store, land between Garrison Lane and North and West of Felixstowe Town Station Railway Approach, Felixstowe (C12/2395)

Redevelopment of the former railway sidings and nursery land for a 2-level convenience goods foodstore with 300 parking spaces, associated landscaping, service, access and parking arrangements. Customer vehicular access from Railway Approach off High Road West with a second access point for servicing only from the Garrison Lane/High Road West/ junction.

An Air Quality Assessment was undertaken which concluded that construction dust could impact nearby properties but this can be managed and minimised, and once operational the predicted annual mean concentrations of nitrogen dioxide are well within the Air Quality Objective. These findings were accepted.

This application received Planning Consent but work has not yet begun on the site.

Outline Planning Application for residential development, public open space and associated infrastructure on 8.9ha, Trinity Park, Felixstowe Road, Ipswich (C12/1930)

300 dwellings with public open space and associated infrastructure, together with 2 roundabouts to serve Trinity Park on the A1156 Felixstowe Road.

An Air Quality Assessment was undertaken which concluded that dust from construction activities could impact on nearby properties – mitigation measures provided, emissions from construction traffic would be negligible, and traffic from the operational site would have a negligible effect. The findings were accepted.

The application obtained Planning Consent but work has not yet started on the site.

The 5 more recent planning applications:

Outline Planning permission for up to 200 dwellings on land West of Ferry Road Residential Centre, Ferry Road, Felixstowe Suffolk (C13/3069)

Outline planning permission for the creation of up to 200 dwellings, two vehicle access points on Ferry Road and associated landscaping buffers and public open space.

An air quality statement was provided for this development confirming that it would not impact on any nearby roads where the traffic flows were over 10,000 vehicles per day. The Environmental Protection UK guidance in these circumstances are that traffic from the site would not cause the potential for pollutant concentrations at receptors to cause exceedences of the Objectives. No further air quality assessment was therefore required for this application.

This application has not yet been determined.

Land at Clickett Hill Road and South of Railway Line Nicholas Road Trimley St Mary - High bay distribution unit with a footprint of c. 47,000m², including car parking and associated infrastructure (DC/13/3656/FUL)

Distribution Centre taking bulk containerised goods from the Port of Felixstowe and reprocessing them for onward distribution. Onward distribution will be via container back to the Port or onto a Heavy Goods Vehicle (HGV) for onward road distribution. 369 car parking spaces and 168 spaces for HGV parking together with 80 loading bays for the warehouse itself. Will operate 24 hours a day.

An Air Quality assessment was submitted which modelled air quality at receptor locations on the road network including the declared Air Quality Management Area at

The Dooley Inn PH, Ferry Lane, Felixstowe. The conclusions of the assessment were that there would be no significant air quality impact on any receptor locations once the warehouse is operational. The air quality assessment and its findings were investigated by the Department and approved.

This application obtained planning consent but work has not yet started on site.

The East Anglia ONE Offshore Windfarm

This development is an offshore windfarm covering 300km² located 43km from the Suffolk coast. This is part of a development of 7200MW of wind capacity off the coast of East Anglia. It will consist of up to 240 wind turbines and associated infrastructure to provide a capacity of 1,200MW.

This application is for the laying of up to 4 underground cables around 37km in length for the first wind farm off the Norfolk/Suffolk Coast, together with laying of up to 8 cable ducts for future applications for the further phases of wind farms to be built. The cabling will come ashore at Bawdesy and connect to a new onshore convertor station at Bramford. Substation

This planning application went to enquiry via the Planning Inspectorate. The Secretary of State determined and consented it in June 2014. In relation to air quality the development will have a likely impact via dust from construction activities.

A Development Control Order must now be made for this application with Conditions attached. The developers will need to submit a formal scheme which will include details for the control of construction dust.

Sizewell C new Nuclear Power Station

In Spring 2009, EDF Energy nominated an area of land adjacent to the existing power stations at Sizewell as a site for Sizewell C, a proposed power station comprising two new latest-generation nuclear reactors. In July 2011, the UK Government's national policy statement for nuclear power generation was ratified by Parliament and confirmed that the site was potentially suitable. If approved the two planned reactors should be capable of supplying enough electricity for around five million homes.

The Planning Inspectorate has been informed by EDF Energy that they intend to submit an application to build a new Nuclear Power Station – Sizewell C. Before submitting an application, they are required to carry out extensive consultation on their proposals. They have submitted a number of Scoping report documents to the Planning Inspectorate which can be viewed at;

<http://infrastructure.planningportal.gov.uk/projects/eastern/sizewell-c-new-nuclear-power-station/?ipcsection=overview>

Suffolk Coastal District Council has been involved in Scoping discussions with EDF Energy regarding air quality and the information that we will require to be submitted for a number of years and the pre-application work has involved air quality monitoring at numerous sites around Sizewell and the road network which will be used for its construction.

The Planning Inspectorate advise that EDF Energy have not yet set a timescale for this planning application to be submitted.

Church Hill, Saxmundham

Planning consent for the construction of 170 dwellings, with associated car parking, open space, landscaping, new vehicular access and pedestrian links on land east of Warren Avenue, Church Hill, Saxmundham.

An air quality assessment was undertaken for this application which assessed the impact of traffic emissions generated by the above development, once operational, using detailed atmospheric dispersion modelling. The report looked in detail at properties located at the junction of Church Street, High Street, Chantry Road and South Entrance. The report concluded that emissions from traffic generated by the development are likely to have negligible impacts on air quality during the operational phase both for existing receptors and the new houses to be built and the findings were accepted by this department.

This application has not yet been granted Planning consent.

6 Air Quality Planning Policies

With the introduction of the Localism Act 2011, the previous Local Development Framework (LDF) phraseology has been altered to “The Suffolk Coastal District Local Plan”. This will consist of a suite of future planning documents for the district.

The Council’s new Local Plan will set out the spatial policies, guidance, land use designations and site allocations against which all planning applications and other development proposals will be assessed, and will be made up of the following documents:

- **Core Strategy & Development Management Policies** - sets out strategic vision for the district also includes the Development Management Policies which will be used in the determination of planning applications.
- **Site Specific Allocations & Area Specific Policies** - policies applying to specific sites, locations and areas within the district. These will also allocate land for development, covering a variety of uses from housing, to new sites for employment and retail uses.
- **Area Action Plans** - documents focusing on the future development of specific towns or areas, with a specific focus on regeneration.
- **Gypsies, Travellers & Travelling Showpeople** - will allocate land to accommodate the identified housing needs of the Gypsy, Traveller and Travelling Showpeople communities.
- **Neighbourhood Plans** - documents prepared by Town and Parish Councils containing specific policies for an individual parish, or group of parishes.
- **Proposals Map** will show the adopted policies in geographical format and be updated as each document is adopted. The Proposals Map will initially be derived from the Suffolk Coastal Local Plan.

The Suffolk Coastal Core Strategy and Development Management Policies document was adopted on 5 July 2013. The Core Strategy is the first of the development plan documents to be produced, setting the principles and providing the context for those more detailed documents which will follow. As such, it should be possible using the information and policies contained in the Core Strategy to tell, at least in principle, if a development proposal whatever its size, type or location is acceptable or not. It will, nonetheless, still be necessary to look at more detailed individual circumstances each time.

The Core Strategy sets out the vision for Suffolk Coastal to 2027. It sets out principles for providing new homes and extra jobs in the District, together with the necessary associated social, community and physical infrastructure improvements. It also ensures there are strong policies in place to protect the unique and treasured environmental and historic quality of the area. This will not only provide the district with a long term up to date and robust set of key planning policies, but will also provide a sound basis on which to continue production of a number of other important policy documents. It includes policies for:

- The provision of 7,900 new homes across the District during the next 15 years, including 2,000 new homes south and east of Adastral Park, Martlesham Heath.
- Extra employment land, to allow for industrial/commercial development and the creation of new jobs.
- Protection of the District's high quality environment.

The following documents have also been prepared to support the Local Plan and will be updated over time:

- **Statement of Community Involvement** sets out how and when you can influence new planning documents and the ways in which you can comment on planning applications and other forms of consent.
- **Local Development Scheme** sets out the range of planning documents that will be produced and the timetable for their preparation.
- **Monitoring Report** outlines the progress made in the production of planning documents, the performance in implementing development plan policies and other important indicators and statistics for the district.
- **Supplementary Planning Documents** will be prepared or updated to provide further detailed guidance to support the development plan documents.

In addition to the Core Strategy the Council will continue to have regard to the remaining 'saved policies' from the Suffolk Coastal Local Plan (incorporating the 1st & 2nd Alterations) (2006) until replaced by policies in other development plan documents. Those remaining 'saved policies' from the 2006 Local Plan are listed in Appendix C of the Core Strategy.

Specifics included within the Core Strategy for our declared AQMAs and LAQM in general are found under 'Other Sources of Pollution' – section 3.139:

“In respect of air pollution, the Council has declared two Air Quality Management Areas (AQMAs). These are located at specific areas in Felixstowe and Woodbridge. The Council is working on Action Plans to hopefully secure improvements. Whilst there are no other AQMA identified, there is a potential conflict in siting new development close to the main road networks. Care will need to be taken to ensure that the scale and location of new development does not create new problems that could result in additional AQMAs having to be declared. This may influence the location and mix of uses on potential development sites.”

7 Local Transport Plans and Strategies

The third Suffolk Local Transport Plan (LTP3) is now in place and runs from 2011 to 2031. The Plan sets out Suffolk County Council's long-term transport strategy for the next 20 years. The key focus of the plan is to support Suffolk's economy as it recovers from the recession and future sustainable economic growth.

The LTP3 is in two parts. The first sets out the county council's long-term transport strategy up to 2031 and highlights ambitions for the transport network. The second part is an implementation plan, setting out how the strategy could be delivered over the short, medium and long term, using a variety of funding and delivery mechanisms. This includes a short-term programme of county council investment to 2015. The implementation plan will be reviewed over time to take account of any changes in priorities and funding levels.

The first part of the Plan (long-term transport strategy) identifies a number of specific areas and schemes in Suffolk which are priorities. There are no areas on the road network within Suffolk Coastal included in the lists. Regarding the rail network, the completion of the Felixstowe to Nuneaton route, particularly for freight, is highlighted along with improvements to the East Suffolk railway line which runs through the district.

There are 4 priorities listed in the Plan:

- A prosperous and vibrant economy
- Creating the greenest county
- Safe, healthy and inclusive communities (Protect vulnerable people and reduce inequalities)
- Learning and skills for the future (Transform learning and skills)

The second and third priorities have 'improving air quality' as one of their challenge's with the 'transport aims' being to reduce air pollutant emissions and reduce the impact of poor air quality on local communities. The Plan lists the current Air Quality Management Areas (AQMAs) within Suffolk and states that the county council will work with district and borough councils to develop action plans targeted at air quality improvement in each AQMA.

There is a section in the report dedicated to each local authority in Suffolk. For Suffolk Coastal it states that along with housing growth a need for a greater level of employment has also been forecast. Three strategic employment sites have been identified: the Port of Felixstowe with associated port related and logistics uses; Martlesham Heath business campus, with the development of high-tech industries linked to Adastral Park; and an extension to Ransomes Europark. Tourism effects are also discussed. Congestion and the AQMA in Woodbridge are specifically mentioned together with the long standing issues of traffic volume through the villages of Marlesford, Little Glemham, Stratford St Andrew, and Farnham on the A12. The Plan states that Suffolk County Council strongly supports the provision of proper relief for these communities by the provision of a relief road and will work with the nuclear industry to secure its provision alongside any new power station at Sizewell.

Part 2 – The Implementation Plan lists a number of proposed schemes within Suffolk, some of which are within the Suffolk Coastal district and are listed below. With the exception of the operation stack facility all schemes below are to be undertaken by developers as part of the planning process.

- Felixstowe Dock Spur roundabout improvement
- Felixstowe branch line Trimley to Levington double tracking
- A12 Four Villages improvement
- Operation stack facility
- Felixstowe to Nuneaton rail improvements
- Leiston passenger rail reinstatement

There are plans for the urban areas within Suffolk, including Felixstowe but there is no mention of the AQMA or air quality within this part of the report.

Woodbridge and the AQMA declared here does not feature in this report.

The County Councils investment programme to 2015 is provided in the Implementation Plan which allows £450,000 for Felixstowe for traffic management and cycle route improvements. There is no reference to any funding for air quality issues anywhere in the district.

8 Climate Change Strategies

On 26 October 2006 The Council signed the Nottingham Declaration, an acknowledgement that Climate Change is a key issue for the Council. Since then further work has been done to ensure that this area of activity is given a high priority within the Council and the Local Strategic Partnership.

In 2009 Suffolk Coastal District Council produced a Climate Change Strategy and Action Plan - these have now been replaced by the Joint Environmental Policy, which was adopted by Suffolk Coastal and Waveney District Councils in January 2013. The Policy replaces and joins up not only the Climate Change Strategy but also the Suffolk Coastal Local Agenda 21 Charter and Waveney District Council's Sustainability Plan and the Green Travel Plan. It summarises key environmental challenges facing the district, some significant action to date, and sets out how the Councils will themselves and with others deliver a co-ordinated forward looking approach across the whole of East Suffolk.

In relation to Climate Change and LAQM, the Plan states that the Council will carry out the following:

- Work in partnership with others to create Districts that are reducing greenhouse gas emissions and equipped to rapidly respond to changing situations through understanding of and good management of its ecological, historic, built and natural environment and social networks.
- Fulfil its duties under the Environment Act 1995 to produce and implement Action Plans for any declared Air Quality Management Areas within the districts, currently situated in Woodbridge and Felixstowe.

Relevant work to date shows that;

The Councils have reduced their overall greenhouse gas emissions through a combination of: increased insulation, improved heating controls, improvements to fleet vehicles, changes to operating hours in one of our buildings, staff engagement and provision of video conferencing facilities between sites. There has also been investment in low carbon and renewable technology.

In support of the Suffolk Climate Change Partnership Business Advice Service the Suffolk Coastal Business Advice Service with funds from the Local Authority Business Growth Incentive Scheme, Groundwork East of England, Suffolk Coastal LSP and Areas of Outstanding Natural Beauty Sustainable Development Fund has identified cumulative potential annual cost savings of £698,822 and cumulative potential annual carbon savings of 3,711 tonnes of CO₂(e) from a total of 146 energy audits carried out in small and medium sized enterprises.

Following Public Consultation on the Joint Environmental Policy, 26 of the 43 actions proposed received sufficient public support to become the focus of the Policy. They are listed below - the Annual Environmental Report will focus on these with other actions being monitored and managed by the relevant lead service area. Many of the actions have links to LAQM, for example reducing car usage by Council employees through teleconferencing, home working etc, Sustainable travel

promotion, and sustainable transport initiatives. However there are none specific to the Air Quality Management Areas declared in Woodbridge and Felixstowe or any other specific LAQM pollutants.

- To identify funding options for developing projects which bring empty houses back into use so that they include more energy and water efficiency measures and a behavioural change element.
- Continue to assess and improve the energy efficiency of Waveney District Council's Housing Stock and provide efficient, low carbon or renewable generation solutions where feasible.
- Support and facilitate the Councils' Officer Greenest County Steering Group and Green Team action to engage staff and encourage a shift towards reducing energy and water use, homeworking, teleconferencing, videoconferencing, online training, car sharing, and use of trains and cycles and more fuel efficient driving.
- Extend the Waveney Cycle to Work scheme to cover Suffolk Coastal. To increase the numbers of staff cycling to and from work – evidenced in the annual survey.
- Encourage a shift to more sustainable travel patterns.
- With the Suffolk Sustainable Travel Forum endeavour to facilitate major investment in public transport to improve existing services and develop new ones.
- Support Sustrans and Cycle Suffolk efforts to promote cycling through Lowestoft Local Links and investigate any potential opportunities that arise for extending this to promote national routes and potential of combining train and cycle rides.
- Continue to advise on and support community litter picks.
- Progress towards a low paper use office Council.
- Amend the Suffolk Coastal Lift Home Scheme as appropriate and to include cyclists and adopt across the two councils.
- Promote the reuse of consumables across the councils, prompt reduce and reuse when asked to procure consumables and implement new ways of working which reduce need for procuring consumables.
- Explore feasibility of kerbside glass collection.
- Produce and maintain up to date management plans for all designated sites & biodiversity priority habitats. Develop effective management arrangements, involving voluntary and community sectors to ensure the most cost-effective delivery mechanisms are in place.
- Ensure focus of AONB Management Plan 2013-18 further promotes and delivers landscape scale initiatives throughout the AONB.
- Ensure delivery of the sustainable transport initiatives as set out in Suffolk's Local Transport Plan 2011-2031.
- Promote and support community local food initiatives through the Greenprint Forum.
- Develop and deliver evidenced, costed corporate building management and improvement strategies for both authorities prioritising actions based on the future of the buildings, current efficiency and cost and potential to further improve efficiency in relation to energy and water.
- Efforts to reduce emissions reported through the annual greenhouse gas report.
- Investigate the potential for bringing Suffolk Coastal up to Fairtrade Status to match Waveney.

- Support the Suffolk Coast Forum in bringing together partners and local communities to address some of the challenges faced.
- Investigate the potential offered by the new BREEAM Domestic Refurbishment programme as a means of assessing progress on reducing energy, water and waste, being adaptable to climate change and providing a healthy indoor environment for occupants.
- In Partnership with Suffolk County Council introduce smart metering in all Council properties deemed to be significant users of energy and water.
- Further investigate feasibility of renewable energy on building stock whilst considering the outcome from office accommodation review and options appraisal on leisure centres. Commission projects where viable and publicly supported, and communicate this initiative within local communities.
- Through community communications, the two councils, the East Suffolk Partnership and the Greenprint Forum, promote the Suffolk Green Building network to enable a share of experiences and understanding on resource efficiency and renewable technologies.
- As part of the Suffolk Climate Change Partnership maximise use of existing (e.g. grants, Community Energy Saving Program) and future frameworks (Green Deal, Energy Company Obligation) to drive householder take-up of retrofitting opportunities, with 28,000 properties taking up the Green Deal / Energy Company Obligation.
- In partnership with the Environment Agency work with communities (Town and Parish Councils, and other groups) to assess risks and encourage the development of appropriate emergency plans (which include extreme weather events) to promote community resilience (utilising experience from emergencies, incidents and events).

The Council also supports the Suffolk Climate Change Partnership and the County action plan (Suffolk Climate Change Action Plan 2 – SCAP 2)

9 Action Plan Progress Report for Woodbridge AQMA

Junction of Lime Kiln Quay Road, Thoroughfare, Melton Hill and St. John's Street in Woodbridge, Suffolk (Woodbridge Junction)

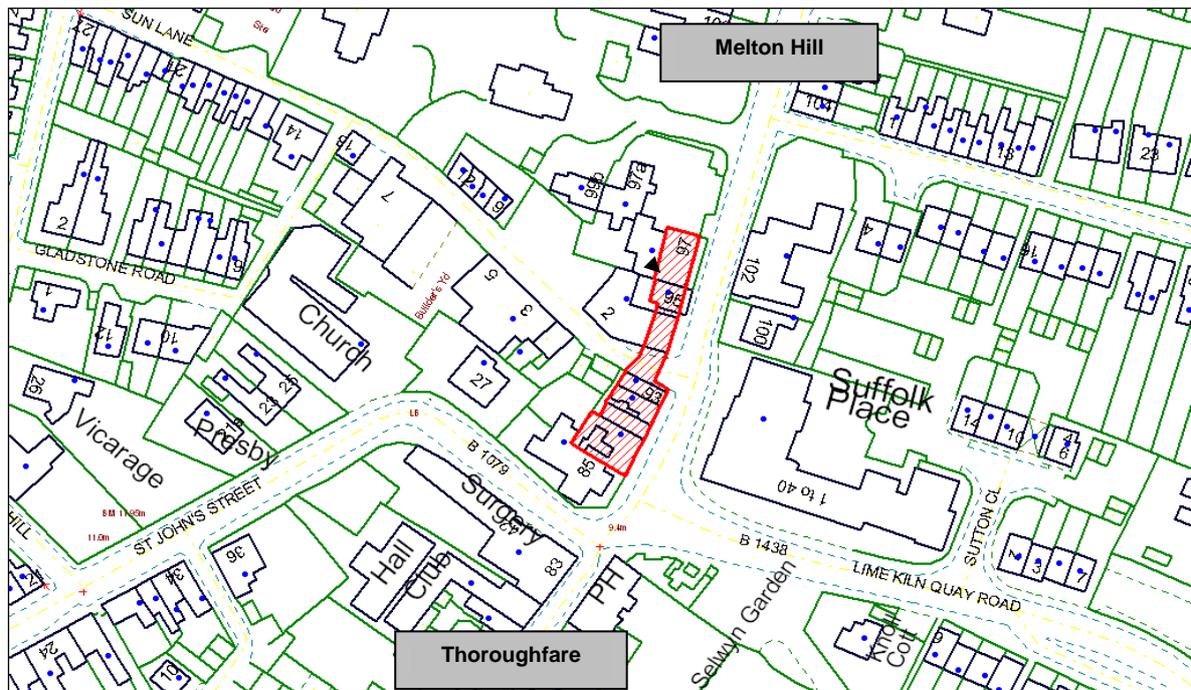
9.1 Introduction

On 3 April 2006 an Air Quality Management Area (AQMA) Order made for an area of the Woodbridge Junction with regard to the annual mean NO₂ concentration came into effect. The designated area incorporates properties on the Western side of the Melton Hill arm of the junction. A location map is provided in Figure 9.1 below.

The Action Plan for the AQMA was accepted by Defra in 2011. This confirms the likely source of NO₂ is from road transport. Evidence suggests that a 16% reduction in traffic emissions of oxides of nitrogen (NO_x), a precursor to NO₂, is necessary (based on 2006 figures) to achieve the air quality standard. The Action Plan considers 79 options to improve air quality and recommends 20 of these for implementation.

Table 9.3 contains an updated summary of progress made on each of the measures within the Action Plan. Additional details regarding some of the measures are provided in the main text following the table.

Figure 9.1 Location of AQMA declared at the Woodbridge Junction (hatched in red)



<p>This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown Copyright. Licence No. 100019684. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings.</p>	<p>Not to scale</p>	<p>↑ N</p>
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------	----------------

9.2 Updated Monitoring Data

A summary of the monitoring data from the continuous analyser and diffusion tubes at the junction for 2013 is presented below in Table 9.1 and 9.2. In addition to the most recent monitoring, results for 2008 - 2012 have also been included in the tables for comparison purposes. More detailed results are presented in Section 2 of this report and also Appendix C and D.

Table 9.1 Results of Automatic Monitoring of Nitrogen Dioxide: Comparison with Annual Mean and 1-hour mean Objectives

Year	2008	2009	2010	2011	2012	2013
Annual Mean Concentration ($\mu\text{g}/\text{m}^3$)	45	45	45	42	44	42
Number of exceedences of hourly mean ($200 \mu\text{g}/\text{m}^3$)	2	1	0	0	1	0

Table 9.2 Results of Nitrogen dioxide diffusion tube monitoring

Site ID	Location	Within AQMA Yes / No	Annual mean concentration ($\mu\text{g}/\text{m}^3$)					
			2008	2009	2010	2011	2012	2013
WBG 1	93 Thoroughfare	Yes	46	45	42	42	44	41
WBG 3	8 Kingston Farm Road	No	20	15	18	16	15	14
WBG 5	Suffolk Place, Lime Kiln Quay Rd	No	30	28	29	25	26	26
WBG 6	87 Thoroughfare	Yes	44	41	41	37	40	38
WBG 8	95 Thoroughfare	Yes	46	42	41	38	43	30
WBG 10	St John's Street signpost	No	35	34	34	31	31	30
WBG 12	8 Lime Kiln Quay Road	No	30	26	26	24	25	23
WBG 13	85 Thoroughfare	No	37	34	36	33	36	35
WBG 15	87 Thoroughfare	Yes	39	38	38	39	42	41
WBG 17	Suffolk Place, Lime Kiln Quay Rd	No	33	31	30	28	28	27
WBG 18	106/108 Thoroughfare	Yes	39	38	38	32	34	35
WBG 20	97 Thoroughfare	Yes	41	38	43	~	~	31
WBG 22	Suffolk Place, Lime Kiln Quay Rd	No	26	24	23	21	22	22
WBG 23	50 St. John's Street	No	~	29	27	28	26	25

The automatic analyser is sited within the declared AQMA and provides the most accurate measurement for NO_2 at this location, it confirms that the 2013 annual mean concentration is still above the air quality objective at $42\mu\text{g}/\text{m}^3$ (Table 9.1). Trends over time show that the annual mean concentration remained stable between 2008 and 2010 at $45\mu\text{g}/\text{m}^3$, and has fluctuated between 42 and $44 \mu\text{g}/\text{m}^3$ since this time. The 1-hour mean objective ($200\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times per year) was not exceeded in 2013 (see Table 9.1), this is comparable with the trends seen since 2008.

Table 9.2 shows the diffusion tube results for 2008 – 2013 in Woodbridge. Concentrations at the majority of sites have decreased or remained stable between 2012 and 2013. Concentrations at Woodbridge 6 and 8 (sited at 87 and 95 Thoroughfare respectively) have now decreased to below the annual mean Objective. Concentrations at Woodbridge 1 and also at Woodbridge 15 (also at 87 Thoroughfare) continue to be above the Objective level – both sites are within the declared AQMA. We have no explanation for the differences between NO₂ concentrations seen in the two monitoring sites located at 87 Thoroughfare.

Data recorded from permanent traffic counters located on Melton Hill and Lime Kiln Quay Road close to the junction show that the volume of traffic has been fairly stable between 2009 and 2013, so fluctuations seen in NO₂ concentrations at the junction cannot be attributed to changes in traffic volumes. Heavy Duty Vehicle percentages have also been stable between 2010 and 2012 so these cannot account for fluctuation seen during these periods. In 2013 HGV percentages have increased on Lime Kiln Quay Road (from 5% to 7.1%) but have remained stable on Melton Hill at 4.3 - 4.4%. As the NO₂ concentrations recorded at the junction decreased between 2012 and 2013 the fluctuations cannot be related to this as an increase in HGVs would be expected to produce more emissions and therefore raise NO₂ concentrations. Another variable at this junction is Meteorological conditions (mainly wind speed and direction) which may explain the fluctuations seen in recent years. This is discussed in more detail later in this section of the report.

All monitoring locations have been kept in place for 2014 and the results will be reported in the Air Quality Report due in 2015.

9.3 Action Plan update for 2014

During 2014 we have concentrated on finalising the results from the feasibility studies undertaken for several of the Action Plan measures which involve ‘works on the ground’, together with trying to re-engage with Suffolk County Council and other relevant parties in order to move the Action Plan forward. These two aspects are vital to the success of the Action Plan and so have been given priority over work on individual Action Plan measures.

Feasibility studies

The results from the Drive Cycle analysis undertaken in 2013 at the junction have been used to undertake detailed computer modelling of a number of Action Plan measures. This modelling investigates the impact of each measure on NO_x emissions at the junction, and therefore on NO₂ concentrations within the AQMA. This work has been undertaken using Defra Grant funding won for this purpose. The full report is attached as Appendix G.

The Drive Cycle analysis consisted of a specialised vehicle which travelled through the junction from all directions at different speeds and in different scenarios (for example stopping at the lights versus going straight through). The vehicle has an on-board emission recording device to record each emission profile associated with each different scenario/manoeuvre undertaken at the junction. The relevant emissions profiles were then used when looking at each of the measures to be modelled.

Modelling was undertaken for the following Action Plan measures:

- Action Plan measure 3 – extension of restrictions to Thoroughfare (8am – 6pm) – feasibility study looked at removing the ability to drive straight over from Melton Hill into the Thoroughfare (Action Plan measure 21 below) which gives us an indication of what increased restrictions could achieve
- Action Plan measure 4 – Remove ability to turn right into St John’s Street from the direction of Melton Hill
- Action Plan measure 3 and 4 in combination
- Action Plan measure 5 – relocate on street parking in Melton Hill to opposite side of the carriageway
- Action Plan measure 6 – Remove on street parking in Melton Hill
- Action Plan measure 21 – Remove the ability of traffic to go straight on from Melton Hill to Thoroughfare

The study also briefly looked at the impact on air quality of removing the traffic signals at the junction and also the installation of a mini-roundabout.

The study showed that the modelling undertaken was not able to fully represent the NO₂ concentrations that are measured at the junction, even using the detailed Drive Cycle outputs. The underestimate was by an average factor of 5. This difficulty has been encountered in the past and so the feasibility study was expanded to try and identify what may be causing the discrepancies. The study concluded that a greater understanding of local weather conditions may provide the key and help inform what could be achieved regarding actual NO₂ concentrations at the junction. The geography and topography of the junction could mean that weather conditions experienced at street level differ from those elsewhere, even a few metres higher above the roof line. The Meteorological data used for the modelling was from Wattisham, which is the closest available site but is a distance away. The study recommends siting of a weather station for 3 months at the junction to monitor conditions at a height of 2m and also above roof ridge height at approximately 10m. This must be on the same side of the road as the AQMA. We have obtained the funding to carry out this additional work and are currently trying to obtain the necessary permissions to site the station at a relevant location.

Due to the inability to model NO₂ concentrations accurately at the junction, changes in emission rates were instead calculated for each of the different measures listed above as this can still inform us as to the effectiveness of each. The findings are as follows;

- Action Plan measure 5 (relocate on street parking on Melton Hill to the opposite side of the carriageway) resulted in an **increase** in NO₂ concentrations of 0.5 µg/m³ within the AQMA. This was due to an increase in emissions from traffic queueing on Melton Hill in the vicinity of the junction and AQMA.
- Action Plan measure 6 (remove on street parking on Melton Hill) had a negligible impact on NO₂ concentrations at any of the monitoring sites, including within the AQMA.
- Action Plan measures 3, 4 and 21 (extend restrictions to Thoroughfare, remove ability to turn right and also go straight over from the direction of Melton Hill) resulted in a small decrease in NO₂ concentrations at all sites except those on Lime Kiln Quay Road. The maximum decrease was noted within the AQMA and was 0.1µg/m³, which is so small as to be considered as having a negligible impact. The maximum increase noted on Lime Kiln Quay

Road was $0.5\mu\text{g}/\text{m}^3$ and this was due to the assumed increase in traffic using Lime Kiln Quay Road in place of St John's Street or Thoroughfare.

An additional sensitivity test was undertaken to determine what level of traffic reduction at the junction would be required to result in a reduction of $1\mu\text{g}/\text{m}^3$ at the automatic monitor (within the AQMA). To achieve this, the traffic flow across the junction and roads would need to reduce by 25% (from approximately 850 vehicles per hour to 640). This is a significant reduction in traffic.

Alternative scenarios considered for the junction included the impact on emissions from removing the traffic signals at the junction, or introducing a mini-roundabout. These would both potentially cause increased queuing within St. John's Street. These scenarios were not looked at in great detail but, based on the driving cycle emissions results, reduction would again be so small as to have a negligible impact. However, the report does hypothesise that if free flowing conditions were achieved this may in turn increase air turbulence/movement at the junction which could aid in improving dispersion and therefore reducing NO_2 concentrations by a greater amount than that predicted by the model.

There were 2 recommendations from the report;

- install a local weather station
- instigate a pilot programme to hold traffic further away from the junction by installing temporary traffic lights thus pulsing the traffic through the junction under free flow conditions. This would remove stationary idling traffic from the area of the AQMA itself and create the free flowing conditions.

As discussed, we are already trying to obtain relevant permissions to site a weather station at the junction. Discussions regarding the second recommendation have begun with Suffolk County Council via the Working Group set up, as it would be their decision as to whether this trial would be appropriate at this junction.

Engagement of SCC with the Action Plan

The Action Plan for Woodbridge seemed to have stalled somewhat and so a new Working Group has been set up consisting of Officers and relevant Councillors from both Suffolk County Council and Suffolk Coastal District Council. The group has met twice and discussions to date are very positive and enabling us to move forward. The results of the feasibility studies suggest that most of our 'on the ground' measures currently in the Action Plan will at best have a negligible impact on NO_2 concentrations within the AQMA. The Working Group has decided that the Action Plan needs to be updated to remove those measures which have been shown to be unlikely to have any impact. The Action Plan Progress Summary - Table 9.3 provides comments for each of the afore-mentioned measures.

There are a number of alternative options which have been suggested by the Working Group for possible inclusion in the Action Plan. Discussions and investigations into each are beginning. When we reach the stage of being able to provide the updated Action Plan this will go out for a full Consultation with all relevant stakeholders. An update will be provided in the next air quality report due for production in 2015.

Table 9.3 Woodbridge Junction Action Plan Progress Summary Table 2013/14

No.	Measure description	Focus	Lead authority	Plan-ning phase	Impleme-ntation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated comple-tion date	Comments relating to emission reductions
1	Install queue detectors (MOVA) on traffic signals to reduce queuing at the junction	Reduce queuing traffic at the lights	Suffolk County Council	2009	2011	Reduction in peak queue lengths	10%	Queue length survey undertaken 2009. MOVA not functional until June 2011. Post MOVA queue length survey undertaken 2013. Results discussed in 2013 Progress Report	n/a	Completed 2013	Monitoring results 2010 – 2013 show NO ₂ concentrations have fluctuated at the junction so MOVA has not caused a sustained reduction. No significant changes in traffic flow and % HDV between 2009 and 2012 so not to do with that. Possibly Meteorological conditions causing fluctuating readings. Post MOVA queue survey shows average queue lengths have increased on all arms of the junction but that the extremes of queues have been reduced.
2	Install right hand turning lane at lights on Melton Hill arm of junction – THIS MEASURE HAS BEEN REMOVED FROM THE ACTION PLAN										
3	Extension of restrictions to Thoroughfare (8am-6pm)	Reduce queuing traffic at the lights	Suffolk County Council	2013-2014	2014-2015	Reduction in peak queue lengths on Melton Hill	Air quality modelling shows max reduction of 0.1µg/m ³ in AQMA.	Preliminary discussions with new team at SCC show this option to be supported. Drive cycle and traffic surveys undertaken 2013. See also Measure 21	Feasibility study modelling undertaken	Investigate whether to remove from Action Plan due to negligible impact on AQMA. See notes in main text.	This could be one way of partly implementing the new Measure 21 (remove ability of traffic to go straight over from Melton Hill to Thoroughfare). Feasibility study shows reduction of only 0.1µg/m ³ in AQMA = negligible. Shows increase in conc. on Lime Kiln Quay Road of 0.5µg/m ³

No.	Measure description	Focus	Lead authority	Plan-ning phase	Impleme-ntation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated comple-tion date	Comments relating to emission reductions
4	Remove ability to turn right from direction of Melton Hill	Reduce queuing traffic at the lights	Suffolk County Council	2013 – 2014	2014-2015	Reduction in peak queue lengths on Melton Hill	Air quality modelling shows max reduction of $0.1\mu\text{g}/\text{m}^3$ in AQMA.	Defra agreed to use of their funding for computer modelling feasibility study. Traffic data collected, Drive Cycle undertaken	Feasibility study modelling undertaken	Investigate whether to remove from Action Plan due to negligible impact on AQMA. See notes in main text.	Feasibility study shows reduction of only $0.1\mu\text{g}/\text{m}^3$ in AQMA = negligible. Shows increase in conc. on Lime Kiln Quay Road of $0.5\mu\text{g}/\text{m}^3$
5	Relocate the on street parking currently in Melton Hill to the opposite side of carriageway.	Reduce queuing traffic in AQMA	Suffolk County Council	2012-2013	Originally 2013 now 2014/15 If study and consultation shows this is feasible.	Reduction in peak queue lengths. Only traffic heading away from junction along Melton Hill	5%	Preliminary design prepared. Defra grant funding obtained. Traffic data collection and Drive Cycle undertaken.	Feasibility study modelling undertaken	Remove from Action Plan due to negative impact on AQMA. See notes in main text.	Computer modelling shows an increase in NO_2 concentrations within the AQMA of $0.5\mu\text{g}/\text{m}^3$, therefore this measure will not be carried out and will be removed from the updated Action Plan.
6	Remove the on street parking currently in Melton Hill.	Reduce queuing traffic in AQMA	Suffolk County Council	2012-2013	2014 Only for consideration if measure 5 is not successful.	Reduction in peak queue lengths Would only be traffic heading away from junction along Melton Hill	5%	Preliminary design prepared. Defra grant funding obtained. Traffic data collected, Drive Cycle undertaken.	Feasibility study modelling undertaken	Remove from Action Plan due to negligible impact on AQMA and local opposition See notes in main text.	Computer modelling shows negligible impact on air quality concentrations anywhere at the junction. When this is added to local opposition for this measure it is concluded that this measure will not be carried out and will be removed from the updated Action Plan.

No.	Measure description	Focus	Lead authority	Plan-ning phase	Impleme-ntation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated comple-tion date	Comments relating to emission reductions
7	Investigate Satellite Navigation (SatNav) system routes around town and lorry/HGV delivery routes	Reduce traffic flows through AQMA	SCDC	N/A	2013 for SatNav 2014 for lorry/HGV routes		1%	Most popular SatNav systems tested, some routes are via the junction but majority sent via the bypass. Completed 2010. Video cordon survey undertaken.	Working Group discussions revealed that SCC has tried to liaise with SatNav companies in general but we do not have the buy-in locally to influence them. Discussion still on table re lorry ban.	2015 to investigate lorry ban 2015 to look at local shop delivery routes.	Video cordon survey showed HGV/lorry through traffic to be significant - will continue to look at lorry ban with SCC. Unsure whether anything can be gained from the new delivery investigations listed in main text but will investigate and report back findings – nothing further done to date on this. SatNav investigations will be removed from updated Action Plan as a measure.
8	Bus operators to use cleanest fleet in Woodbridge – contact them to request.	Reduce emissions from HDVs through the AQMA junction	SCDC	2010	Originally 2013 Now 2014	Number of Euro IV buses operating in Woodbridge.	2%	List of 8 bus operators compiled. 3 bus operators contacted.	Investigating option of applying for Clean Bus Technology Grant in the future if any companies were willing.	Originally 2013 now 2015	Of operators contacted none willing so far to alter fleet as only very small service operates in Woodbridge. All buses maintained regularly so no emission reductions to be gained as yet. All First buses operating out of Ipswich now low floor, but Euro standard information not available. Now investigating option of applying for Clean Bus Technology Grant In the future.

No.	Measure description	Focus	Lead authority	Planning phase	Implementation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
9	Demand Responsive Transport	Reduce traffic flows through AQMA junction	Suffolk County Council	N/A	2009	None	2%	Scheme in place as of 2009. Scheme doing really well and will be retained until at least 2016.	n/a	Completed	SCC has been able to provide patronage info for 2012/13 which shows that there were 8,425 individual passenger journeys using Demand Responsive Transport for the Wilford Area and 4,435 for the Alde Area. This will have a positive effect to reduce car usage in the area and hopefully at the junction.
10	Simplified Ticket Scheme	Reduce traffic flows through AQMA junction	Suffolk County Council	2013	2014	None	1%	Working group set up 2009 to investigate option. The Endeavour Card went live in October 2013 for 16-19 year olds.	Business case submitted to roll out adults smart card. Working to offer online top up facility. First buses rolling out 'm tickets'.	2015 for adult smart cards	Will have a positive effect to reduce cars using junction, but no real way to measure whether emission reduction target will be reached.
11	Improve accessibility to bus timetable	Reduce traffic flows through AQMA junction	Suffolk County Council	2009	2009	None	1%	Website launched. New leaflets delivered. New style of timetable developed – more accessible and 'stick' style timetables - easier to read.	Real time information is being rolled out in 2014/15 and already available for some services on smart phone apps.	Completed	Will have had a positive effect to reduce cars using junction, but no real way to measure whether emission reduction target has been reached.

No.	Measure description	Focus	Lead authority	Plan-ning phase	Impleme-ntation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated comple-tion date	Comments relating to emission reductions
12	Turban Centre new bus station/ interchange Now withdrawn as no funding.	Reduce traffic flows through AQMA junction	Suffolk County Council	2010 /2011	2012	Opening of new bus shelter.	2%	Design not agreed in time for budget cuts. Funding withdrawn. Bus shelters upgraded December 2012.	n/a	Completed 2012 Remove from updated Action Plan	May be some positive influence on bus patronage due to new bus shelters. Not possible to predict what reduction in emissions this may give.
13	Procurement of bus contracts to include fleet upgrade	Reduce emission from HDVs through AQMA junction	Suffolk County Council	2009	2009 2015	Quality assess-ment process in place. Buses to be Euro III standard	2%	Quality assessment process in place as of 2009. New Quality Scoring System Jan 2013. First Buses introduced newer buses to meet 2015 accessibility Regulations, mainly EURO III standard.	First buses - major refurbishment - engines not upgraded but can carry more people and new style should encourage people onto buses. Replaced many older buses with newer.	2015	New low emission vehicles added to SCC's fleet are compliant for the London Low Emission Zone and the London 2012 Olympics. However, impacts on AQMA likely to be very small. Newer vehicles used by First Buses will have reduced emissions.
14	Car sharing scheme	Reduce car trips	SCDC	N/A	2010 and on-going	Increase in registered users of scheme	2%	No. site users: 2010 = 1,599. 2011 = 1,831. 2012 = 2,334 2013 = 2,338 2014 = 2,396 SCDC website updated. Articles published.	Nothing further undertaken.	On-going	Increased number of users can only have a positive effect. Scheme Suffolk wide but information may be available on a postcode basis to determine journeys saved through our AQMA junction by members since they started the scheme.

No.	Measure description	Focus	Lead authority	Plan-ning phase	Impleme-ntation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated comple-tion date	Comments relating to emission reductions
15 a	Business Travel Plans	Reduce reliance on car and queuing time in AQMA	Suffolk County Council / SCDC	N/A	2010 - 2011	Businesses contacted. Number of Travel Plans adopted by businesses	2% for 15a,b and c combined	List of businesses in Woodbridge with > 20 employees sent to SCC to contact.	Working Group has discussed this measure – see main text. Work to be done with SCDC Planning team.	Originally 2012. Measure to be reviewed 2015	Investigations show there are not really any large businesses within Woodbridge. Potential to adopt Travel Plans much smaller and any impact from them also minimal.
15 b	School Travel Plans	Reduce reliance on car and reduce queuing time in AQMA	Suffolk County Council / SCDC	N/A	2010	Contact schools to remind them about Travel Plan. Contact Wood-bridge School re adopting a Travel Plan.	2% for 15a,b and c combined	All schools in Woodbridge have a Travel Plan in place. Exception is Woodbridge School who may produce one in future – provided information about bus services they run and pupil locations. New footpath on Pytches Road and 30mph 'reduce your speed sign' for Woodbridge CPS users.	Working Group has discussed. Postcode plots undertaken to identify any schools which may put significant traffic through AQMA. Currently processing data.	2015 Identify schools with potential to impact significantly on AQMA and determine way forward.	All schools historically adopted a Travel Plan but these may no longer be in use. Will have a positive effect to reduce cars using junction, but no real way to measure whether emission reduction target will be reached. Woodbridge School has identified families who could use the AQMA junction to travel to school. Postcode plots will identify any schools which could potentially be putting significant traffic through the AQMA due to the locations of their students. Specific schools could then be targeted for further work.

No.	Measure description	Focus	Lead authority	Plan-ning phase	Impleme-ntation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated comple-tion date	Comments relating to emission reductions
15 c	Travel Plan for the District Council offices	Reduce reliance on car and reduce queuing time in AQMA	SCDC	N/A	2009	Travel Plan adopted Key actions completed	2% for 15a,b and c combined	Travel Plan adopted 2009 Key actions complete 2010. Travel Plan now in Joint Environmental Sustainability and Action Plan (JESPAP).	The Council are currently looking to move their offices but the new location and timing is not yet known	2015 obtain information on new location for offices.	The Council offices are to be moved to a new location in the next few years. We will need to determine our current impact on the junction so that we can ascertain what our future impact would be at a new location (if any) together with impacts from the new use of our current site.
16	Promotion of cycling and walking in Woodbridge	Reduce traffic flows through AQMA	Suffolk County Council	2010	2011/2012	None currently.	1%	Cycling and walking in Woodbridge reviewed. Wish list drawn up by SCC, see main text below. New footpath on Pytches Road and 30mph lit sign to calm traffic and aid walking to school. 5 cycle racks now behind Café Nero and 3 on Market Hill. Sandy Lane cycle scheme implemented.	Discussed by Working Group – SCC to investigate drawing up a list of possible schemes should funding become available.	2015 Draw up a list of schemes	Cycle rack increases and Sandy Lane cycle scheme can only have a positive impact to increase the number of people cycling and reduce the number of vehicles on the road. Once we have a list of potential schemes any funding which can be accessed (via Planning system or other) can be used.

No.	Measure description	Focus	Lead authority	Plan-ning phase	Impleme-ntation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated comple-tion date	Comments relating to emission reductions
17	Integration with Planning System	Avoid worse-ning air quality and open S106 funding stream	SCDC	2010/2011	2011	Produce Supple-mentary Planning Document for Suffolk and consult	1%	Document produced and consultation undertaken. Document finalised. Not adopted formally but used as guidance for planning applications.	No planning applications received related to this AQMA where S106 funding would be appropriate. Working Group has a number of suggestions which need discussing with Planning so member of team to join the group.	2012 / 2013 produced 2013 used as guidance document. S106 funding On-going	Document will ensure air quality reports are produced for planning applications when they require one. Unsure how we can measure emission reductions due to this unless application is closely associated with AQMA. Assess as and when relevant application(s) received.
18	Raise air quality awareness	Reduce traffic flows in AQMA	SCDC	N/A	On-going	Promotion of air quality and reports on website	N/A	Articles published in local magazines and papers. Air quality reports on the SCDC website.	As for previous column	On-going	No emission reduction targets possible for this measure although it can only have a positive effect To try and reduce car usage and emissions in the AQMA.
19	Monitor air quality	To report progress	SCDC	N/A	On-going	Continue monitoring	N/A	Monitoring on-going	As previous column	On-going	Monitoring is main way to inform us whether Measures are being successful. Emissions between 2010-2013 have fluctuated.

No.	Measure description	Focus	Lead authority	Plan-ning phase	Impleme-ntation date	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated comple-tion date	Comments relating to emission reductions
20	Undertake identified feasibility studies	To fully understand impact of identified measure	SCDC / Suffolk County Council	N/A	2013	Feasibility studies for measures 3, 4, 5, 6 and 21 undertaken	N/A	Measure 2 no longer feasible. Feasibility studies for measures 3, 4, 5, 6 and 21 completed	Feasibility study received. Conclusions detailed in main text under each of the individual measures.	2013/2014	Feasibility study indicates that Measure 5 will have a negative impact within the AQMA, Measures 3,4, 6 and 21 will have negligible impact within the AQMA. None of the measures will be put forward for completion. Recommendations from report are to site a weather station for 3 months and trial holding back of the traffic away from the lights and the AQMA and pulse it through – see main text for details.
21	Remove the ability of traffic to go straight on from Melton Hill to Thoroughfare	Reduce queuing traffic at the lights	Suffolk County Council	2013-2014	2014-2015 Now to be considered as measure 1 has not been successful on its own	Reduction in peak queue lengths on Melton Hill.	Not known Air quality modelling will enable us to put a figure to this.	Defra approved request to use grant funding for this project. Traffic data collected, Drive Cycle undertaken. Awaiting results of computer modelling.	Feasibility study modelling undertaken	Investigate whether to remove from Action Plan due to negligible impact on AQMA. See notes in main text.	Feasibility study shows reduction of only $0.1\mu\text{g}/\text{m}^3$ in AQMA = negligible. Shows increase in conc. on Lime Kiln Quay Road of $0.5\mu\text{g}/\text{m}^3$

Measure 3 - Extension of the Thoroughfare restrictions (SCC) – Feasibility study modelling of this option has shown a small decrease in NO₂ concentrations at all sites except those on Lime Kiln Quay Road. The maximum decrease was noted within the AQMA and was 0.1µg/m³ - so small as to be considered as having a negligible impact. The maximum increase noted on Lime Kiln Quay Road was 0.5µg/m³ and this was due to the assumed increase in traffic using Lime Kiln Quay Road in place of St John's Street or Thoroughfare.

The Working Group has discussed this measure and we do not believe that it would be put in place on air quality grounds alone as it has been shown to have a negligible impact. Suffolk County Council has indicated that they are looking at the Thoroughfare restrictions as a whole due to other concerns. There are problems with the current 10am-4pm restrictions not being adhered to and a recent short term study has indicated that if the restrictions are made more obvious by ways of signage the number of vehicles using the Thoroughfare is reduced. Access is therefore being investigated and the Working Group will be kept apprised of progress. Although this would only have a negligible impact on the AQMA it would still be a positive one.

In the updated Action Plan this measure would be altered slightly to reflect what is possible and likely to be put in place.

Measure 4 - Remove the ability to turn right from the direction of Melton Hill (SCC) – As for the above measure, the feasibility study modelling of this option has shown a small decrease in NO₂ concentrations at all sites except those on Lime Kiln Quay Road. The maximum decrease was noted within the AQMA and was 0.1µg/m³ - so small as to be considered as having a negligible impact. The maximum increase noted on Lime Kiln Quay Road was 0.5µg/m³ and this was due to the assumed increase in traffic using Lime Kiln Quay Road in place of St John's Street or Thoroughfare.

The Working Group has discussed this measure and it is likely to be removed from the updated Action Plan as it has been shown to have a negligible impact.

Measure 5 - Relocate Parking (SCC) – The feasibility study modelling of this option has shown in an **increase** in NO₂ concentrations of 0.5 µg/m³ within the AQMA. This was due to an increase in emissions from traffic queueing on Melton Hill in the vicinity of the junction and AQMA. There has been strong local opposition to this measure.

The Working Group has discussed this measure, as it will have a negative impact on the AQMA it will not be carried out and will be removed from the updated Action Plan.

Measure 6 - Remove parking - to be considered if Measure 5 is not successful (SCC) – The feasibility study modelling of this option has shown a negligible impact on NO₂ concentrations at any of the monitoring sites, including within the AQMA. There has been strong local opposition to this measure.

The Working Group has discussed this measure and it will be removed from the updated Action Plan as it has been shown to have a negligible impact and there is local opposition.

Measure 7 - Investigate Satellite Navigation (SatNav) system routes around town (SCDC) – Working Group discussions have revealed that officers within SCC have historically undertaken a lot of research into influencing SatNav companies with the findings that we do not have the buy-in locally to be able to influence the mapping companies. This can only be done at a National level and so **must be removed from our Action Plan.**

SCC previously suggested looking at Tesco delivery routes and contacting the Chamber of Commerce to see if they know anything about business delivery routes. SCDC will investigate this but nothing further has been done to date.

An origin and destination video camera survey undertaken showed that on the route travelling from Melton crossroads to Ipswich Road 27% of the HGVs/lorries were classed as ‘through traffic’. On the route travelling from Ipswich Road to Melton crossroads 58% of the HGVs/lorries were classed as ‘through traffic’. This equated to approximately 25 journeys (out of a total of 57) on the day of the survey. When you take into consideration that our studies have estimated that 50% of the emissions at the AQMA will be coming from HGVs/lorries but that they only make up <5% of the total traffic flow it shows that these figures are significant. The Working Group has begun to discuss the option of a lorry ban for Woodbridge, SCC experience is that it will be difficult to get the police to enforce the ban and so the signs are then ignored. **Further investigations to be undertaken.**

Measure 8 - Bus operators to use cleanest fleet in Woodbridge (SCDC) – From the companies contacted to date this measure does not appear to be achievable, the cleanest buses are being used in the larger towns such as Ipswich and Norwich. We have decided to instead investigate the possibility of applying for a Clean Bus Technology Grant in the future if any of the companies have buses which regularly travel through the junction and are willing to participate. Investigations to begin 2015.

Measure 10 – Simplified Ticket Scheme (SCC) – The Endeavour card went live at the beginning of October 2013 for 16-19 year olds with a 25% discount off single and return fares on participating public services. The card is designed to enable cashless payment in the near future on public transport services where the bus company agrees to accept it. The card will have a stored value and an on-line top up ability will be available in early 2015. Business case submitted to roll out the tickets to adults – the decision is pending. This would allow cashless payment on buses. In the wider Suffolk Coastal area, Anglian Buses are participating fully in the Endeavour card scheme.

First buses have also rolled out ‘mtickets app’ for phones – you can get your bus ticket sent straight to your phone ready for use on the bus when you need it.

It is hoped that this may get more people out of their cars and on to buses.

Measure 13 – Procurement of bus contracts to include fleet upgrade (SCC) – A Quality Assessment Procedure is in place and all operators seeking to be included on the list of suppliers are required to provide details of their fleet proposals as included on the Suffolk County Council web page;
http://www.suffolkonboard.com/tendering_contracts/list_of_approved_transport_suppliers

SCC has also now introduced quality scoring to their procurement process with a slant on environmentally friendly and accessible vehicles. From January 2013 new European Union Regulations will also come in which mean that there is also a score for 'socially responsible public procurement' – for example companies who employ local people, practise ethical trading etc.

First buses have just undertaken major fleet refurbishment which should encourage travel, whilst the engines have not been upgraded they should be able to carry more people. They have also advised that they are removing a lot of the older buses from their fleet and replacing with newer buses.

Measure 15a - Business Travel Plans (SCDC and SCC) – There are no larger businesses (+60 employees) in Woodbridge (with the exception of SCDC who already have a Travel Plan) which could make a significant difference should a Travel Plan be adopted, and so it may be difficult to provide the estimated emissions reductions suggested for this measure. Any Travel Plans adopted by local businesses will however have a positive effect in reducing emissions at the junction.

The Working Group has discussed this measure. SCC do not have the resources to approach the list of businesses that were sent through to them and so this aspect will be removed from the Action Plan. Discussions were had regarding positive impacts which could be had via the SCDC Planning Department. Inclusion of Travel Plans for larger developments within the planning conditions imposed could be a way of helping to reduce vehicle trips and associated emissions. Conditions could possibly state that the development should have a Travel Plan and that this must be implemented and monitored. This would then provide the funding and if they wanted SCC could then undertake the work as the costs would be covered.

Measure 15b - School Travel Plans (SCDC and SCC) – All schools within Woodbridge and the surrounding area, with the exception of Woodbridge School (a private school), historically completed a Travel Plan. It is not known whether these are still in use but one of the schools contacted no longer uses theirs.

Post Code plots have been undertaken by SCC for a number of the relevant schools to try and determine where the students come from for each and therefore the approximate number which may travel through the AQMA. The data has been gathered but needs to be processed so that we can answer the above question more accurately. We will then be able to identify any particular schools with a significant volume of traffic travelling through the AQMA and these can be targeted so we can best use our limited resources. The Working Group will discuss what the next step would be once any schools are identified. It may be that an information campaign regarding air quality and our AQMA for the students and their parents would be appropriate if the school is willing.

Measure 15c - Travel Plan for the District Council offices (SCDC) – The SCDC Travel Plan has now been amalgamated with a number of other policies and strategies in the Council's Joint Environmental Sustainability Policy and Action Plan (JESPAP). There are a number of actions in the JESPAP which relate to the Travel Plan and are still to be undertaken. Further detail is provided in section 9.4.

SCDC are looking to move the Council Offices within the next few years to an as yet unknown location. The current impact of the offices on the AQMA will be assessed via traffic counts in the council car park to determine the number of vehicles entering and exiting each day and the directions of these movements. Once the new location for the Council offices is known we can then determine whether the workforce would still impact on the AQMA and to what extent. The future use of the current site would also then be looked at for its impact on the AQMA.

Measure 16 - cycling and walking (SCC) – The Working Group has discussed the need for a list of potential schemes to be formally put in place so that we have a list for any funding which can be accessed. There may be opportunities through the planning system and through SCDC or SCC grant funds to obtain money for such schemes, but these will need to be set out beforehand. The County Councillor for the Woodbridge division has a number of schemes which she can add to the list. List to be drawn up in 2015.

Measure 17 - Integration with Planning System (SCDC) – The Working Group has identified a number of suggestions relating to the Planning System which could help reduce emissions from traffic and/or provide funding for Action Plan measures. These need further and fuller discussion and a member of the Planning team is to join the Group so that these ideas can be fully investigated and taken forward.

We have had good progress in 2014 working directly with the Planning Officers covering the Woodbridge area. They have been more fully briefed on air quality matters in general and with particular reference to the Woodbridge AQMA. In response to this we have been directly invited to comment on many more planning applications and air quality assessments are now being provided much earlier on in the process.

The Air Quality Supplementary Planning Document for Suffolk has not been formally adopted by this Authority but is being used as guidance for planning applications. This document will aid in the planning process to ensure that air quality assessments are undertaken by applicants where required.

Section 106 agreements will be made as and when a planning application requires them and will not necessarily relate to the AQMA at Woodbridge as they will depend upon where the application site is situated. We have not had any applications where it has been relevant to seek S106 funding relating to our AQMA to date.

Measure 18 - Raise air quality awareness (SCDC) – This is on-going with articles published in local magazines and newspapers, Consultation undertaken on air quality in the district, and information updated on the Council's website as required.

Measure 19 - Monitor air quality (SCDC) – This is on-going at the junction using both a continuous NOx analyser and 12 diffusion tube sites in various locations, see

section 2 of this report for detail. This is our main indicator to determine whether NO₂ reductions are being achieved.

Measure 20 - Undertake identified feasibility studies (SCDC) – The feasibility studies have been completed, detailed information is provided at the start of this section of the report – before table 9.3.

Measure 21 – Remove ability of traffic to go straight on from Melton Hill (SCC) – Feasibility study modelling of this option has shown a small decrease in NO₂ concentrations at all sites except those on Lime Kiln Quay Road. The maximum decrease was noted within the AQMA and was 0.1µg/m³ - so small as to be considered as having a negligible impact. The maximum increase noted on Lime Kiln Quay Road was 0.5µg/m³ and this was due to the assumed increase in traffic using Lime Kiln Quay Road in place of St John's Street or Thoroughfare.

The Working Group has discussed this measure and it is likely to be removed from the updated Action Plan as it has been shown to have a negligible impact.

9.4 Joint Environmental Policy 2013 (JEP)

The Council's JEP combines and replaces a number of Policies and Documents including the Council's Climate Change Strategy and the Green Travel Plan, and is discussed in more detail in Section 8 of this report. In relation to LAQM it states the following:

- Fulfil its duties under the Environment Act 1995 to produce and implement Action Plans for any declared Air Quality Management Areas within the districts.

The Council has already undertaken measures under the original Climate Change Strategy and Green Travel Plan which would have a positive impact on emissions within our AQMA as it is located very close to the Council Offices at Melton Hill;

- Improvements to the Council's fleet vehicles
- Video conferencing facilities installed at the Council Offices to reduce need to travel.
- The Suffolk Coastal Business Advice Service has undertaken 146 energy audits of local small and medium sized enterprises offering suggestions to reduce energy use. Travel is one of the criteria looked at for some businesses.

The JEP includes a number of measures which will assist with emission reduction within the district and therefore aid with work within our AQMA;

- Support and facilitate the Councils' Officer Greenest County Steering Group and Green Team action to engage staff and encourage a shift towards reducing energy and water use, homeworking, teleconferencing, videoconferencing, online training, car sharing, and use of trains and cycles and more fuel efficient driving.

- Extend the Waveney Cycle to Work scheme to cover Suffolk Coastal. To increase the numbers of staff cycling to and from work.
- Encourage a shift to more sustainable travel patterns.
- With the Suffolk Sustainable Travel Forum endeavour to facilitate major investment in public transport to improve existing services and develop new ones.
- Amend the Suffolk Coastal Lift Home Scheme as appropriate and to include cyclists and adopt across the two Councils.
- Ensure delivery of the sustainable transport initiatives as set out in Suffolk's Local Transport Plan 2011-2031.

As the Woodbridge AQMA is located close to the Council Offices any actions which will reduce vehicle emissions from the Council itself will aid in emission reduction within the AQMA as many Council journeys will travel through the junction.

9.5 Planning Applications

There are 7 planning applications mentioned in the Progress Report, see Section 5. Two of these applications could impact on the AQMA due to their location, but only minimally. The others are located too far away to have an impact.

Land at junction of Station Road and Wilford Bridge and Girdlestone Pumps, Station Road, Melton (C09/0584)

This application was for the demolition of the Girdlestons building to be replaced by the erection of 10,735m² of light and general industrial use. This will consist of two and three storey business units to include offices, workshops, coffee shop/café. There will also be associated external works, off site highway works and formation of new access to Station Road.

The application provided an Air Quality Assessment which determined that overall it is considered that the impact of the proposed development on the ambient air quality near the development site and at the junction of Wilford Bridge Road and Melton Road will be very small and will not cause a breach of the limits set out in the Air Quality Limit Value Regulations of 2000.

At the Woodbridge Junction, where our AQMA is located, the increase in traffic from this development was predicted to be 3 light duty vehicles during the peak hour flow which was not considered significant and does not constitute a material consideration in the assessment of the planning application.

The Air Quality Assessment was reviewed by this Department and the findings accepted. The application was determined on 4 March 2010 and approval was given. Work has not yet begun on the site.

Redevelopment of Adastral Park, Martlesham Heath (C09/0555)

This is a revised outline planning application submitted for the regeneration of Adastral Park and land to the east and south. Adastral Park itself covers nearly 40 hectares (100 acres), and British Telecommunications plc (BT) own a further 100

hectares (250 acres) of land surrounding the site, much of which has been or will be quarried to extract sand and gravel. BT's revised outline planning application includes refurbishment of Adastral Park and development of the adjoining land for the creation of a new residential community with its own infrastructure, services and facilities.

The site is approximately 7 km from the AQMA in Woodbridge and it will therefore have little impact on the AQMA. Possibly some residential traffic may visit Woodbridge occasionally but as they would enter Woodbridge to the west of the AQMA they would be likely to park before they encounter the AQMA junction. Any impacts will therefore be negligible.

9.6 List of relevant stakeholders

- Secretary of State
- Members of Parliament for the Suffolk Coastal district (Dr Daniel Poulter MP and Therese Coffey MP).
- All District Councillors for Suffolk Coastal
- All County Councillors covering the Suffolk Coastal district
- All Town and Parish Clerks
- Woodbridge Town Council
- Suffolk County Council
- Environment Agency
- Highways Agency
- East Suffolk and Ipswich Clinical Commissioning Group
- All Suffolk Local Authorities
- Neighbouring County Councils
- All Suffolk Coastal employees - the Suffolk Coastal Planning Department specifically.
- Suffolk Coastal Business Associations
- Suffolk Chamber of Commerce
- The Greenprint Forum members – local group covering environmental issues
- Suffolk Coasts and Heaths
- All residents within the AQMA
- Residents local to the AQMA junction
- Residents within the district who have diffusion tube monitoring undertaken at their properties
- The Choose Woodbridge Partnership
- Other local interested residents (who have contacted us requesting to be included as stakeholders)
- Local Press releases to cover residents and businesses within the Suffolk Coastal district

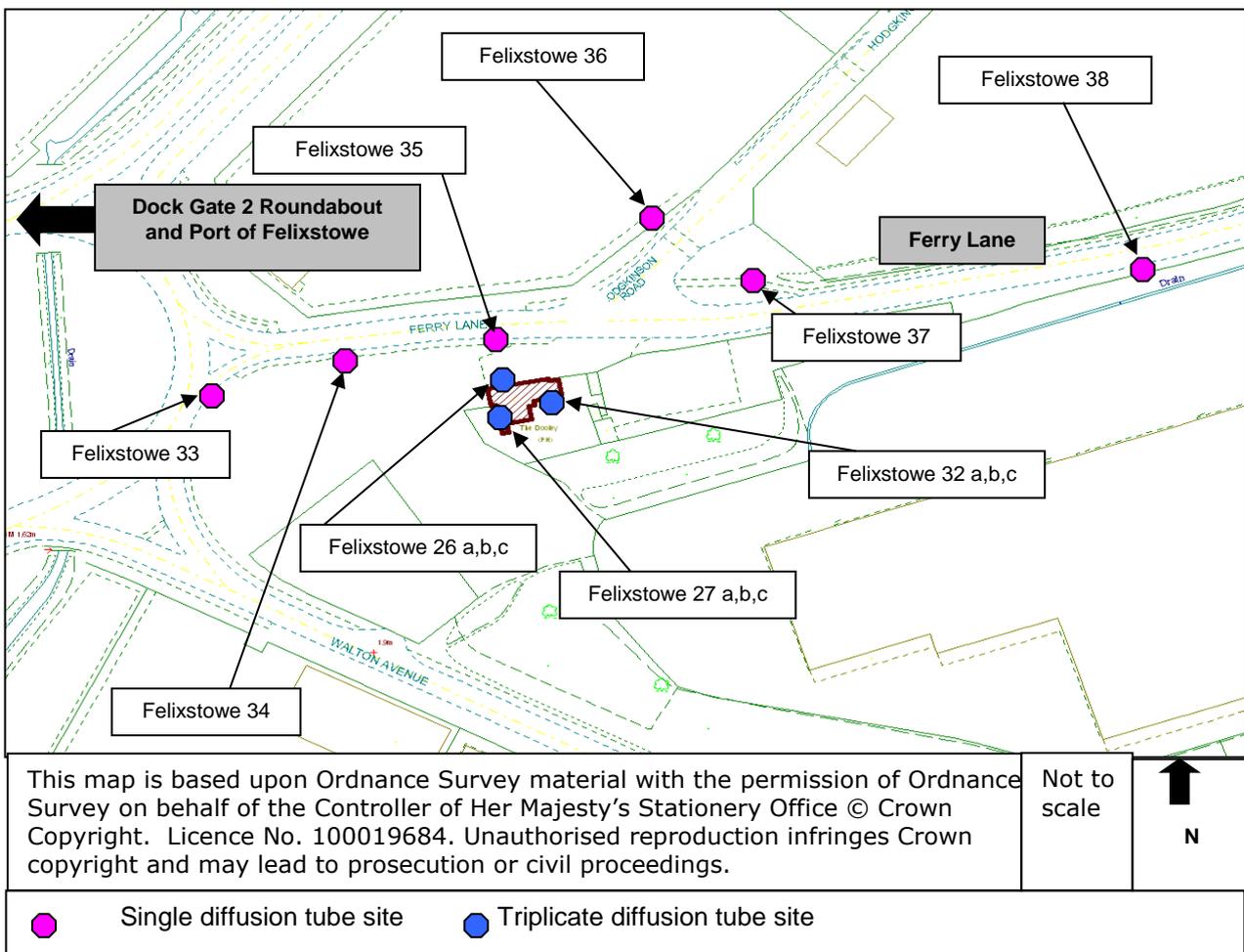
10 AQMA Action Plan Progress Report for The Dooley Inn, Ferry Lane, Felixstowe

10.1 Introduction

On 1 May 2009 an Air Quality Management Area Order was made by Suffolk Coastal District Council for the Dooley Inn, Ferry Lane, Felixstowe with regard to the annual mean NO₂ concentration. A location map is provided below as Figure 10.1.

The Further Assessment was produced in April 2010 and received Defra approval. As part of the Further Assessment, a source apportionment exercise was conducted to calculate the proportion of oxides of nitrogen (NO_x) that are emitted from different sources and their impact on the AQMA. The results showed that there are two main contributors to the NO_x concentrations at the AQMA; container handling operations (including vehicles on roads within the Port boundary) (36.9%), and emissions from heavy duty vehicles (HDVs) on roads outside the Port boundary (28.5%).

Figure 10.1 AQMA declared at The Dooley Inn, Ferry Lane, Felixstowe (hatched in dark red) and locations of diffusion tube monitoring



The Final Action Plan was completed in 2012 and approved by Defra. This identifies measures to be adopted as part of the formal Action Plan and sets out how these 13 measures will be implemented and monitored. The Final Action Plan can be viewed at: <http://www.suffolkcoastal.gov.uk/assets/Documents/District/Air-quality/FelixstoweFerryLaneAQAPSeptember2012.pdf>

Table 10.2 contains an updated summary of progress made on each of the measures within the Action Plan. Additional details regarding the on-going measures are also provided in the main text following the table.

10.2 Monitoring Data

A summary of monitoring data from the diffusion tubes in the vicinity of the AQMA, together with the Urban Background site for this area (FLX 21), for 2013 is presented overleaf in Table 10.1. In addition, results for 2008 - 2012 have also been included in the table for comparison purposes. Concentrations above the objective at sites which are relevant (residential dwellings) are highlighted in bold. Detailed results are presented in Appendix D.

There are 9 monitoring locations in the vicinity of the AQMA, three of which (FLX 26, 27 and 32) are within the AQMA itself. The additional sites (FLX 33, 34, 35, 36, 37 and 38) are not situated at relevant receptors (residential dwellings). These sites were put in place to help ascertain NO₂ levels in the locality of the declared AQMA in order to provide additional information on sources of NO_x more local to the Dooley Inn.

In 2013, annual mean NO₂ concentrations at all of the 3 monitoring locations within the AQMA continue to be below the air quality objective level of 40µg/m³. Historically FLX 26, situated on the front façade of the Dooley Inn facing Ferry Lane, is the only site where the annual mean NO₂ objective level of 40µg/m³ was exceeded and this continues to be the site with the highest concentrations in 2013 at 37µg/m³.

Included in Table 10.1 are records for FLX 21 which is an Urban Background site for the Felixstowe and Trimley area, this site provides data for a nearby area not affected by emissions related to the Port of Felixstowe or any other significant nearby source. This site shows fairly stable levels between 2009 and 2011 with a reduction seen in 2012 and 2013. This trend is seen at all of the sites presented in Table 10.1. It is therefore important that we continue to monitor concentrations at relevant receptors in these areas in order to confirm this reduction in concentrations.

The additional monitoring sites FLX 32-38 show the highest concentration of NO₂ to be at Dock Gate 2 roundabout (FLX 33). The concentrations then reduce as you travel away from Dock Gate 2 roundabout towards The Dooley Inn (FLX 34 and 35) and then past it, with FLX 38 being the furthest site from Dock Gate 2 roundabout and below the objectives at 32µg/m³. Monitoring at the entrance to Hodgkinson Road (FLX 36 and 37) shows higher concentrations on the side where vehicles exit the junction (41µg/m³ at FLX 37), similar concentrations are also seen on the signpost at the front of The Dooley Inn (FLX 35). This indicates that local Heavy Goods Vehicles associated with the depots in Hodgkinson Road are an emission source relevant to our AQMA.

All monitoring locations have been kept in place for 2014 and the results will be reported in the 2015 air quality report.

Table 10.1 Results of Nitrogen dioxide diffusion tube monitoring at sites near to the Dooley Inn, Ferry Lane, Felixstowe AQMA (2008-2013)

Site ID	Location	Within AQMA?	Annual mean concentration bias adjusted ($\mu\text{g}/\text{m}^3$) (Adjustment factor used for 2013 = 0.81)					
			2008	2009	2010	2011	2012	2013
FLX 21	4 Kingsfleet Road, Trimley St. Mary (Urban Background)	No	27	25	24	25	22	22
FLX 26a,b,c	Front of The Dooley Inn at first floor window height	Yes	42	45	43	40	36	37
FLX 27a,b,c	Side of The Dooley Inn facing the Port of Felixstowe	Yes	36	38	33	36	33	32
FLX 32a,b,c	Guttering at rear of Dooley Inn facing the rear garden	Yes	~	~	~	37	34	32
FLX 33	Dock Gate 2 Roundabout. Not relevant receptor	No	~	~	~	66	60	58
FLX 34	Ferry Lane, Midway between roundabout and Dooley Inn. Not relevant receptor	No	~	~	~	51	46	42
FLX 35	Dooley Inn signpost at front. Not relevant receptor	No	~	~	~	48	44	41
FLX 36	Street Sign in Hodgkinson Road. Not relevant receptor	No	~	~	~	41	37	36
FLX 37	Lampost at Ferry Lane on corner of Hodgkinson Rd. Not a relevant receptor	No	~	~	~	48	43	41
FLX 38	Lampost on Ferry Lane, past Hodgkinson Rd. Not a relevant receptor	No	~	~	~	39	34	32

10.3 Action Plan Measures update

Since the Action Plan was finalised in 2012/13 the results of diffusion tube monitoring show that annual mean NO_2 concentrations within the AQMA have fallen below the Air Quality Objective. One or two further years of monitoring data will allow us to confirm whether this is a true trend and not related to Meteorological Conditions or any general monitoring issues. However, with the reduced concentrations in mind, some of the Planning and Implementation dates for our measures have been moved further into the future. This will be reviewed each year in light of monitoring results obtained.

Table 10.2 Action Plan Progress Summary Table 2013/14

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
1a	Air Quality awareness campaign	Target local businesses using major roads in the area e.g A14. Reduce unnecessary traffic and emissions in AQMA and local area.	Suffolk Coastal District Council	To be considered if the NO ₂ concentration rises back above objectives	n/a	Measured concentrations at the Dooley Inn public house	n/a	Air quality consultations have increased awareness in the area amongst businesses and members of the public.	Concentrations at the Dooley Inn public House were below the objective in 2012 and 2013.	n/a currently	This measure will only be undertaken if concentration of NO ₂ in the AQMA increases above objectives.
1b	Implement an Environmental Management System (EMS) at the Port	Reduction of emissions from port activities. Includes employee and tenant education in best practice which will encompass emission reduction.	Port of Felixstowe	2005	2007-2011	No direct indicator Continued certification to ISO 14001	n/a	EMS Implemented and certified to Port Environmental Review System (PERS) in 2006. Developed to full ISO14001 certification from 2011. Delivered training on EMS and individual responsibilities to approx. 200 employees in 2011/12	All new employees are given Environmental Awareness training as part of their induction. Port also now has an Energy Management System (EnMS) certified to ISO 50001	Completed and now on-going	

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
2a	Engage National / EU / international governments to develop policies which influence port activities to improve air quality.	Reduction in NOx emissions from Port activities countrywide	Suffolk Coastal District Council	To be considered if the NO ₂ concentration rises back above objectives	n/a	No direct indicator	n/a	None	None	n/a currently	Port of Felixstowe agreed; acknowledged that all ports should consider adopting a strategy to overcome competition issues.
2b	Develop Port action plan re emissions from processes over a longer term (5 years)	Reduction in NOx emissions from Port processes	Port of Felixstowe		2011 and on-going	Emissions monitoring of NO ₂ and SO ₂ at the Port (including CO ₂ emissions)	n/a	Estimates from the Port's five year carbon reduction plan is an annual reduction of approximately 4000 tonnes CO ₂ . Plan reviewed annually and now part of energy management system, (EnMS).	NO ₂ concentrations monitored since 2007 and SO ₂ since 2009 at a number of locations, see Appendix H. Significant and sustained improvements in this time.	Completed and on-going	Table showing NO ₂ and SO ₂ monitoring results included in main text below.

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
2c	Identify Section 106 planning gain opportunities to balance any future air quality impact caused by local development	Mitigate any increases in emissions from future development	Suffolk Coastal District Council	On-going	On-going	Uptake/ implementation of Section 106 agreements.	n/a	There have been no Planning applications in the area where S106 agreement could be implemented	There have been no Planning applications in the area where S106 agreement could be implemented	On-going	Potential to mitigate increase in emissions. Measures might involve providing sustainable transport options and could include installing long term air quality monitoring.
3a	Evaluate and implement efficient power technologies (e.g. hybrid-electric) for cargo handling equipment (rubber tyre gantry (RTG) cranes) and internal movement vehicles (IMVs) in the Port	Reduction of NOx emissions from Port equipment	Port of Felixstowe	On-going	On-going	Power use at the Port	n/a	The Port has purchased 22 ECO-RTGs – 40% reduction in fuel use and therefore emissions. The Port is planning to convert two sections of the Trinity Terminal to accommodate four fully electric RTGs.	October 2014 – first 4 diesel/electric RTGs converted to electric (ERTG) Initial indication is that the trial has been successful.	On-going 2014 for fully electric RTGs trial Plan to convert more RTGs over the coming years up to 2020	Information on power use at the Port included in main text below. Has decreased since 2008. Will have led to reduced emissions. If roll out of electric RTGs continues the use of diesel in RTGs is expected to fall significantly to 2020.

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
3b	Retro-fitting fuel saving controls to existing Rubber Tyred Gantry (RTG) cranes in the Port.	Reduction of NOx emissions from Port equipment	Port of Felixstowe	2011	2011	Power use at the Port	n/a	The Port has carried out retro-fit of 22 RTGs - greater than 25% of the fleet	n/a	Completed Total of 41 RTGs have had these systems fitted (2014)	Reduction in fuel use of approximately 25% compared to original RTGs.
3c	Investigate feasibility to convert IMVs in the Port from diesel fuel to liquefied natural gas (LNG).	Reduction of NOx emissions from Port equipment	Port of Felixstowe	On-going	On-going	No direct indicator	n/a	Port is investigating this – issues with net emission savings owing to the practicalities of storing LNG - to be considered further.	At present no plans to convert to LNG/CNG but the Port continues to monitor developments	On-going	Possible reductions in NO _x , PM ₁₀ and CO ₂ . Difficult to quantify.

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
3d	Adopt NO _x abatement technologies on Internal Movement Vehicles (IMVs) in the Port.	Reduction of NO _x emissions from Port equipment	Port of Felixstowe	2010	2011 (ongoing replacement plan)	Emissions monitoring of NO ₂ and SO ₂ at the Port (including CO ₂ emissions)	n/a	The Port were to start fitting Adblue (selective catalytic reduction) to IMVs. This has not been undertaken but instead 34 IMVs were replaced in 2011/ 2012 and a further 22 are due in 2014. All new IMVs will use Adblue.	Further 22 IMVs to be replaced in 2014 - these will be using Adblue to reduce NO _x emissions.	On-going	Table showing NO ₂ and SO ₂ monitoring results included in main text below Replacement IMVs comply with Euro IIIa Emission standards instead of Euro I standards which means they have reduced emissions.

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
4	Use of a vehicle booking system (VBS) to manage access to the Port.	Spread HGV flows more evenly throughout 24 hour period to reduce congestion.	Port of Felixstowe	~		Traffic flows (HGVs).	n/a	System implemented, all vehicles now book a time slot to arrive. If arrive out of time slot, it is not allowed on to the Port and required to re-book. Strictly enforced.	n/a	Completed Continues to reduce peak traffic flows	If book at night (between midnight and 7am) can arrive anytime - encourages more deliveries during this time period. Has changed traffic flows in and around the Port, significantly reducing peak HGV flows.
5a	Review of air pollution mitigation options being considered in UK, European and non-European ports	Investigate other potential measures for reduction of emissions from Port activities.	Suffolk Coastal District Council	2012	2013	No direct indicator Report completed	n/a	TRL commissioned to produce report. Report produced, sent to the port of Felixstowe and their comments received and detailed in 2013 Progress Report	n/a	Completed	Comments from the Port of Felixstowe regarding each option confirmed that some are being undertaken and researched already and others are not currently viable. Noted for the future if needed.

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
5b	Vehicle number plate surveys	Gain clear understanding of vehicle fleet - age and type of HGVs at specific locations.	Suffolk Coastal District Council	2011	2011/12	No direct indicator. Can assist in quantifying the impact from articulated HGVs over time if repeated	n/a	Report commissioned and produced 2011/12.	Results analysed and show activity from the goods yard does not appear to be affecting air quality concentrations at the Dooley Inn to any greater extent than previously thought. Confirms findings of our earlier reports.	Completed	
5c	Develop a Supplementary Planning Document (SPD) – Air Quality.	Ensure that emissions impacts from proposed developments are fully assessed.	Suffolk Coastal District Council	2010/11	2012	No direct indicator	N/A	Report completed in 2012, not formally adopted by SCDC but being used as guidance	This guidance is in use for planning applications on the district. Improved links with Planning to ensure all relevant applications assessed for air quality implications.	Completed and in use	Establishes planning control mechanism to appraise potential air quality impacts of proposed development, especially within or near to existing AQMAs.

Of the 13 measures set out In the Action Plan, 7 have already been completed - 3 by Suffolk Coastal District Council and 4 by the Port of Felixstowe. All other measures which are the responsibility of the port of Felixstowe have been started and are on-going. Additional information is provided below.

Measure 1a – Awareness Campaign (SCDC)

We have moved the Planning and Implementation dates for this measure further into the future and these dates will be reassessed year on year in light of monitoring results. Consultations undertaken on our annual air quality reports will themselves increase awareness for the public and within the business sector. Consultations are usually published within the local press, on the Hauliers Association website and with any other publications that are due at the time.

Measure 1b – Port of Felixstowe Environmental Management System (EMS) (PoF) - Completed

In addition to previous work undertaken the Port has advised that all new employees are also given Environmental Awareness training as part of their induction. The Port also now has an Energy Management System certified to ISO 50001.

Measure 2a – Engage Governments to develop policies to improve air quality from Port activities (SCDC)

We have moved the Planning and Implementation dates for this measure further into the future. This measure will only be undertaken if concentrations of NO₂ in the AQMA increase above the objective.

Measure 2c – Identify Section 106 Planning gain opportunities (SCDC)

All relevant planning applications for the district are assessed for their impacts on air quality, particularly with respect to declared AQMAs. There were no planning applications received for this area which would require Section 106 agreements to be made in 2013/14.

Measure 3a – Evaluate and implement efficient power technologies (PoF)

The Port has invested in a number of environmental projects and will continue to do so, where practicable. They have purchased 22 eco-Rubber Tyred Gantry Cranes (RTGs), these have smaller engines which allow them to run at maximum efficiency - leading to reductions in emission. Sections of the Trinity Terminal have been converted in 2014 to accommodate four fully electric RTGs. Initial indication is that the trial has been successful. The Port has an ongoing commitment to increase the current fleet of eRTGs and is investigating the feasibility of converting up to half of the RTG fleet to electric RTGs (ERTG) over the next few years. The ERTG programme has the potential to reduce total diesel use at the port by up to 30%. To mitigate the increase in electricity demand the port has been progressing energy efficiency projects and renewable energy generation (Solar PV). In the past 12 months the port has fitted over 3000 low energy (Ceramic Discharge Metal-halide lamps and Light Emitting Diodes) floodlights on RTGs, Rail Mounted Gantry Cranes, lighting towers, in workshops, warehouses and offices, these give efficiencies of 50 - 70%. The total Solar generation will be over 400 kWp in early 2015.

The Port of Felixstowe has advised that their energy use and CO₂ emissions increased slightly in 2011 and 2012. Between 2012 and 2013 however emissions fell by 3.3%. The Port has expanded significantly with Berths 8 and 9 now fully operational and a new rail terminal. The increase in rail traffic, whilst reducing heavy goods vehicle traffic, does increase their internal energy use, but the net benefit in terms of emissions is about 200%. There are also a lot of projects under way at the port at present (approximately 30) to reduce energy consumption and the first all-electric RTGs are now operational, further reducing emissions.

These figures indicate that overall energy use at the Port has reduced (when offset by the expansion) even in recent years. The ports relative Greenhouse Gas emissions (CO₂e/teu_e) fell 7% in 2013-14 and is now down 20% since 2008-09.

Measure 3c – Investigate converting IMVs from diesel fuel to liquefied natural gas (LNG) (PoF)

These investigations are on-going.

Measure 3d – Adopt NO_x abatement technologies on Internal Movement Vehicles (IMVs) (PoF)

The Port purchased 34 new IMVs which were in use as of 2013. 22 additional units were delivered in 2014. All new IMVs will be fitted with Adblue systems, this is Diesel Exhaust Fluid which is used in selective catalytic reduction in order decrease NO_x concentrations in diesel exhaust emissions. This should show reductions in NO_x emissions from all IMVs. The emissions standards they comply with are Euro IIIa which is a significant improvement over the ones replaced, which had Euro I emission requirements. Emissions from IMVs will therefore continue to reduce with the additional replacement ones in 2014.

The Port monitors how effective the replacement vehicles are through their NO₂ and SO₂ monitoring undertaken on the Port. NO₂ has been monitored since 2007 and SO₂ since 2009 which gives an indication of trends over time. All SO₂ locations are on the rear legs of the quay cranes, NO₂ monitoring points are in two main areas; near to the Dooley Inn AQMA and near to the Adastral Close residential area. A map showing their locations can be seen in Appendix H.

The results of monitoring are detailed in Tables 10.3 and 10.4. The results of NO₂ monitoring show a reduction in levels from 2007, there was a spike in 2010 at all locations but NO₂ concentrations have all decreased again since this time. The results for the majority of sites in 2013 have decreased slightly or stayed the same with the exception of site 10 which has increased slightly but is still well below the annual mean Air Quality Objective level of 40µg/m³.

The results of SO₂ monitoring show a reduction at all locations year on year from 2009 to 2012. In 2013 SO₂ levels fell or stayed constant at the majority of sites with the exception of Berths 5 and 9 which increased very slightly.

These results indicate that emissions of NO₂ and SO₂ from the Port of Felixstowe site have reduced over time and in the present day are either continuing to decrease or now remaining static. Results from NO₂ monitoring locations run by Suffolk Coastal close to the Port boundary (Ferry Lane, Adastral Close and Levington Road) can be

seen in Section 2 of this report (Table 2.6) and also show reductions in levels since 2008, but do not mirror the 2010 spike shown in the Port's results.

Table 10.3 Port of Felixstowe NO₂ Monitoring Results 2007-2013

Site ID	Annual Mean Concentration (µg/m ³) - Adjusted for Bias ^a						
	2007	2008	2009	2010	2011	2012	2013
Mallard House (Site 2)	50.1	47.2	45.8	47.2	45.3	41.8	37.8
Central Eng. / Stores Car Park (Site 3)	49.3	47.7	42.8	45.2	41.8	39.1	38.2
Pier House LT7113 (Site 4)	~	34.8	31.0	36.2	32.1	33.6	31.5
Pier House LT7120 (Site 5)	~	33.7	29.8	34.5	29.2	33.7	31.9
Landguard Eng LT7404 (Site 6)	~	36.4	29.2	31.4	27.9	29.0	26.0
90 Park LT7403 (Site 7)	~	31.9	30.4	31.5	29.4	28.9	27.1
90 Park LT7410 (Site 8)	~	30.2	27.5	28.4	27.5	25.1	25.4
75 Park LT7402 (Site 9)	~	37.1	34.7	40.2	33.2	31.4	28.1
75 Park LT7507 (Site 10)	34.7	30.2	30.3	31.2	27.2	28.2	29.6

Table 10.4 Port of Felixstowe SO₂ Monitoring Results 2007-2013

Site ID	Annual Mean Concentration (µg/m ³)						
	2007	2008	2009	2010	2011	2012	2013
QC5 - Berth 1 & 2	~	~	13.0	7.4	5.9	2.4	2.0
QC10 - Berth 3 & 4	~	~	14.3	8.8	7.2	2.9	2.9
QC15 - Berth 5	~	~	15.6	6.9	5.2	2.3	2.8
QC20 - Berth 6	~	~	16.8	7.3	5.9	2.6	2.2
QC25 - Berth 6 & 7	~	~	14.7	5.1	4.4	2.9	2.7
QC29 - Berth 7	~	~	12.6	6.0	5.2	2.1	2.2
QC1 - Berth 8	~	~	~	~	6.7	2.9	3.0
QC 4 - Berth 9	~	~	~	~	3.6	2.9	3.8

Measure 5c – Develop Supplementary Planning Document (SCDC)

The Supplementary Planning Document for Suffolk Local Authorities was completed in 2012. It has not been formally adopted by SCDC but is being used by the Environmental Health Department for planning applications as guidance for air quality matters.

We have also been working very hard to improve the links between our Planning Team and Environmental Health to ensure that any new, relevant, planning applications are received and commented on with regard to air quality.

Additional measure implemented by the Port of Felixstowe

The Port of Felixstowe has recently released a mobile phone app to give customers up-to-date container status information. The app will alert customers with updates on a specific vessel or container. Notification emails can be requested when a named

ship arrives in the port and when the container is discharged, cleared and ready for collection. Using a container number, users can track the status of a container through the port in real time and be notified when a container is ready for collection.

In addition to allowing users to track containers or specific vessels, the latest 5-day weather forecast for the port and details of freight train arrivals and departures are easily accessible.

10.4 Joint Environmental Policy 2013 (JEP)

The Council's JEP combines and replaces a number of Policies and Documents including the Council's Climate Change Strategy and the Green Travel Plan, and is discussed in more detail in Section 8 of this report. In relation to LAQM it states the following:

- Fulfil its duties under the Environment Act 1995 to produce and implement Action Plans for any declared Air Quality Management Areas within the districts.

The Council has already undertaken measures under the original Climate Change Strategy and Green Travel Plan which would have a positive impact on emissions within our AQMA as it is located very close to the Council Offices at Melton Hill;

- Improvements to the Council's fleet vehicles
- Video conferencing facilities installed at the Council Offices to reduce need to travel.
- The Suffolk Coastal Business Advice Service has undertaken 146 energy audits of local small and medium sized enterprises offering suggestions to reduce energy use. Travel is one of the criteria looked at for some businesses.

The JEP includes a number of measures which will assist with emission reduction within the district and therefore aid with work within our AQMA;

- Support and facilitate the Councils' Officer Greenest County Steering Group and Green Team action to engage staff and encourage a shift towards reducing energy and water use, homeworking, teleconferencing, videoconferencing, online training, car sharing, and use of trains and cycles and more fuel efficient driving.
- Extend the Waveney Cycle to Work scheme to cover Suffolk Coastal. To increase the numbers of staff cycling to and from work.
- Encourage a shift to more sustainable travel patterns.
- With the Suffolk Sustainable Travel Forum endeavour to facilitate major investment in public transport to improve existing services and develop new ones.
- Amend the Suffolk Coastal Lift Home Scheme as appropriate and to include cyclists and adopt across the two Councils.
- Ensure delivery of the sustainable transport initiatives as set out in Suffolk's Local Transport Plan 2011-2031.

As the AQMA is located close to Dock Gate 2 roundabout any actions which will reduce vehicle emissions from the Council itself will aid in emission reduction in the locality of the AQMA.

10.5 Planning Applications

There are eleven planning applications mentioned in the Progress Report, see Section 5. Four of these applications are within Felixstowe but, due to their location and the type of proposal, only one will have any impact on the AQMA declared at Ferry Lane. This is planning application DC/13/3656/FUL for a high bay distribution centre at Clickett Hill, Trimley St Mary which obtained planning consent but for which work has not yet started.

The distribution centre will take bulk containerised goods from the Port of Felixstowe and reprocessing them for onward distribution. Onward distribution will be via container back to the Port or onto a Heavy Goods Vehicle (HGV) for onward road distribution. It will have 369 car parking spaces and 168 spaces for HGV parking and will operate 24 hours a day.

An Air Quality Assessment was submitted which modelled air quality at receptor locations on the road network including the declared AQMA at The Dooley Inn PH. The distribution centre will add to the HGV traffic using Dock Gate 2 roundabout near to the AQMA. The assessment predicted increases of $0.2\mu\text{g}/\text{m}^3$ NO_2 and $0.02\mu\text{g}/\text{m}^3$ PM_{10} at the site of the AQMA with the development in place. These increases were considered not to be a significant air quality impact. Results for other receptor locations modelled showed similar minor increases with the development in place and so were also considered to not be significantly impacted. The air quality assessment and its findings were investigated by this Department and approved.

10.6 List of relevant stakeholders

- Secretary of State
- Members of Parliament for the Suffolk Coastal district (Dr Daniel Poulter MP and Therese Coffey MP).
- All District Councillors for Suffolk Coastal
- All County Councillors covering the Suffolk Coastal district
- All Town and Parish Clerks
- Woodbridge Town Council
- Suffolk County Council
- Environment Agency
- Highways Agency
- East Suffolk and Ipswich Clinical Commissioning Group
- All Suffolk Local Authorities
- Neighbouring County Councils
- All Suffolk Coastal employees - the Suffolk Coastal Planning Department specifically.
- Suffolk Coastal Business Associations
- Suffolk Chamber of Commerce
- The Greenprint Forum members – local group covering environmental issues

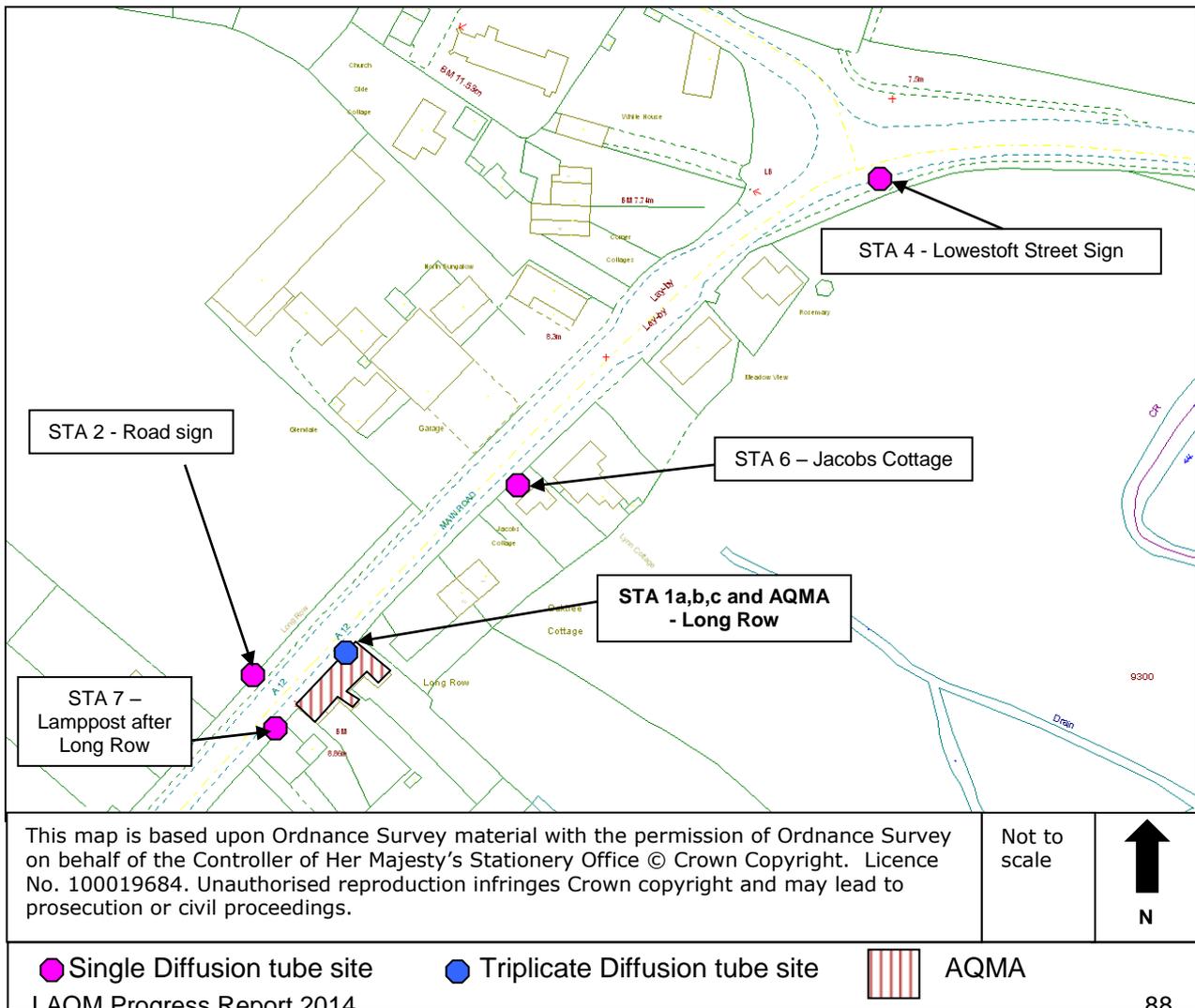
- Suffolk Coasts and Heaths
- All residents within the AQMA
- Residents within the district who have diffusion tube monitoring undertaken at their properties
- The Port of Felixstowe
- Harwich haven and Bathside Bay
- Felixstowe Port Users Association
- List of Port hauliers
- Orwell Housing Association and residents of their properties within Adastral Close
- Local Press releases to cover residents and businesses within the Suffolk Coastal district

11 Stratford St Andrew AQMA update

Monitoring for annual mean nitrogen dioxide (NO₂) has been undertaken since 2011 at several sites along the A12 as part of the pre-planning application scoping exercise for Sizewell C. Monitoring sites are present at locations in Little Glemham, Farnham and Stratford St Andrew.

At one of the monitoring locations, Long Row in Stratford St Andrew (STA 1), the annual mean NO₂ concentration has been shown to be slightly above the annual mean Air Quality Objective. The Objective level is 40 µg/m³ and concentrations recorded at Long Row were 43, 42 and 41 µg/m³ in 2011, 2012 and 2013 respectively (see Table 11.1 overleaf). The site is located on the drainpipe of a group of five houses which open directly onto the pavement of the A12. There is approximately 1 metre between the building façade and the kerb. This location is the only site with NO₂ concentrations above the annual mean objective and can be seen in Map 11.1 below.

Figure 11.1 Main Road, Stratford St Andrew showing the location of the AQMA at Long Row and diffusion tube monitoring points



During 2011, Long Row (STA 1) was monitored using a single diffusion tube, and so for increased accuracy in 2012 the site was triplicated. The continued exceedence of the Objectives seen in 2012 confirmed the need to proceed to a Detailed Assessment. A number of additional sites were put in place in the locality to provide additional spatial monitoring information (Map 11.1 shows those in place during 2013), levels at these sites are all within the air quality objectives.

Table 11.1 Results of nitrogen dioxide diffusion tube monitoring at sites along the A12 (2011-2013)

Site ID	Location	Within AQMA?	Annual mean concentration bias adjusted ($\mu\text{g}/\text{m}^3$) (Adjustment factor used for 2013 = 0.81)		
			2011	2012	2013
LGM 1	Pear Tree House, Main Rd, Little Glemham	No	17	14	15
FAR 1	Turret House, The Street, Farnham	No	29	26	29
FAR 2	Post Office Stores, The Street, Farnham,	No	33	31	31
STA 1	Long Row, Main Road, Stratford	Yes	43	42	41
STA 2	Road sign opposite Long Row, Main Road, Stratford	No	~	~	27
STA 4	Lowestoft Street Sign bend, Main Road, Stratford	No	~	~	17
STA 6	Jacobs Cottage, Main Road Stratford	No	~	~	24
STA 7	30mph sign past 5 Long Row, Main Road, Stratford	No	~	~	34

A Detailed Assessment was undertaken on the Council's behalf by Transport Research Laboratory (TRL) for the A12 at Stratford in July 2013. The Detailed Assessment concluded that an Air Quality Management Area (AQMA) should be declared and the Council determined that the extent of the AQMA would encompass the four houses at 1-5 Long Row, Main Road, Stratford St Andrew.

Properties monitored at Farnham, at the same distance from the road as Long Row in Stratford St Andrew, show NO_2 concentrations below the Air Quality Objectives which would suggest that the elevated concentrations at Long Row are localised (see Table 11.1 above). Local knowledge suggests that the levels at Stratford St Andrew may be related to traffic movements associated with the petrol filling station and the change of speed limit close to Long Row.

The Detailed Assessment report, and the Council's Cabinet recommendation to declare an AQMA covering the boundary of the four houses at 1-5 Long Row, was approved by Defra in early 2014. The AQMA Order was made on 18th June 2014 and the location is shown hatched in red on Map 11.1. A copy of the Order can be seen in Appendix E.

The Council is now required to produce a Further Assessment within 12 months of the AQMA Order, investigating source apportionment of emissions within the AQMA, followed by an Action Plan within 18 months of the AQMA Order. The Action Plan will provide information on measures that will be taken to try and reduce NO₂ concentrations within the AQMA.

The Council has employed Transport Research Laboratory (TRL) to produce the required Further Assessment for this AQMA. To help inform the Further Assessment, TRL undertook a Drive Cycle in this area of the A12 in Autumn 2014. This consists of a specialised vehicle which travelled on the A12 in and around the AQMA from both directions, at different speeds and covering different scenarios (for example travelling at the set speed limit of 30mph within the AQMA with no acceleration and then travelling at different speeds with and without acceleration). The vehicle has an on-board emission recording device to record each emission profile associated with each different scenario/manoeuvre undertaken. The results from the Drive Cycle will help to calculate source apportionment of emissions affecting the AQMA, and also with suggestions for possible measures which could be taken to reduce emissions for the Action Plan.

The Further Assessment is underway should be completed ahead of schedule, in early 2015. A working group has been set up with representatives from Suffolk Coastal District Council and Suffolk County Council and has begun early discussions on possible options for reducing emissions within the AQMA. This group will be informed by the results of the Further Assessment when completed and can move forward at that stage.

12 Conclusions and Proposed Actions

12.1 Conclusions from New Monitoring Data

Monitoring undertaken in 2013 by the automatic NO_x analyser and diffusion tubes situated within the AQMA at Woodbridge confirm that the annual mean NO₂ objective continues to be exceeded but that the 1-hour objective is not exceeded.

Concentrations recorded by diffusion tubes within the AQMA at Felixstowe continue to be below the Air Quality Objective 2013, the highest recorded concentration being 37µg/m³.

Concentrations recorded by diffusion tubes within the newly declared AQMA at Stratford St Andrew have shown a slight decrease between 2011 and 2013 but continue to be slightly above the Air Quality Objective at 41µg/m³.

The results of NO₂ monitoring undertaken across the district in 2013 using diffusion tubes show a number of sites within the district where the annual mean NO₂ objective is exceeded. All sites at relevant receptor locations are within the declared AQMAs at Woodbridge and Stratford St Andrew.

12.2 Conclusions relating to New Local Developments

There are no new / newly identified road traffic sources or other transport sources within the Suffolk Coastal district since the 2013 Progress Report.

Since the 2013 Progress Report, there have been 2 new industrial installations within the district permitted under the Environmental Permitting Regulations 2010. There are no significant emissions predicted from either of these installations and Detailed Assessment is not required. There are two existing industrial installations within the district, permitted under the Environmental Permitting Regulations 2010, with the potential to emit significant quantities PM₁₀ or NO₂. Emissions from both have been assessed and there are no predicted exceedences of the Objectives. No further assessment is therefore required.

There are no new / newly identified commercial or domestic sources of pollutants within the Suffolk Coastal district since the 2013 Progress Report.

12.3 Other Conclusions

There are **6 developments** within the Suffolk Coastal district which have been detailed within previous Progress Reports for which either the Planning Application has still yet to be determined or Planning Permissions has been granted but works

on site have not yet been completed. Each has been assessed for air quality impacts by this department.

There are an additional **5 planning applications** which have been recently approved or are currently waiting to be determined, and which may impact on air quality. Each has been assessed or is in the process of being assessed for air quality impacts by this department.

The **Local Transport Plan** states that Suffolk County Council strongly supports the provision of proper relief for the villages of Marlesford, Little Glemham, Stratford St Andrew, and Farnham on the A12 by the provision of a relief road and will work with the nuclear industry to secure its provision alongside any new power station at Sizewell. Bypass options are currently being investigated by Suffolk County Council.

The Action Plan for the **Woodbridge junction AQMA** consists of 20 measures, one has now been removed from the plan as studies have shown it to not be viable, 6 have now been completed, and one new measure has been added. Feasibility studies have now been completed for the 5 options which involve 'physical junction alterations'. These have shown 1 to have a negative impact and the remaining 4 to have a negligible impact on NO₂ concentrations in the AQMA. It is therefore unlikely that any of them will be implemented. The feasibility study has 2 recommendations; to install a weather station for 3 months within the AQMA and to trial holding back traffic a distance from the lights and therefore away from the AQMA and pulse it through. Both of these recommendations are being investigated. A new Working Group has been set up consisting of Officers and relevant Councillors from both Suffolk County Council and Suffolk Coastal District Council. The Group has decided that the Action Plan needs to be updated to remove those measures which have been shown to be unlikely to have any impact. There are also a number of alternative options which have been suggested by the Working Group for possible inclusion in the Action Plan. Discussions and investigations into each are beginning. When we reach the stage of being able to provide the updated Action Plan this will go out for a full Consultation with all relevant stakeholders.

The Action Plan for the **Felixstowe AQMA** consists of 13 measures, 6 of which are the responsibility of Suffolk Coastal District Council and 7 the responsibility of the Port of Felixstowe. Of the 13 measures 7 have already been completed - 3 by Suffolk Coastal District Council and 4 by the Port of Felixstowe. All other measures which are the responsibility of the Port of Felixstowe have been started and are on-going. The results of diffusion tube monitoring for 2012 and 2013 show that annual mean NO₂ concentrations within the AQMA have fallen below the Air Quality Objective. One or two more years of monitoring data will be needed to confirm whether this is a true trend. With the reduced concentrations in mind, we have moved a number of the Planning and Implementation dates for our measures further into the future and this will be reviewed each year in light of monitoring results obtained.

An AQMA was declared at Long Row in **Stratford St Andrew** in June 2014 following confirmation from Defra. Work is underway on the required Further Assessment which should hopefully be completed in early 2015 and a working group has been set up with representatives from Suffolk Coastal District Council and Suffolk County Council to begin early discussions on possible options for reducing emissions within the AQMA.

12.4 Proposed Actions

- The 2 recommendations from the Woodbridge feasibility study will be investigated and implemented if possible – a weather station to be installed within the AQMA if siting permissions are forth-coming, and a trial to hold back traffic from the junction (and AQMA) will be undertaken should Suffolk County Council be in agreement.
- The Working Group set up for the Woodbridge AQMA will continue to work through the current Action Plan measures to determine whether and how they can be carried out or need removing from the Action Plan, and will investigate any new suggestions for inclusion in the plan. Once agreed, the Action Plan will be formally updated and put out to full Consultation.
- Work will continue via the new Working Group on those measures in the Woodbridge Action Plan which are to remain.
- The diffusion tube results for locations within the AQMA at Ferry Lane, Felixstowe in 2014 will be assessed as soon as they are available to confirm whether they continue to be below the Objectives. If they are, Defra will be approached to determine if, and at what point, the AQMA could be revoked.
- Once the Further Assessment is received for the AQMA at Stratford St Andrew, an Action Plan will be drawn up in conjunction with Suffolk County Council and other relevant stakeholders.
- Findings of the above actions will be presented in the next annual air quality report – the Updating and Screening Assessment Report 2015.

13 Air Quality Consultation responses

All Local Authorities must consult on the findings of their periodic reviews of air quality, as laid out in Schedule 11 of the Environment Act 1995. This enables local views to be taken into consideration within the review and assessment process, which is of great importance as Local Air Quality Management (LAQM) is about air quality issues relevant to the Suffolk Coastal district.

Since the last publication of Consultation responses (within the 2011 Progress Report) there have been two public Consultations undertaken. In 2013 we carried out a Consultation on the findings of the 2012 Updating and Screening Assessment report together with the contents of the Felixstowe AQMA Action Plan. Earlier this year in 2014 we consulted upon the 2013 Progress Report, which included the results of the Detailed Assessment for Stratford St Andrew and the Council's intention to declare an AQMA at Long Row, Main Road in Stratford St Andrew.

A total of 14 responses were received from the 2013 Consultation and 9 from the 2014 Consultation, the majority of which were responded to individually. The responses from both Consultations have been collated into main themes and a summary can be seen in table 12.1 below:

Table 13.1 Summary of Consultation responses received in 2013 and 2014

Consultation response theme	Further details
Woodbridge AQMA	<ul style="list-style-type: none"> • Remove parking on Melton Hill outside the Council offices • Do not remove the parking from Melton Hill outside the Council Offices • Do not allow right hand turn into St John's Street from Melton Hill at peak times • Do not remove ability to turn right or go straight over from Melton Hill – inconvenient and may cause rat running on other smaller streets. • Enforce central Thoroughfare as access only. • Enforce central Thoroughfare as residents and delivery access only. • Enforce current Thoroughfare restrictions. • Add physical barriers to the Thoroughfare entrance (such as large planters) to slow vehicles and act as a deterrent. • Reduce traffic using central Thoroughfare and add pedestrian area amenities such as planters, small trees and limited and outdoor café facilities. • Encourage traffic to use A12 bypass by signage and other means • Encourage driver inconvenience in Woodbridge– routine drink driver test etc. • Free bus service for passengers to / from Woodbridge Centre + 2 miles & train from Melton to / from Woodbridge Centre. • Improve bicycle parking within Woodbridge Centre. • Update cycle routes with 'Woodbridge' as a destination / stop off. • Provide priority cycle lanes / paths.

	<ul style="list-style-type: none"> • Improved street lighting (LED street lights are environmentally friendly / improve visibility) to improve cyclist (and encourage pedestrian) safety. • Encourage local coffee shops to provide 10% discount to cyclists. • Promotion of Woodbridge as an environmentally responsible town - 'get on your bike' campaigns etc. • Provide free electric charging station within Woodbridge Centre for vehicles (as per Ipswich Waitrose). • Provide free parking for Electric vehicles. • Extend double yellow lines away from the junction along Melton Hill to stop vehicles parking for deliveries etc. • Install mini-roundabout at the junction and put in 3 Zebra crossings. • Shared cycle/pedestrian route from Melton train station along Wilford Bridge Road and down Melton Road to Melton Hill. Incorporate bus stops and parking bays along length of Melton Road/Hill. Will encourage cycling and discourage through traffic • Improve cycling on Woods Lane and a crossing near Bredfield Road to aid school children to cycle. • Reduce speed limit to 20mph on B1438 to discourage through traffic • Ensure disabled blue badge holders can drive along the Thoroughfare if any changes are made • Make the left hand filter light on Melton Hill easier to see – and also put in a second left filter light at the junction. • Remove the delay on the left hand filter light on Melton Hill – it does not come on at the same time that the traffic moves off from Lime Kiln Quay Road and so is often missed by motorists who look away. • Pedestrian crossing outside the Council Offices causes problems for traffic if there is a bus at the bus stop as you cannot get around it easily. • 'Switch off your engines when stationary' signs at the junction • Allow space for 1 or 2 cars to pull forward on Melton Hill when left filter light on. • Turn off the traffic lights at times when there is less traffic - at night. • Better public transport to Sutton Hoo from Woodbridge and Melton with incentives – discounts etc. • Better cycle lanes around Melton Hill area and incentives to cycle at shops and attractions. • Cycling courses to encourage people onto bikes • More cycle racks • Local businesses to encourage cycling by discounts etc • Councils to actively promote cycling to work and school.
<p>Felixstowe AQMA</p>	<ul style="list-style-type: none"> • Town Council is still concerned re air quality levels in the AQMA • Welcome any increase in rail traffic from the Port of Felixstowe in place of road haulage • Concerns re large distribution warehouse which has received Planning Permission and will not be transporting anything via rail
<p>Stratford St Andrew AQMA</p>	<ul style="list-style-type: none"> • Please confirm where the monitoring locations are • Drivers speed up early (at the AQMA site) when they see the 50mph sign as you travel South out of the village and also do not slow down at the start of the 30mph zone when travelling North into the village - this may be causing the elevated readings. Need for a buffer zone between the 30mph and 50mph zones. • One of the reasons for the build up of pollution is cars entering and exiting the garage and the necessary car engine operations needed

	to slow down or speed up as the case may be.
Martlesham A12	<ul style="list-style-type: none"> • Please continue to monitor NO₂ close to the BT roundabout. • Concern about possible increase in levels of pollution at BT roundabout which is predicted to become busier after development of the area (Redevelopment of Adastral Park, Martlesham Heath C09/0555). • Concerns about NO₂ levels at the Tesco Anson Road roundabout due to increases in traffic here. Please could monitoring be undertaken here also.
Melton	<ul style="list-style-type: none"> • Concerns regarding congestions experienced in Dock Lane at school drop off and pick up times. Changes in parking restrictions nearby mean more cars parked illegally and in unsafe locations. Congestions will be causing air quality problems here. • Concerns regarding increase in queuing traffic and congestion on The Street, Melton due to vehicles cutting through as Wilford Bridge Road is queuing more now. What are the levels of pollution in this area?
General	<ul style="list-style-type: none"> • Acknowledgement of the reports with acceptance of the findings • Congratulations on a well written report • Please include statistics and information on health effects of pollutants in future reports. • Could there be access to daily levels of pollutants that are monitored on the Council website

Comments in relation to each of the 3 AQMAs have been picked up for investigation / discussion with the relevant Action Plan Working Group.

Monitoring is continuing at Martlesham BT roundabout and a new site has been located at the Anson Road roundabout.

Investigations into congestion concerns at both locations in Melton has been or is continuing to be investigated. A new monitoring site has been located on The Street.

This report now includes a section on pollutant health effects.

At this time the Council will not be placing real time monitoring data on its website but this will continue to be reviewed.

14 References

1. *Environment Act 1995*, Chapter 25. HMSO, 1997.
2. *Air Quality (England) Regulations 2000* – S.I 2000, No 928. HMSO, 2000.
3. *Air Quality (England) Amendment Regulations 2002* – S.I 2002, No. 3043. HMSO, 2002.
4. *The Environmental Permitting (England and Wales) Regulations 2010* – S.I 2010, No. 675. HMSO, 2010.
5. *The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volume 1 and 2)*. Report by the Department of Environment, Food and Rural Affairs in partnership with the Scottish Executive, Welsh assembly Government and Department of the Environment Northern Ireland. DEFRA Publications, July 2007.
6. *Part IV of the Environment Act 1995, Local Air Quality Management, Technical Guidance. LAQM.TG(09)*. Report by the Department of Environment, Food and Rural Affairs in partnership with the Scottish Executive, Welsh assembly Government and Department of the Environment Northern Ireland. DEFRA Publications, February 2009.
7. *Part IV of the Environment Act 1995, Local Air Quality Management, Policy Guidance PG(09)*. Report by the Department of Environment, Food and Rural Affairs in partnership with the Scottish Executive, Welsh assembly Government and Department of the Environment Northern Ireland. DEFRA Publications, February 2009.
8. *Technical Guidance: Screening Assessment for biomass boilers*. AEA Energy & Environment, July 2008.
9. *2012 Air Quality Updating and Screening Assessment for Suffolk Coastal District Council*. Produced by Suffolk Coastal District Council, December 2012.
10. *2013 Air Quality Progress Report for Suffolk Coastal District Council*. Produced by Suffolk Coastal District Council, December 2013.
11. *Suffolk Coastal District Council Air Quality Action Plan for Woodbridge*. Prepared by AEA Technology plc under contract to Suffolk Coastal District Council, August 2009.
12. *Further Assessment for the Air Quality Management Areas at Ferry Lane, Felixstowe*. Prepared by Transport Research Laboratories under contract to Suffolk Coastal District Council, April 2010
13. *Local Air Quality Management Action Plan for the Air Quality Management Area at Ferry Lane Felixstowe*. Prepared by Transport Research Laboratory under contract to Suffolk Coastal District Council, September 2012.
14. *National Air Quality Information Archive – National Background Maps*. Information from which can be viewed at www.airquality.co.uk/archive/laqm/tools/php. Defra.
15. *Supplementary Guidance – Air Quality Management and New Development 2011 – Suffolk Local Authorities*. Suffolk Air Quality Management Group, 2011.

Appendices

Appendix A	QA:QC Data
Appendix B	Maps showing NO₂ diffusion tube locations
Appendix C	NOx analyser results summary
Appendix D	Diffusion tube results for 2013
Appendix E	AQMA Order – Stratford St Andrew
Appendix F	Permitted Processes
Appendix G	Woodbridge Emissions Assessment – July 2014
Appendix H	Port of Felixstowe monitoring locations for nitrogen dioxide and sulphur dioxide

Appendix A: QA:QC Data

Diffusion Tube Bias Adjustment Factors

The analytical laboratory used for supply and analysis of NO₂ diffusion tubes is Environmental Scientifics Group (ESG) based in Didcot. The monitoring is undertaken using Palmes passive diffusion tubes exposed on a monthly basis. The tubes are prepared by spiking acetone:triethanolamine (TEA) (50:50) onto the grids prior to the tubes being assembled. The tubes are then desorbed with distilled water and the extract analysed using a segmented flow auto-analyser with ultraviolet detection. The laboratory is formally accredited under the United Kingdom Accreditation Scheme (UKAS).

Combined “national” bias adjustment factors for UK diffusion tube laboratories, based upon Local Authority co-location studies throughout the UK, are provided on behalf of Defra and the Devolved Administrations. A database of these bias adjustment factors is available at <http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html>. The national bias adjustment factor given for ESG, Didcot in 2013, in the June 2014 edition of ‘National Spreadsheet of Bias Adjustment Factors’ was **0.81**, using results from 37 different studies.

Factor from Local Co-location Studies (if available)

There is a kerbside automatic monitoring site recording NO₂ concentrations derived from road traffic emissions at the junction of Lime Kiln Quay Road, Thoroughfare, and St. John’s Street in Woodbridge. The site is approximately 1 metre from the kerb and 14 metres from the traffic lights at the junction. This area of the junction is very narrow and enclosed by tall buildings, creating a canyon effect.

The bias adjustment factor was calculated using the Precision and Accuracy Spreadsheet available for download from <http://laqm.defra.gov.uk/bias-adjustment-factors/local-bias.html>.

Based on 12 months for which there was a valid diffusion tube mean and a valid automatic mean -

Automatic analyser annual mean (2013) = 41 µg m⁻³ with 98% data capture.

Triplicate diffusion tube mean (2013) = 46 µg m⁻³ with a mean precision (expressed as the coefficient of variation) of 6.

Bias adjustment factor (2013) = 0.89 based on 12 months’ data.

Discussion of Choice of Factor to Use

Historically, the local bias adjustment factor obtained from the Woodbridge co-location study has been used to adjust annual mean NO₂ concentrations from diffusion tube sites within Woodbridge only. This location is unusual, being a street canyon: it is considered representative of the other diffusion tube monitoring sites within Woodbridge, but not of diffusion tube locations elsewhere within the district. **The 2013 bias adjustment factor of 0.89 obtained at Woodbridge has been applied to the other sites within Woodbridge only.**

All diffusion tube monitoring sites elsewhere on the district have been adjusted for bias using the combined or “national” bias adjustment factor of 0.81 from the June 2014 version of the National Diffusion Tube Bias Adjustment Factor Spreadsheet.

Bias adjustment of the annual mean diffusion tube result for all sites is shown in Appendix D.

Short-term to Long-term Data adjustment

Some diffusion tube sites failed to achieve full data capture, mainly due to stolen tubes. Where there was less than 90% data capture for the year (because two or more diffusion tube results were missing or invalid), the mean of the 2013 data has been “annualised” using the procedure set out in LAQM.TG(09) to produce the best estimate of the annual mean. The method is as follows:

- Identify 2-4 nearby, long term, continuous monitoring sites, ideally those forming part of the national network. These should be background sites to avoid any very local effects that may occur, and should wherever possible lie within a radius of about 50 miles. The two sites used here are St. Osyth (Rural) and Wicken Fen (Rural). Both sites are part of the UK Automatic Urban and Rural Network (AURN).
- Obtain the unadjusted (not corrected for bias) annual mean (A_m) for the calendar year for these sites. As this calculation is to estimate the annual mean for a diffusion tube site, the diffusion tube calendar year for 2013 was based on the diffusion tube exposure periods rather than 1st Jan – 31st Dec 2013.
- Work out the period mean (P_m) for the period of interest with diffusion tube results at each of the comparison sites separately.
- Calculate the ratio of the annual mean to the period mean ($A_m:P_m$) for each period at each location.
- Calculate the average of these ratios (R_a). This is the adjustment factor.
- Multiply the measured period mean (M) for the short term monitoring location by the adjustment factor (R_a) to give the estimate of the annual mean for 2013.

WBG 8: the (unadjusted) measured period mean (M) was $39.0 \mu\text{g}/\text{m}^3$:
 $39.0 \mu\text{g}/\text{m}^3 (M) \times 0.86 (R_a) = \mathbf{33.5 \mu\text{g}/\text{m}^3}$ (annualised mean)

FLX 39: the (unadjusted) measured period mean (M) was $47.0 \mu\text{g}/\text{m}^3$:
 $32.2 \mu\text{g}/\text{m}^3 (M) \times 0.81 (R_a) = \mathbf{26.1 \mu\text{g}/\text{m}^3}$ (annualised mean)

- This annualised mean will then be bias adjusted as for all other sites.

Table A-1 Annualisation of diffusion tube data from sites with more than one missing month

Site	Missing months	Annual mean NO_2 , St Osyth $\mu\text{g m}^{-3}$ (A_m)	Annual mean NO_2 , Wicken Fen $\mu\text{g m}^{-3}$ (A_m)	Period mean NO_2 , St Osyth $\mu\text{g m}^{-3}$ (P_m)	Period mean NO_2 , Wicken Fen $\mu\text{g m}^{-3}$ (P_m)	Ratio Annual: Period mean St Osyth ($A_m:P_m$)	Ratio Annual: Period mean Wicken Fen ($A_m:P_m$)	Average $A_m:P_m$ of both sites (R_a)
WBG 8	Aug & Nov	14.3	11.0	15.05	14.4	0.95	0.76	0.86
FLX 39	Jan & Feb	14.3	11.0	16.2	14.8	0.88	0.74	0.81

QA/QC of automatic monitoring

NO₂ concentrations were monitored by ozone chemiluminescence. Quality assurance of the data from the continuous monitoring station was carried out by Ricardo-AEA following the same procedures used for sites within the Government's Automatic Urban and Rural Network. Calibrations were undertaken fortnightly by a Council Officer, the procedures adopted for the calibrations were modelled on those developed by AEA Energy & Environment for use in the national monitoring networks. The calibrations were undertaken using certified calibration gas provided by BOC with traceability to National Metrology Standards obtained via regular UKAS Quality Control Audits carried out by Ricardo-AEA. The audits provide a range of information that is utilised within the data management process for the data sets.

Audit tests are undertaken once a year by Ricardo-AEA. They include accredited audit zero and span calibrations, linearity, NO_x converter efficiency, flow and leak checks as well as checks of the instruments sampling system. Data presented in this report have been fully ratified by Ricardo-AEA. The ratified data summary reports are included in Appendix C.

The data set was screened, scaled and validated using all available routine site calibrations, audit results and service engineer records. This was an ongoing process with checks made daily to ensure high data capture is achieved. A final process of data ratification ensures that the data provide the most accurate record of the pollution concentrations across the measurement period. The data management process adopted is that evolved and implemented by Ricardo-AEA within the data management programme of the AURN UK national monitoring network. This process is expected to deliver data sets that meet the EU Data Quality Objective of a measurement uncertainty of better than 15%.

QA/QC of diffusion tube monitoring

The analysis of NO₂ diffusion tubes by Environmental Scientifics Group, Didcot meets the guidelines set out in Defra's 'Diffusion tubes for Ambient NO₂ Monitoring: Practical Guidance'. They participate in the Workplace Analysis Scheme for Proficiency (WASP) for analysis of diffusion tubes.

This is an independent proficiency testing study designed to assess the analytical performance of laboratories supplying diffusion tubes to Local Authorities for use in the context of air quality management. Defra advise that diffusion tubes should only be obtained from laboratories demonstrating a WASP classification of 'Satisfactory'.

A statistical Z-score test is used to identify any deviation of participant results from reference results. The results indicated in the latest Defra WASP Summary show that in 2013 Environmental Services Group achieved a Z-score within the required limits of the 'Satisfactory' classification (see table below), and attained a performance percentage of **100%**.

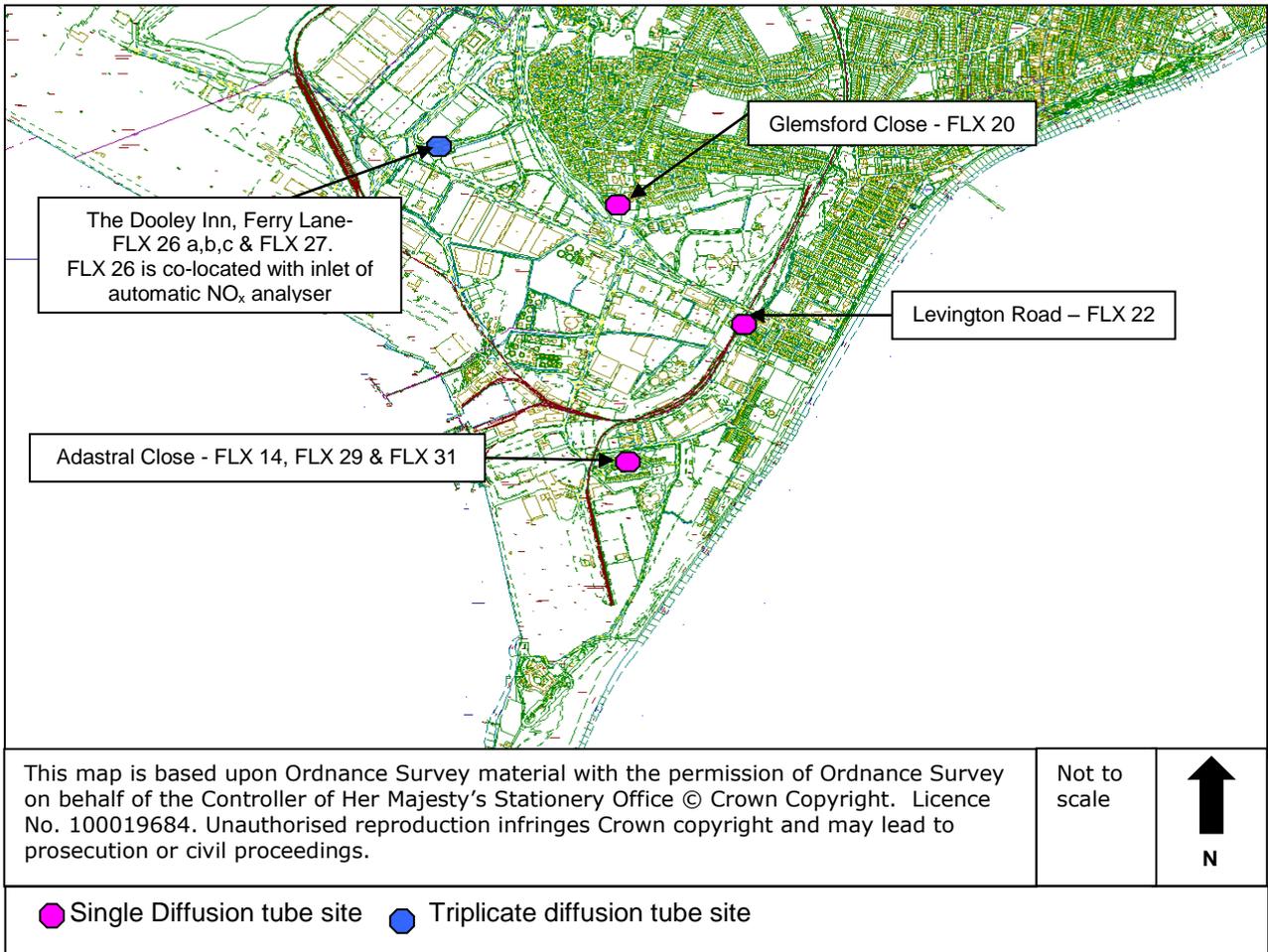
The table below shows the Classification that the Z-Score would put the laboratory into.

WASP Rankings

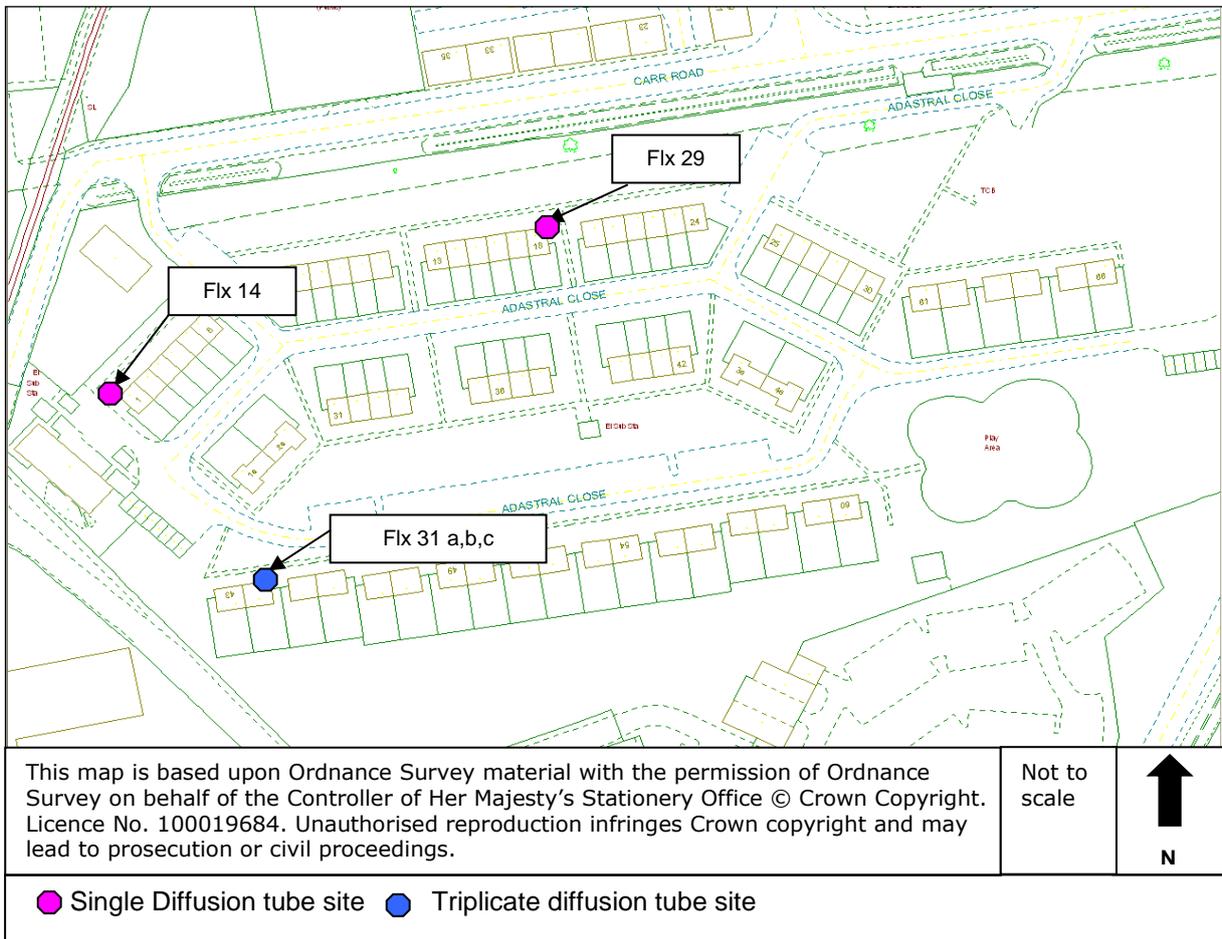
Z –Score	Classification
<2	Satisfactory
2-3	Questionable
>3	Unsatisfactory laboratory result

Appendix B: Maps showing NO₂ diffusion tube locations

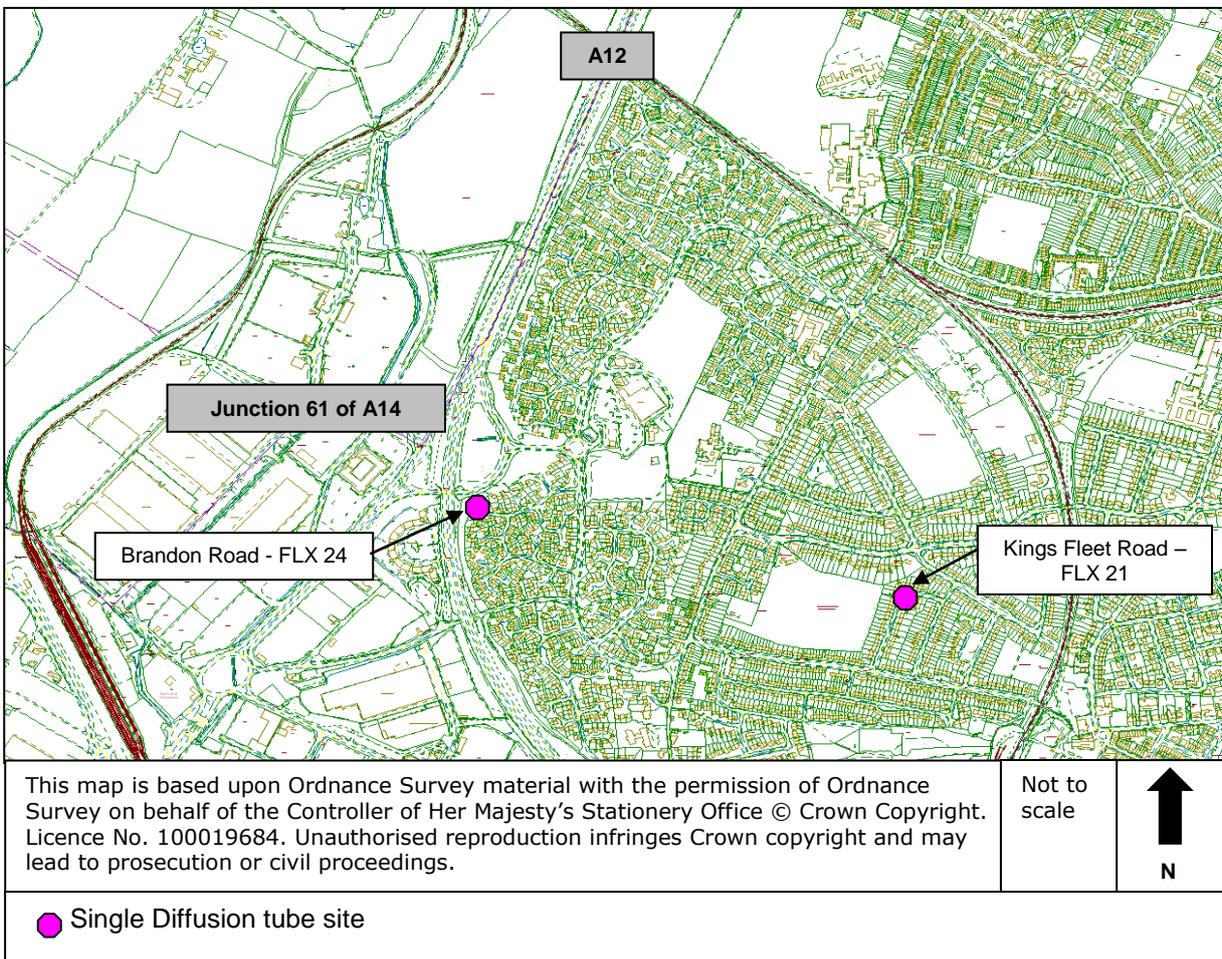
Felixstowe Maps



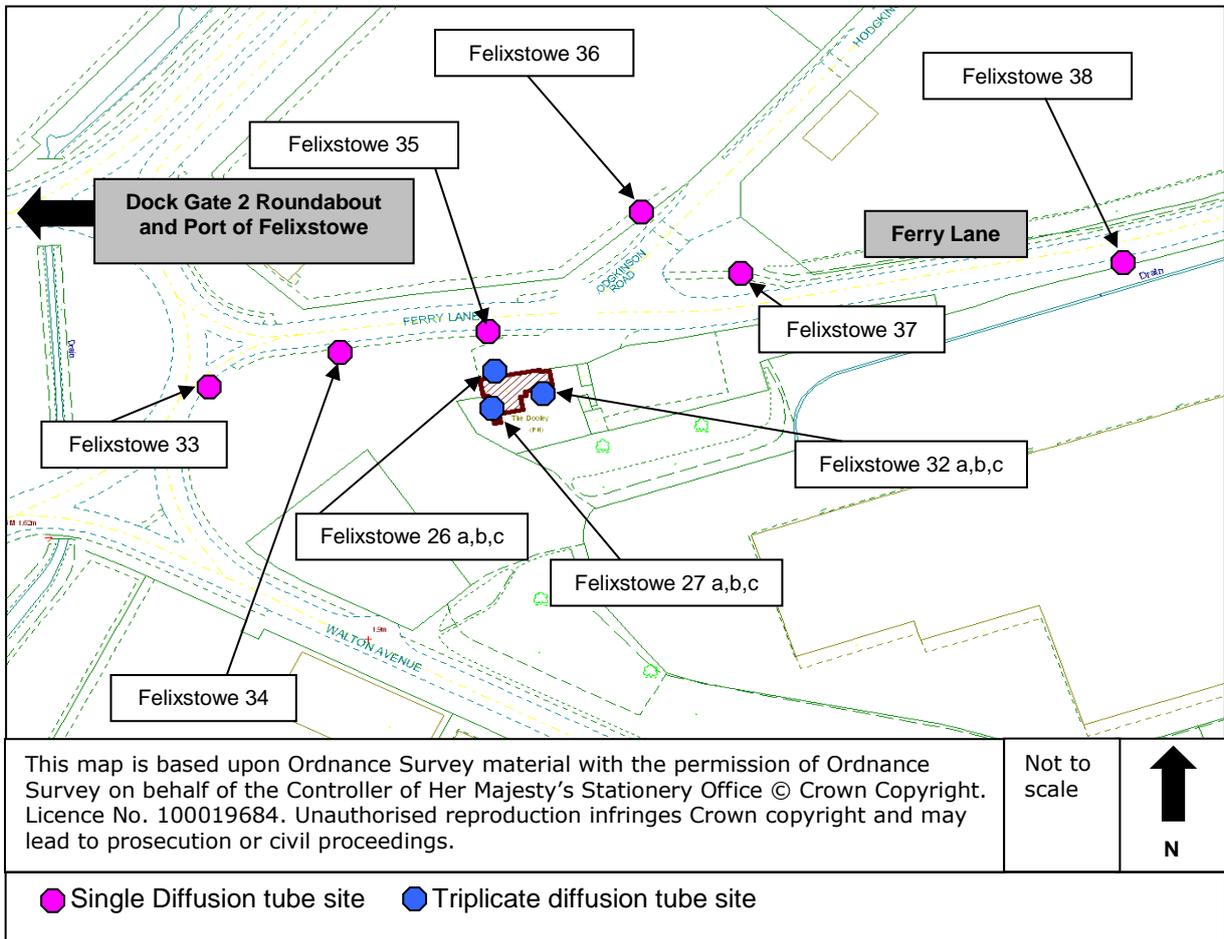
Map 1 **Map of diffusion tube locations at Adastral Park, Levington Road, Glensford Close and The Dooley Inn**



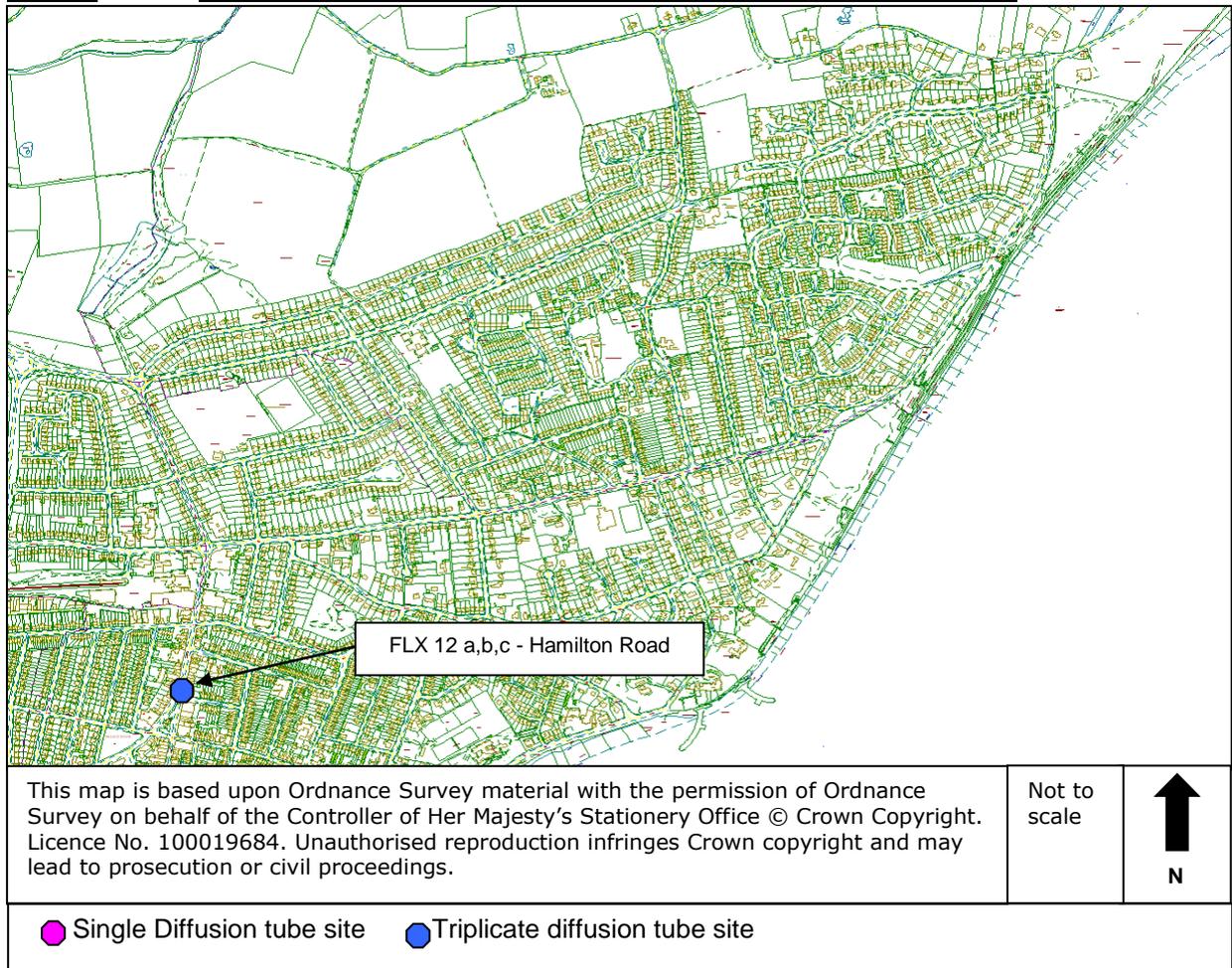
Map 2 Detailed map of diffusion tube locations at Adastral Close



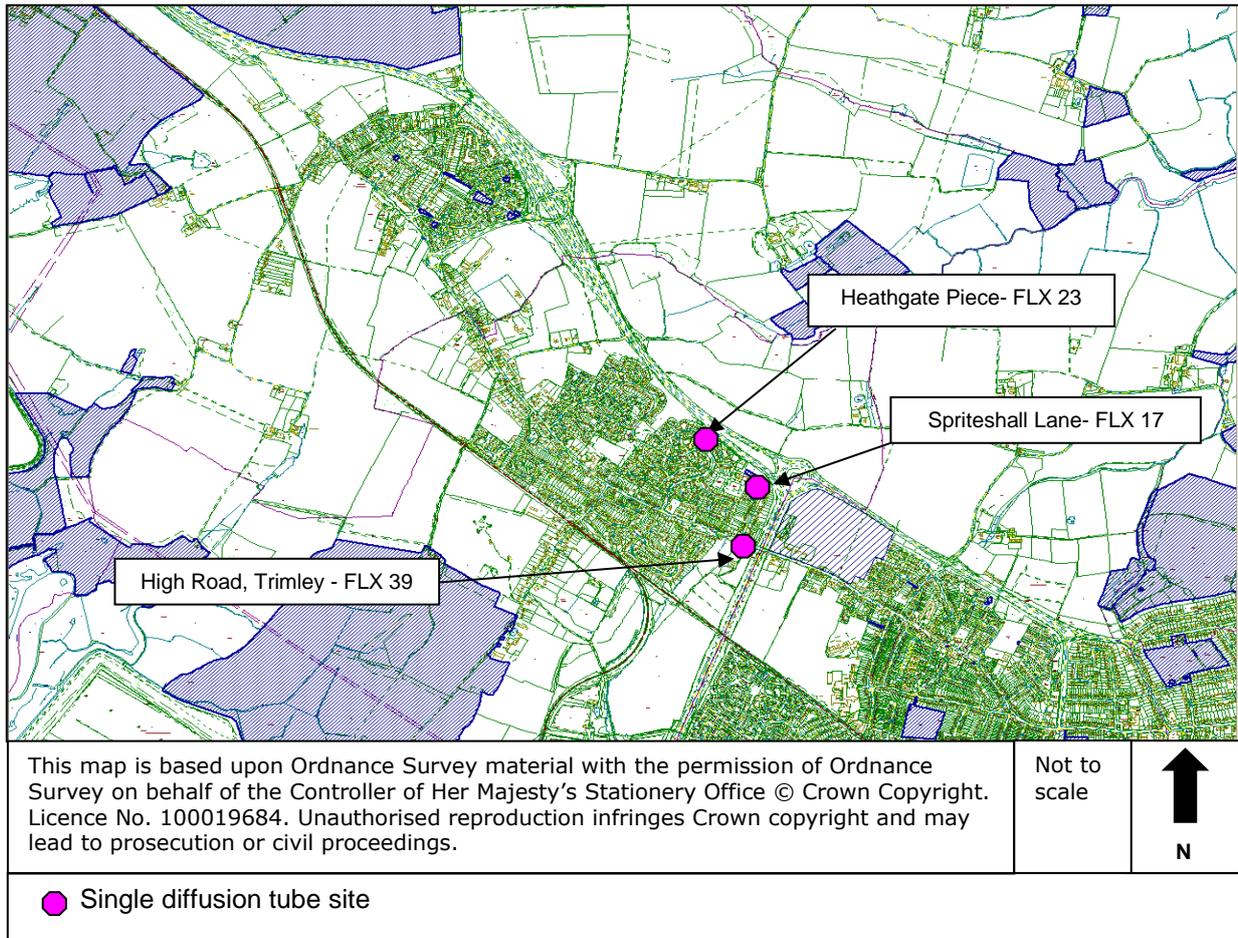
Map 3 Map of diffusion tube locations at Kingsfleet Road and Brandon Road



Map 4 **Map of diffusion tube locations around the Dooley Inn**

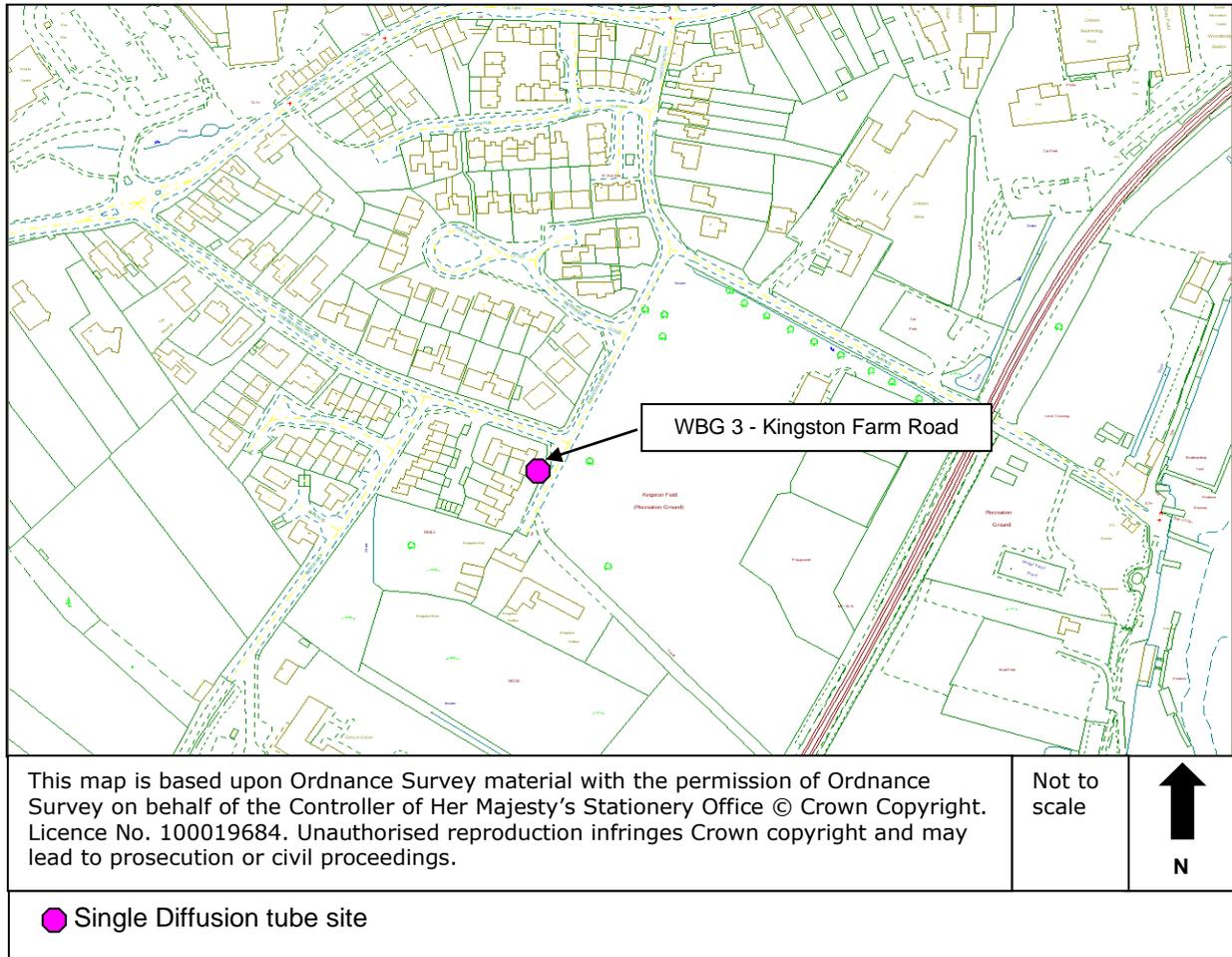


Map 5 **Map of diffusion tube location at Hamilton Road**



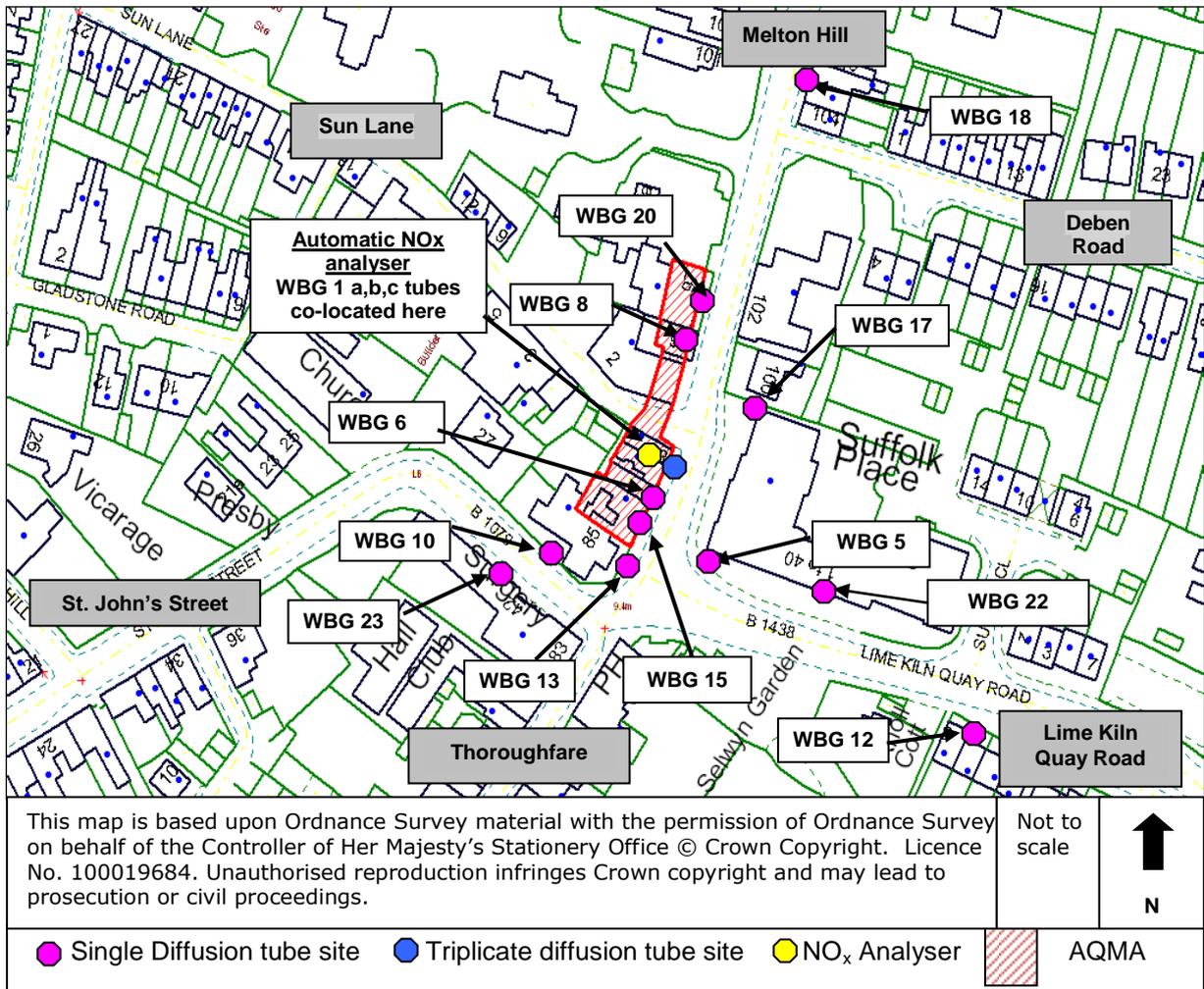
Map 6 **Map of diffusion tube locations at Heathgate Piece, Spriteshall Lane and High Road, Trimley**

Woodbridge Maps



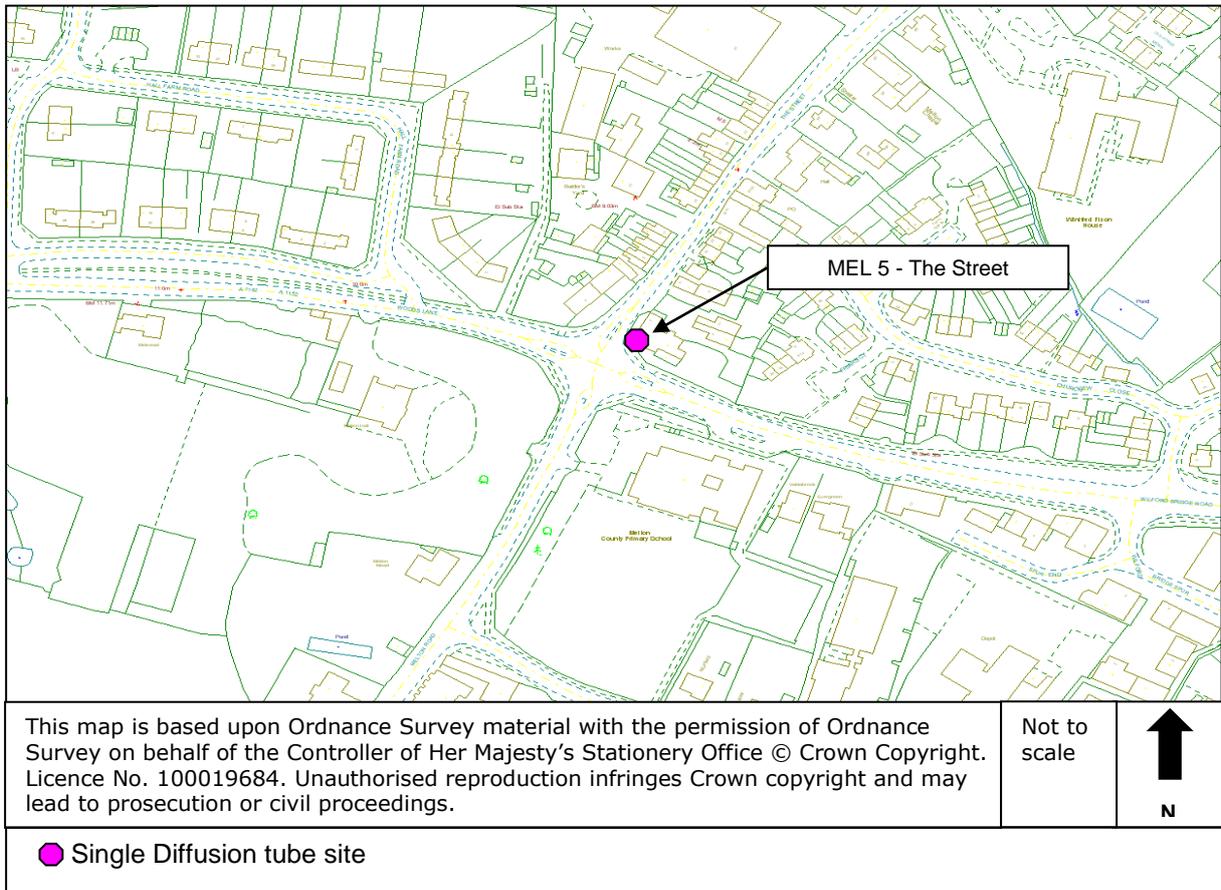
Map 7

Map showing diffusion tube location at Kingston Farm Road.



Map 8 **Map showing diffusion tube locations around the AQMA**

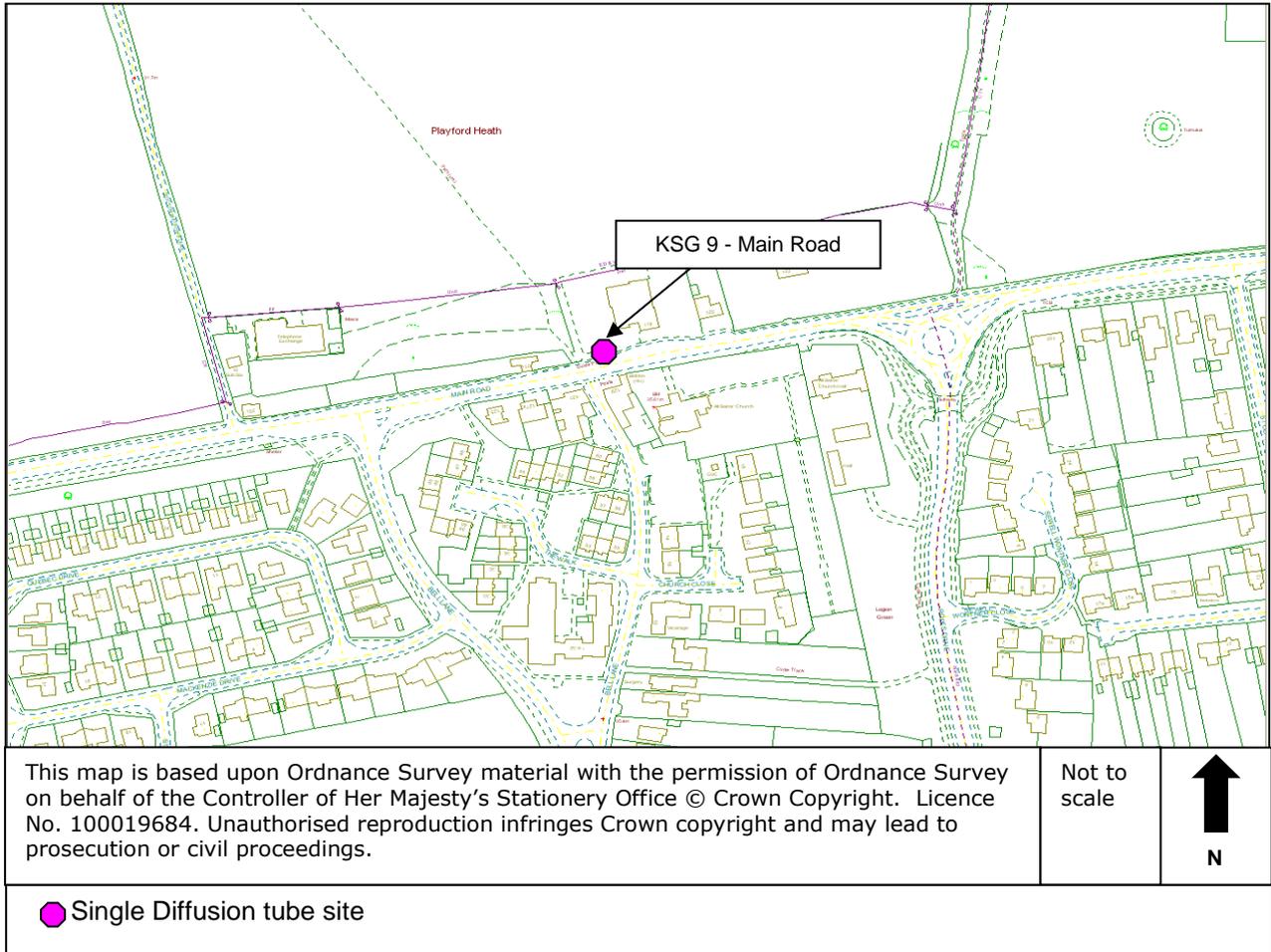
Melton Map



Map 9

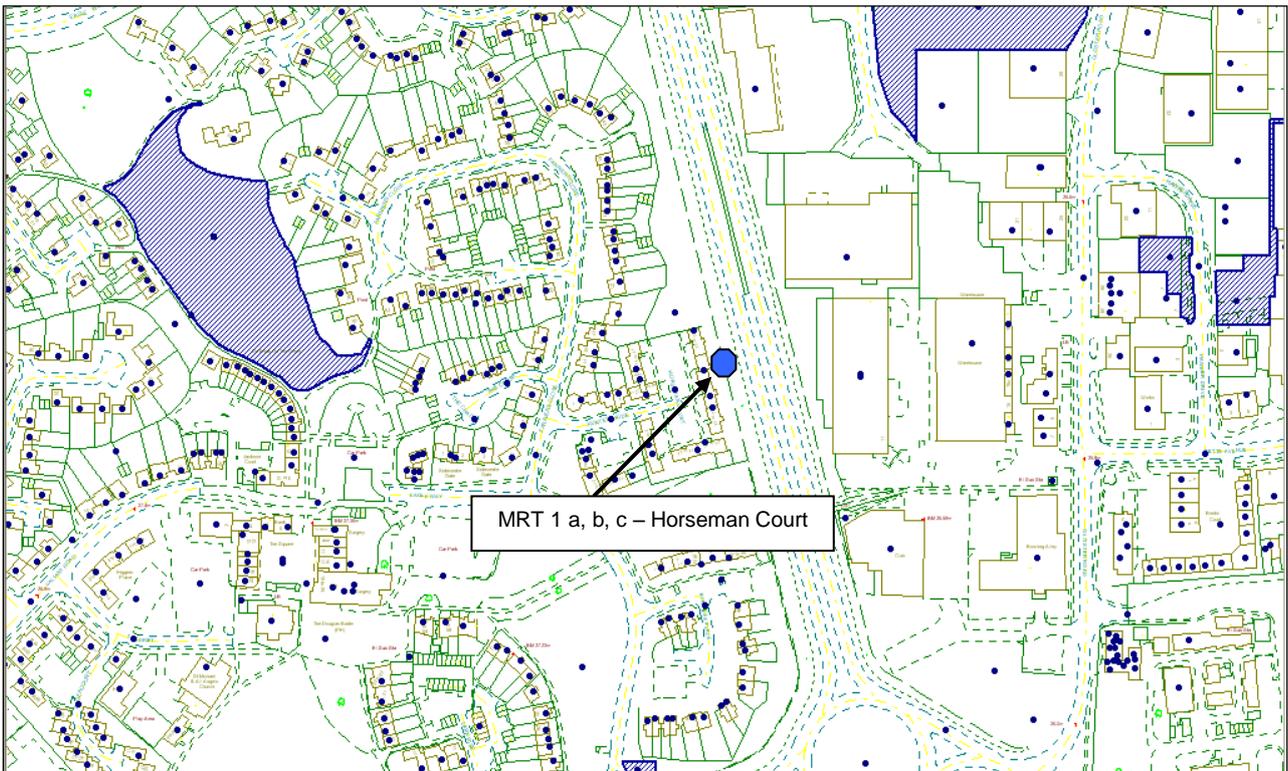
Map showing location of the diffusion tube at Melton

Kesgrave Map



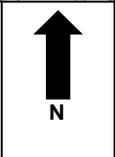
Map 10 **Map showing location of the diffusion tube at Kesgrave**

Martlesham Map



This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown Copyright. Licence No. 100019684. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings.

Not to scale

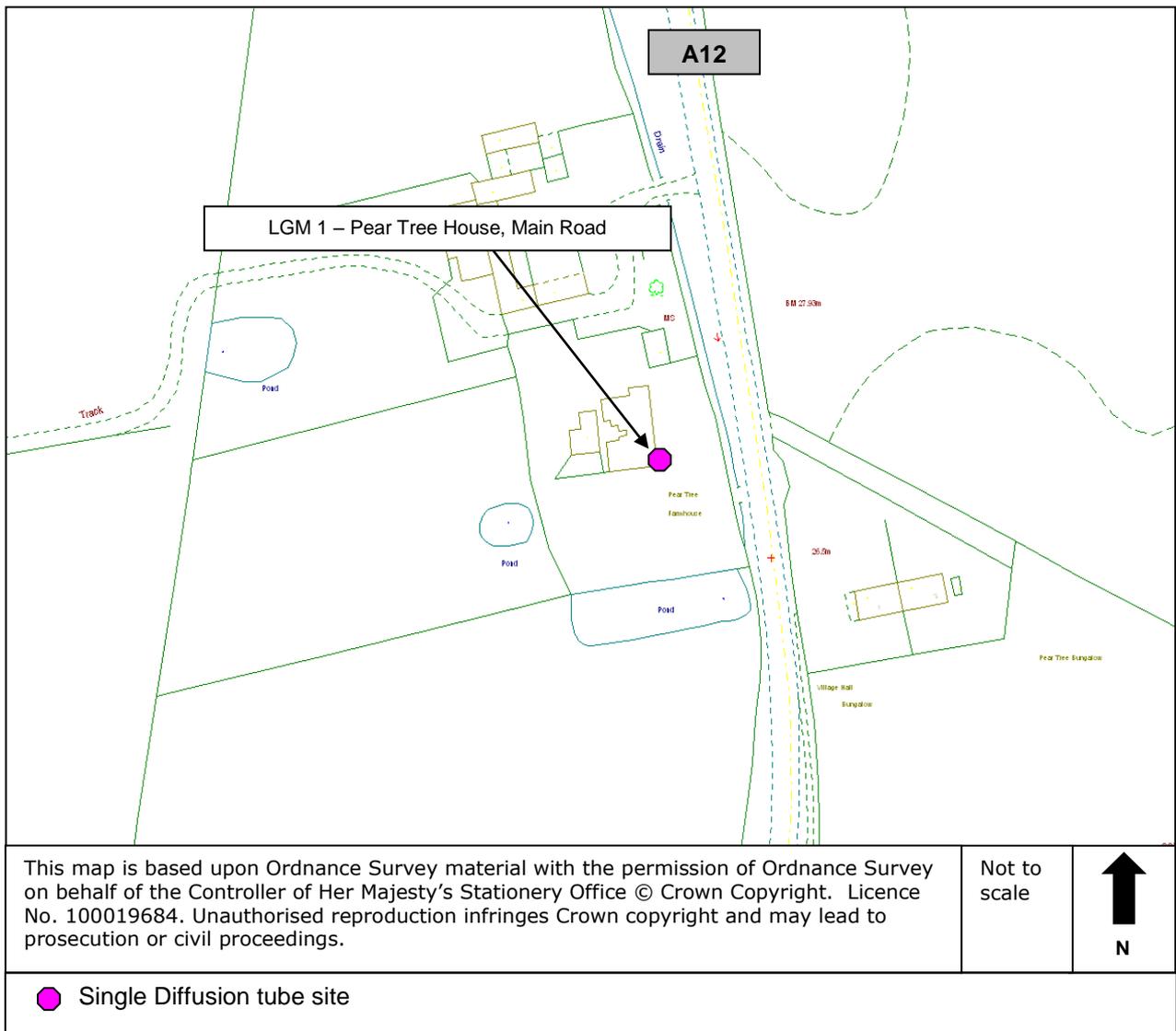


 Triplicate diffusion tube site

Map 11

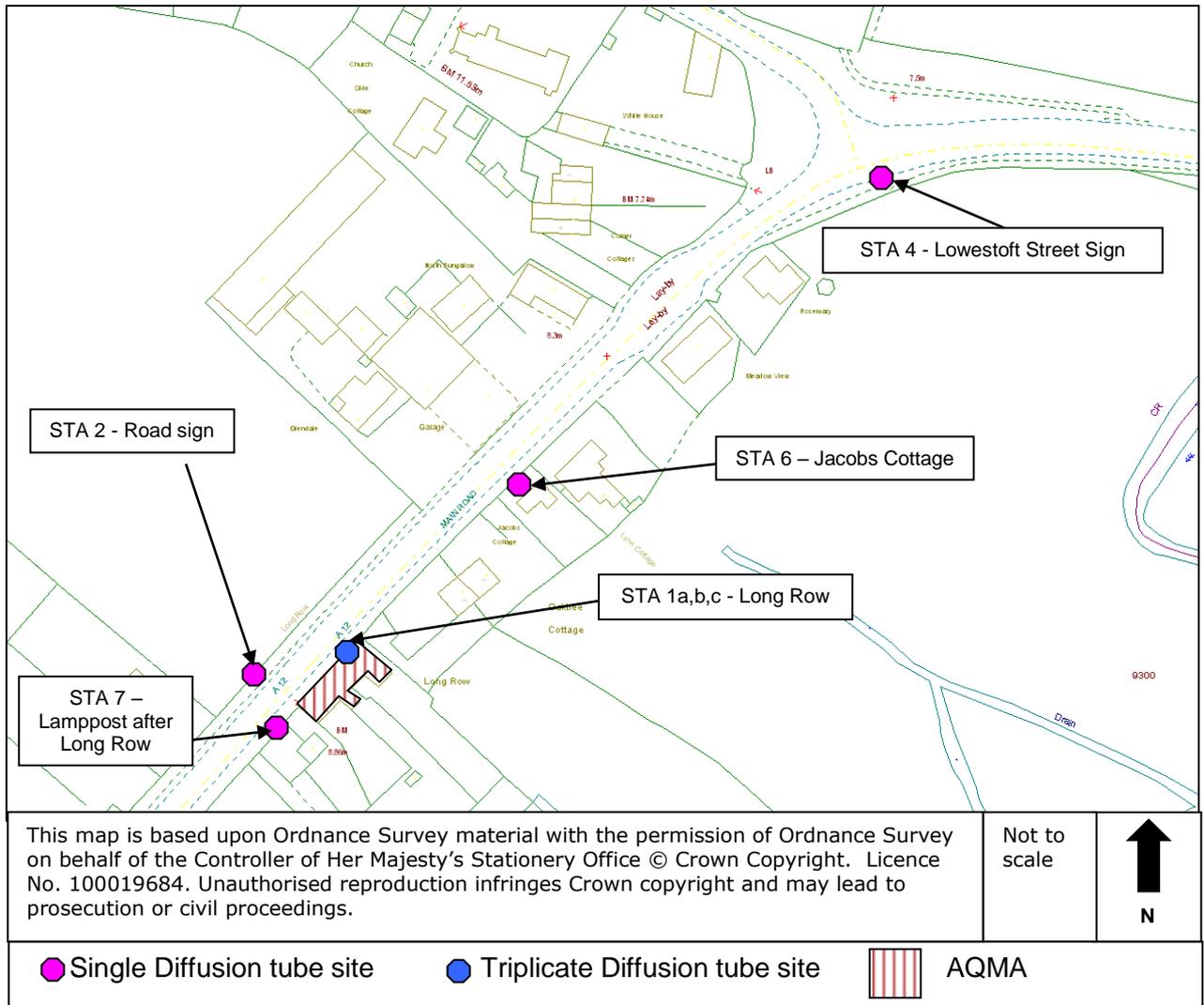
Map of diffusion tube location at Martlesham

Little Glemham Map



Map 12 **Map of diffusion tube locations at Little Glemham**

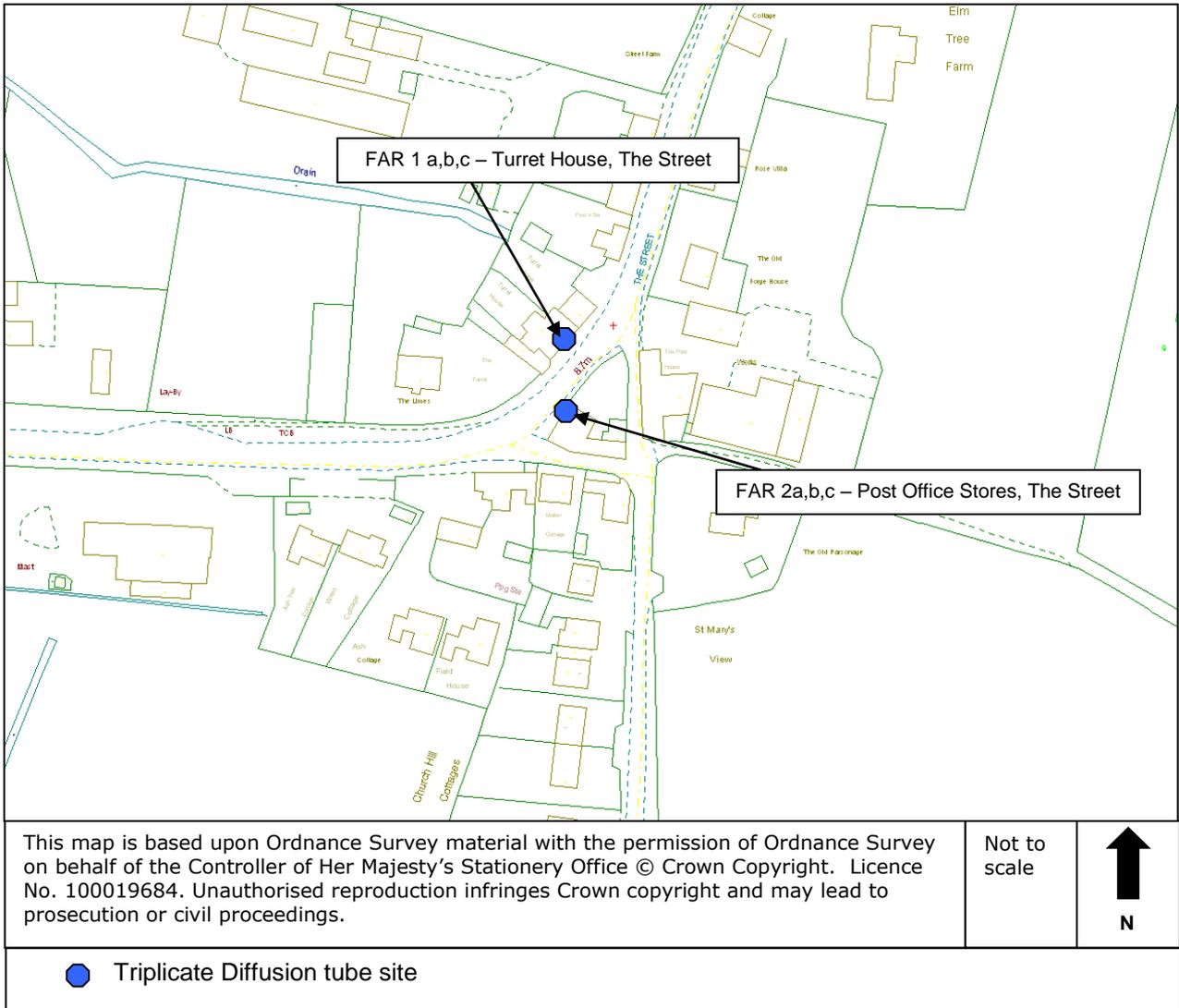
Stratford St Andrew Map



Map 13

Map showing diffusion tube locations at Stratford St Andrew

Farnham Map



Map 14 Map showing diffusion tube locations at Farnham

Appendix C: NO_x analyser results summary

Produced by Ricardo-AEA on behalf of Suffolk Coastal District Council

WOODBRIIDGE 2 01 January to 31 December 2013

These data have been fully ratified by Ricardo-AEA

POLLUTANT	NO _x	NO	NO ₂
Number Very High*	-	-	0
Number High*	-	-	0
Number Moderate*	-	-	0
Number Low*	-	-	8524
Maximum 15-minute mean	1121 µg m ⁻³	620 µg m ⁻³	278 µg m ⁻³
Maximum hourly mean	989 µg m ⁻³	531 µg m ⁻³	185 µg m ⁻³
Maximum running 8-hour mean	692 µg m ⁻³	363 µg m ⁻³	144 µg m ⁻³
Maximum running 24-hour mean	384 µg m ⁻³	189 µg m ⁻³	96 µg m ⁻³
Maximum daily mean	378 µg m ⁻³	187 µg m ⁻³	93 µg m ⁻³
Average	92 µg m ⁻³	33 µg m ⁻³	42 µg m ⁻³
Data capture	97.3 %	97.3 %	97.3 %

*Banding data is based on the pre 2013 DAQI methodology

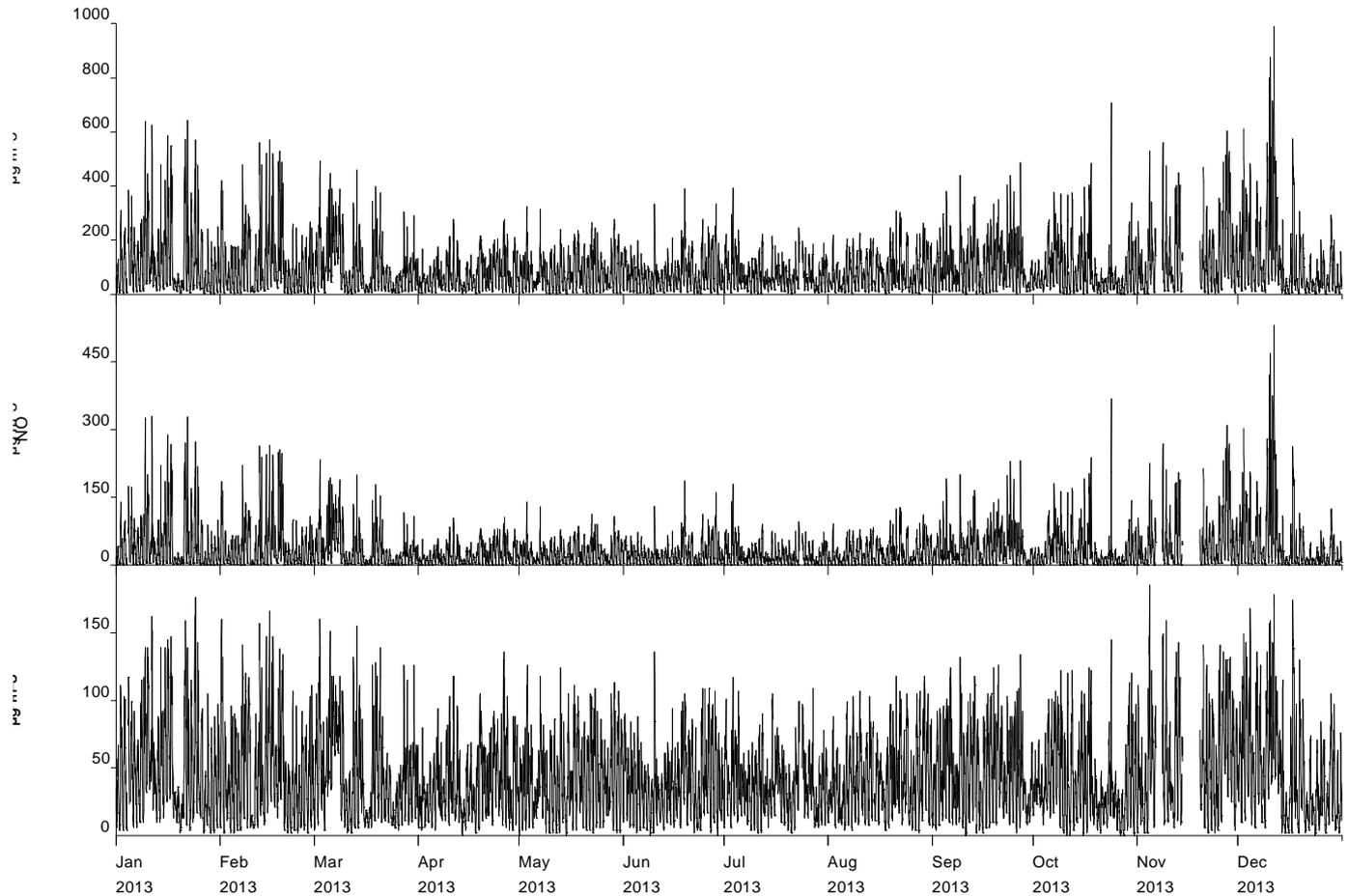
All gaseous pollutant mass units are at 20°C and 1013mb. Particulate matter concentrations are reported at ambient temperature and pressure.

NO_x mass units are NO_x as NO₂ µg m⁻³

Pollutant	Air Quality (England) Regulations 2000 and (Amendment) Regulations 2002	Exceedences	Days
Nitrogen Dioxide	Annual mean > 40 µg m ⁻³	yes	-
Nitrogen Dioxide	Hourly mean > 200 µg m ⁻³	0	0

Produced by Ricardo-AEA on behalf of Suffolk Coastal District Council

Woodbridge 2 Hourly Mean Data for 01 January to 31 December 2013



Date Created: 25/02/2014

Andrew Madle
Ricardo-AEA
The Gemini Building
Fermi Avenue
Harwell
Didcot
Oxfordshire OX11 0QJ

Phone 01235 753692
e-mail andrew.madle@ricardo-aea.com
<http://www.airqualityengland.co.uk/>

Appendix D: NO₂ Diffusion Tube Results

Monthly and annual mean nitrogen dioxide (NO₂) concentrations recorded at sites in Felixstowe and the Trimleys during 2013. Figures in micrograms per cubic metre (µg/m³). Annual mean concentration corrected for bias where relevant.

Site	Time in months												Annual Mean (µg/m ³)	Annualisation factor if applicable	Annual mean (annualised if applicable)	Bias correction Factor Used #	Bias corrected Annual Mean (µg/m ³)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					
FLX 12	39.7	34.3	31.8	30.5	33	26.2	24.5	33.5	32.4	41.3	44.6	36.1	34.0	n/a	n/a	0.81	28
FLX 14	40.1	31.8	28.1	26.6	29.4	20.2	20.3	32.8	30	36.7	45.6	28.2	30.8	n/a	n/a	0.81	25
FLX 17	36.9	28.6	33.6	28.5	21.7	26.3	28.0	27.6	28.4	36.7	34.6	34.1	30.4	n/a	n/a	0.81	25
FLX 20	34	29.9	23.3	25.4	23.5	18.9	19.2	25.3	27.3	37.8	36	30.6	27.6	n/a	n/a	0.81	22
FLX 21	37.5	28.3	28.6	23.2	19.2	16.7	18.3	22.3	26.5	38.1	35.7	25	26.6	n/a	n/a	0.81	22
FLX 22	38.3	29.7	24.5	23.7	21.1	17.2	18.0	27.3	25.0	34.5	36.8	26.4	26.9	n/a	n/a	0.81	22
FLX 23	37.2	32.8	38.4	34.6	31.6	33.7	33.8	28.1	31.7	37.7	38.1	30.3	34.0	n/a	n/a	0.81	28
FLX 24	44.7	39.8	32.0	30.4	29.8	24.8	24.4	32.7	32.6	41.5	47.2	38.5	34.9	n/a	n/a	0.81	28
FLX 26a	49.6	46.1	35.6	40.6	40.5		36.2	42.5	41.5	53.3	59.7	46.8	See FLX 26 Mean	~	~	~	~
FLX 26b	52.9	52	42.8	39.4	38		29.3	46.1	45.5	55.2	55.6	39.8	See FLX 26 Mean	~	~	~	~
FLX 26c	47.1	47.7	48.5	41.9	42		33.2	44.9	41.0	55	52.8	47.3	See FLX 26 Mean	~	~	~	~
FLX 26 a,b,c -	49.9	48.6	42.3	40.6	40.2		32.9	44.5	42.7	54.5	56.0	44.6	45.2	n/a	n/a	0.81	37
FLX 27a	47	47.2	38.8	38.3	41.1	30.3	30.1	35.5	37.5	41.4	44.5	41	See FLX 27 Mean	~	~	~	~
FLX 27b	46.3	31.1	39.4	38.9	41.5	36.1	28.2	37.6	38.1	47.8	50.7	42.9	See FLX 27 Mean	~	~	~	~
FLX 27c	44.8	47.2	41.1	38.4	33.5	34.2	30.1	40.2	38.0	46.6	45.9	41.4	See FLX 27 Mean	~	~	~	~
FLX 27 a,b,c-	46.0	41.8	39.8	38.5	38.7	33.5	29.5	37.8	37.9	45.3	47.0	41.8	39.8	n/a	n/a	0.81	32
FLX 29	34	35.5	26.5	23.5	24.5	18.2	19.7	26.9	27.1	29.3	38.5	25.9	27.5	n/a	n/a	0.81	22
FLX 31a	41.2	35.3	26.0	28.2	29.5	22.7	24.8	29.2	26.9	33.8	39	26.5	see FLX 31 mean	~	~	~	~
FLX 31b	39.9	39.5	31.8	27.1	29.6	22.3	22.7	33.9	33.1	39.6	47.1	26.6	see FLX 31 mean	~	~	~	~
FLX 31c	36.3	29.5	29.5	27	28.1	20.7	23.3	36	31.9	4.7	41.5	29.3	see FLX 31 mean	~	~	~	~
FLX 31 a,b,c-	39.1	34.8	29.1	27.4	29.1	21.9	23.6	33.0	30.6	26.0	42.5	27.5	30.4	n/a	n/a	0.81	25
FLX 32a	47.7	35.6	37.9		36.6	32.2	25.1	35.8	35.7	53	49	46.8	see FLX 32 mean	~	~	~	~
FLX 32b	45.9	48.4	41.1	36.6	37.5	33.6	26.6	38.3	40.4	49.4	49.2	38.3	see FLX 32 mean	~	~	~	~
FLX 32c	56.2	42.9	39.6	40.6	37.1	33.1	28.8	33.9	38.1	47.1	42.4	45.2	see FLX 32 mean	~	~	~	~
FLX 32 a,b,c-	49.9	42.3	39.5	38.6	37.1	33.0	26.8	36.0	38.1	49.8	46.9	43.4	40.1	n/a	n/a	0.81	32
FLX 33	65.9	72.1	72.5	70.5	68.4	61.6	51.3	74.7	69.2	78.2	96.4	75.4	71.4	n/a	n/a	0.81	58
FLX 34	57.5	43.6	56.9	53.7	49.1	49	46.2	53.5	52.5	63.9	51	51.2	52.3	n/a	n/a	0.81	42
FLX 35	53.9	55.9	53.8	52	46.4	44.5	38.3	51.6	47.8	58	61.7	49.9	51.2	n/a	n/a	0.81	41
FLX 36	47.5	47.6	47.0	40.7	39.2	33.8	32.4	42.2	46.1	55	54	44.5	44.2	n/a	n/a	0.81	36
FLX 37	59	67.6	38.5	45.8	40.5	38.2	34.9	50.5	53.9	63	66.4	49.5	50.7	n/a	n/a	0.81	41
FLX 38		45	36.0	34.4	40	33.2	33.1	41.6	39.2	45.1	48	44.2	40.0	n/a	n/a	0.81	32
FLX 39			48.0	33.3	26	25.9	26.4	29.3	30.9	35	33.8	33.8	32.2	0.8	26.1	0.81	21

Key:

FLX 12	<u>Roadside site</u> , drainpipe at 119 Hamilton Road, 'Ford Bros. Bike Shop' Felixstowe
FLX 14	<u>Industrial site</u> , drainpipe on 1 Adastral Close, Felixstowe.
FLX 17	<u>Roadside site</u> , drainpipe on 38 Spriteshall Lane, Trimley St. Mary.
FLX 20	<u>Industrial/Roadside site</u> , rear garden of 73 Glemsford Close, Felixstowe
FLX 21	<u>Urban Background site</u> , lamppost at 4 Kings Fleet Road, Felixstowe
FLX 22	<u>Industrial site</u> , drainpipe on 13 Levington Road, Felixstowe
FLX 23	<u>Roadside site</u> , drainpipe on 23 Heathgate Piece, Trimley St. Mary.
FLX 24	<u>Roadside site</u> , rear garden of 22 Brandon Road, Felixstowe
FLX 26 a,b,c	<u>Industrial/Roadside site</u> , Kitchen drainpipe to rear of The Dooley Inn, Ferry Lane, Felixstowe.
FLX 27a,b,c	<u>Industrial/Roadside site</u> , first floor front window facing the Docks at The Dooley Inn, Ferry Lane, Felixstowe
FLX 29	<u>Industrial Site</u> , 18 Adastral Close, Felixstowe
FLX 31 a,b,c	<u>Industrial Site</u> , 44 Adastral Close, Felixstowe
FLX 32 a,b,c	<u>Industrial Roadside Site</u> , Guttering to rear of Dooley Inn PH
FLX 33	<u>Roadside Site</u> , Dock Gate 2 Roundabout
FLX 34	<u>Industrial/Roadside Site</u> Ferry Lane, Midway between roundabout and Dooley Inn PH
FLX 35	<u>Industrial/ Roadside Site</u> , The Dooley Inn Signpost at front of building
FLX 36	<u>Industrial/ Roadside Site</u> , Street Sign in Hodgkinson Road, Felixstowe
FLX 37	<u>Industrial/ Roadside Site</u> , Lamppost at Ferry Lane on corner of Hodgkinson Road
FLX 38	<u>Industrial/ Roadside Site</u> , Lamppost on Ferry Lane, past Hodgkinson Road
FLX 39	<u>Roadside site</u> , front of 424 High Road, Trimley St Mary (installed March 2013)

Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must either be a combined ("national") bias adjustment factor, or one calculated from a co-location study with a continuous analyser carried out by the authority themselves. The 2013 data from the Felixstowe sites were adjusted using a combined (national) bias adjustment factor of 0.81 using the June 2014 National Diffusion Tube Bias Adjustment Factor Spreadsheet.

Monthly and annual mean nitrogen dioxide (NO₂) concentrations recorded at sites in Kesgrave during 2013, figures in micrograms per cubic metre (µg/m³). Annual mean concentration corrected for bias where relevant.

Site	Time in months												Annual Mean (µg/m ³)	Annualisation factor if applicable	Annual mean (annualised if applicable)	Bias correction Factor Used #	Bias corrected Annual Mean (µg/m ³)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					
KSG 9	45.9	35.8	25.9	24.7	28.3	22.1	24.6	33.8	39.3	53.4	42.1	41.8	34.8	n/a	n/a	0.81	28

Key:

KSG 9 Roadside site, roadside lampost at 118 Main Road, Kesgrave

Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must either be a combined ("national") bias adjustment factor, or one calculated from a co-location study with a continuous analyser carried out by the authority themselves. The 2013 data from the Kesgrave sites were adjusted using a combined (national) bias adjustment factor of 0.81 using the June 2014 National Diffusion Tube Bias Adjustment Factor Spreadsheet

Monthly and annual mean nitrogen dioxide (NO₂) concentrations recorded at sites in Woodbridge during 2013, figures in micrograms per cubic metre (µg/m³). Annual mean concentration corrected for bias where relevant

Site	Time in months												Annual Mean (µg/m ³)	Annualisation factor if applicable	Annual mean (annualised if applicable)	Bias correction Factor Used #	Bias corrected Annual Mean (µg/m ³)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					
WBG 1a	54.3	44.5	46.3	42.6	46.3	39.3	42.0	47.7	44.6	53.8		49.8	see WBG 1 mean	~	~	~	~
WBG 1b	56.4	40.7	35.3	43.3	46.8	41.0	33.5	48.2	45.9	46.8		52	see WBG 1 mean	~	~	~	~
WBG 1c	51.0	47.7	50.4	49.6	46.6	41.2	33.8	46.5	46.5	50.5		47.1	see WBG 1 mean	~	~	~	~
WBG 1 a,b,c - mean	53.9	44.3	44.0	45.2	46.6	40.5	36.4	47.5	45.7	50.4		49.6	45.8	n/a	n/a	0.89	41
WBG 3	24.9	18.5	20.5	14.1	10.3	9.6	8.9	11.8	13.5	22.9	24.6	15.3	16.2	n/a	n/a	0.89	14
WBG 5	35.5	31.8	41.7	31.9	25.8	23.8	19.4	21.8	25.6	28.5	36.3	28.2	29.2	n/a	n/a	0.89	26
WBG 6	49.2	42.2	46	36.7	48.1	36.3	33.4	42.7	41.6	46	54.1	29.9	42.2	n/a	n/a	0.89	38
WBG 8	43.7	37.2	41.1	36.5	31.6	34	37.3		41.2	43.5		43.4	39.0	0.86	33.5	0.89	30
WBG 10	33.7	30.2	46.3	35.8	31.6	29.4	34.6	28.8	32.5	36.5	37.4	32.8	34.1	n/a	n/a	0.89	30
WBG 12	36.4	27	22.4	20.6	23	17	19.5	22.7	21.7	32.2	34.3	30.6	25.6	n/a	n/a	0.89	23
WBG 13	48.7	43.8	41.4	38	39.0	32.2	38.5	35.3	37.7	44	46.4	27	39.3	n/a	n/a	0.89	35
WBG 15	53.5	43.2	49.5	42.7	41.3	38	40.1	41.4	47.6	51.5	58	42.3	45.8	n/a	n/a	0.89	41
WBG 17	36.4	20.1	36.5	31.4	27	23.8	29.8	27.8	30.2	34.7	34.8	34.2	30.6	n/a	n/a	0.89	27
WBG 18	49.5	40.4	50.5	41.9	36.1	33.6	18.6	35.3	36.6	43.8	41.2	39.2	38.9	n/a	n/a	0.89	35
WBG 20	36.4	40.7	36.8	33.5	37.2	28.6	32.1	35.8	36.9	4.2	51.4	40.8	34.5	n/a	n/a	0.89	31
WBG 22	30.4	27.2	31.1	24.0	22.2	20.1	19.4	23	20.6	27.1	32.1	24.3	25.1	n/a	n/a	0.89	22
WBG 23	33.1	24	29.5	26.8	24.3	20.5	25.5	24.9	22.5	33.6	35.1	39.2	28.3	n/a	n/a	0.89	25

Key:

WBG 1a,b,c	<u>Kerbside site</u> , signpost outside 93 Thoroughfare, Woodbridge (Triplicate site collocated with Continuous NOx Analyser)
WBG 3	<u>Urban Background site</u> , lampost outside 8 Kingston Farm Road, Woodbridge
WBG 5	<u>Roadside site</u> , drainpipe on corner of Suffolk Place, Lime Kiln Quay Road, Woodbridge
WBG 6	<u>Roadside site</u> , drainpipe on 87 Thoroughfare, Woodbridge
WBG 8	<u>Roadside site</u> , drainpipe on 95 Thoroughfare, Woodbridge
WBG 10	<u>Roadside site</u> , signpost in St. John's Street (opposite Surgery), Woodbridge
WBG 12	<u>Roadside site</u> , drainpipe on 8 Lime Kiln Quay Road, Woodbridge
WBG 13	<u>Roadside site</u> , traffic lights at front of 85 Thoroughfare, Woodbridge
WBG 15	<u>Roadside site</u> , Top guttering in middle of 87 Thoroughfare, Woodbridge
WBG 17	<u>Roadside site</u> , drainpipe at front Northern end of Suffolk Place, Lime Kiln Quay Road, Woodbridge
WBG 18	<u>Roadside site</u> , drainpipe between 106 / 108 Thoroughfare, Woodbridge
WBG 20	<u>Roadside site</u> , front of 97 Thoroughfare (Reinstated Jan 2013)
WBG 22	<u>Roadside Site</u> , first floor balcony on Suffolk Place facing Lime Kiln Quay Road
WBG 23	<u>Roadside Site</u> , lampost o/s new buildings (number 50), St Johns Street, Woodbridge

Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must either be a combined ("national") bias adjustment factor, or one calculated from a co-location study with a continuous analyser carried out by the authority themselves. The 2013 data from the Woodbridge sites were adjusted using the bias adjustment factor from the local co-location study carried out in Woodbridge of 0.89.

Monthly and annual mean nitrogen dioxide (NO₂) concentrations recorded at sites in Melton during 2013, figures in micrograms per cubic metre (µg/m³). Annual mean concentration corrected for bias where relevant

Site	Time in months												Annual Mean (µg/m ³)	Annualisation factor if applicable	Annual mean (annualised if applicable)	Bias correction Factor Used #	Bias corrected Annual Mean (µg/m ³)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					
MEL 5	41	36.1	31.3	31.2	33.6	25.0	25.3	37.4	35.4	42.6	42.9	42.6	35.4	n/a	n/a	0.81	29

Key:

MEL 5 Roadside site, 6 The Street, Melton. **(Duplicate site)**

Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must either be a combined ("national") bias adjustment factor, or one calculated from a co-location study with a continuous analyser carried out by the authority themselves. The 2013 data from the Melton site were adjusted using a combined (national) bias adjustment factor of 0.81 using the June 2014 National Diffusion Tube Bias Adjustment Factor Spreadsheet

Monthly and annual mean nitrogen dioxide (NO₂) concentrations recorded at sites in Martlesham during 2013, figures in micrograms per cubic metre (µg/m³). Annual mean concentration corrected for bias where relevant.

Site	Time in months												Annual Mean (µg/m ³)	Annualisation factor if applicable	Annual mean (annualised if applicable)	Bias correction Factor Used #	Bias corrected Annual Mean (µg/m ³)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					
MRT 1a	28.5	21.8	35.1	28.9	23.1	22.2	21.4	24.9	24.2	31.3	27.5	24.1	see MRT 1 mean	~	~	~	~
MRT 1b	31.1	29.5	34.2	29.4	24.4	23.0	22.4	23.8	25.0	25.2	26.1	25.8	see MRT 1 mean	~	~	~	~
MRT 1c	27.7	26.4	34.9	29	23.9	21.3	23.1	22.9	25.8	27.4	28.6	27.6	see MRT 1 mean	~	~	~	~
MRT 1a,b, c-Mean	29.1	25.9	34.7	29.1	23.8	22.2	22.3	23.9	25.0	28.0	27.4	25.8	26.4	n/a	n/a	0.81	21

Key:

MRT 1a,b,c Site located on drainpipe behind Horseman court, off Eagle Way, Martlesham. **(Triplicate Site)**

Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must either be a combined ("national") bias adjustment factor, or one calculated from a co-location study with a continuous analyser carried out by the authority themselves. The 2013 data from the Martlesham sites were adjusted using a combined (national) bias adjustment factor of 0.81 using the June 2014 National Diffusion Tube Bias Adjustment Factor Spreadsheet

Monthly and annual mean nitrogen dioxide (NO₂) concentrations recorded at sites along the A12 during 2013, figures in micrograms per cubic metre (µg/m³). Annual mean concentration corrected for bias where relevant.

Site	Time in months												Annual Mean (µg/m ³)	Annualisation factor if applicable	Annual mean (annualised if applicable)	Bias correction Factor Used #	Bias corrected Annual Mean (µg/m ³)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					
LGM 1	18.7	19.7	23.4	17.8	15.2	16.1	17.4	15.8	16.8	18.1	18.5	17.9	18.0	n/a	n/a	0.81	15
FAR 1a	36.7	40.6	37.5	40.2	32.1	35.7	35.2	32.8	34.8	36.3	38.3	29.6	see FAR 1 mean	~	~	~	~
FAR 1b	36.8	39.1	46.1	45.6	32.1	32.9	37.0	37.2	35.2	33.0	39.1	29.1	see FAR 1 mean	~	~	~	~
FAR 1c	37.0	33.7	41.5	47.1	32.3	34.6	36.0	37.2	32.8	35.1	38.5	25.2	see FAR 1 mean	~	~	~	~
FAR 1a,b,c-mean	36.8	37.8	41.7	44.3	32.2	34.4	36.1	35.7	34.3	34.8	38.6	28.0	36.2	n/a	n/a	0.81	29
FAR 2a	45.6	40.9	40.8	43.6	33.7	32.0	36.9	40.0	36.7	41.8	48.2	31.8	see FAR 2 mean	~	~	~	~
FAR 2b	35.7	41.7	43.7	32.4	35.3	32.7	36.5	36.1	36.6	42.7	43.7	37.3	see FAR 2 mean	~	~	~	~
FAR 2c	38.3	33.8	44.1	43.3	33.5	31.1	35	41.9	35.3	35.2	43.2	35.5	see FAR 2 mean	~	~	~	~
FAR 2a,b,c- mean	39.9	38.8	42.9	39.8	34.2	31.9	36.1	39.3	36.2	39.9	45.0	34.9	38.2	n/a	n/a	0.81	31
STA 1a	55.1	52.7	53.7	51.5	49.3	40	47.1	46.5	47.9	55.6	56.1	54.7	See STA 1 mean	~	~	~	~
STA 1b	50.1	43.9	52.4	54	48.6	41.1	47.9	50.1	49.1	56.2	58.2	54.6	See STA 1 mean	~	~	~	~
STA 1c	54.2	33.5	49.1	53.3	48.7	36.5	51	53.9	44.5	61.8	56.1	53.2	See STA 1 mean	~	~	~	~
STA 1a,b,c- mean	53.1	43.4	51.7	52.9	48.9	39.2	48.7	50.2	47.2	57.9	56.8	54.2	50.3	n/a	n/a	0.81	41
STA 2	34.9	38	31.3	23.7	26.5	23.4	30.7	32.1	34.6	43.3	39.6	37.6	33.0	n/a	n/a	0.81	27
STA 4	25.4	26.2		21.1	20.1	16.2	15.5	13.4	20.4	22.5	24.7	20.1	20.5	n/a	n/a	0.81	17
STA 6	36.5	29.6	29.8	26		22.6	26.7	31	29.6	30.8	32.3	26.8	29.2	n/a	n/a	0.81	24
STA 7	42.7	47.2	46.6	36.2	30.3	39.8	47.1	47.9	48.2		50	31.3	42.5	n/a	n/a	0.81	34

Key:

LGM 1	<u>Roadside Site</u> , Drainpipe on Pear Tree House, Main Road, Little Glemham
FAR 1a,b,c	<u>Roadside Site</u> , Turret House, The Street, Farnham
FAR 2a,b,c	<u>Roadside Site</u> , Post Office Stores, The Street, Farnham,
STA 1 a,b,c	<u>Roadside Site</u> , 1 Long Row, Main Road, Stratford (Triplicate)
STA 2	<u>Roadside Site</u> , Road Sign opposite 1-5 Long Row, Main Road, Straford
STA 4	<u>Roadside Site</u> , Lowestoft Street Sign on bend, Main Road, Stratford
STA 6	<u>Roadside Site</u> , Jacobs Cottage, Main Road, Stratford (new site as of January 2013)
STA 7	<u>Roadside site</u> , 30 mph sign past 5 Long Row, Main Road, Stratford (new site as of January 2013)

Diffusion tube annual mean data is ratified to improve accuracy. The bias adjustment factor for the diffusion tubes must either be a combined ("national") bias adjustment factor, or one calculated from a co-location study with a continuous analyser carried out by the authority themselves. The 2013 data from the North sites were adjusted using a combined (national) bias adjustment factor of 0.81 using the June 2014 National Diffusion Tube Bias Adjustment Factor Spreadsheet.

Appendix E:

**Environment Protection Act 1995, Part IV section 83(1)
Suffolk Coastal District Council**

Air Quality Management Area Order

**THE SUFFOLK COASTAL DISTRICT COUNCIL AIR QUALITY
MANAGEMENT AREA
ORDER NO 3, 2014**

Suffolk Coastal District Council, in exercise of the powers conferred upon it by
Section 83(1) of the
Environment Act 1995 hereby makes the following Order

This Order may be referred to as
**'The Suffolk Coastal District Council Air Quality
Management Area Order No 3, 2014'**,

and shall come into effect on the **18 June 2014**
The area shown on the attached map hatched in red is to be designated as an air
quality management area (the designated area).

**The designated area incorporates the four properties situated within 1-5 Long
Row, Main Road, in Stratford St Andrew, Suffolk.**

The map may be viewed at the Council Offices, at Melton Hill, Woodbridge, between
the hours of
08.45am to 5.15pm Mondays to Thursdays and 08.45am to 4.45pm on Fridays.

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

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

Dated this 18th day of June 2014.

The Common Seal of Suffolk Coastal District Council was affixed in the presence of;

Jandily
.....

Authorised Officer

And

Kenneth Bishop
.....

Authorised Officer

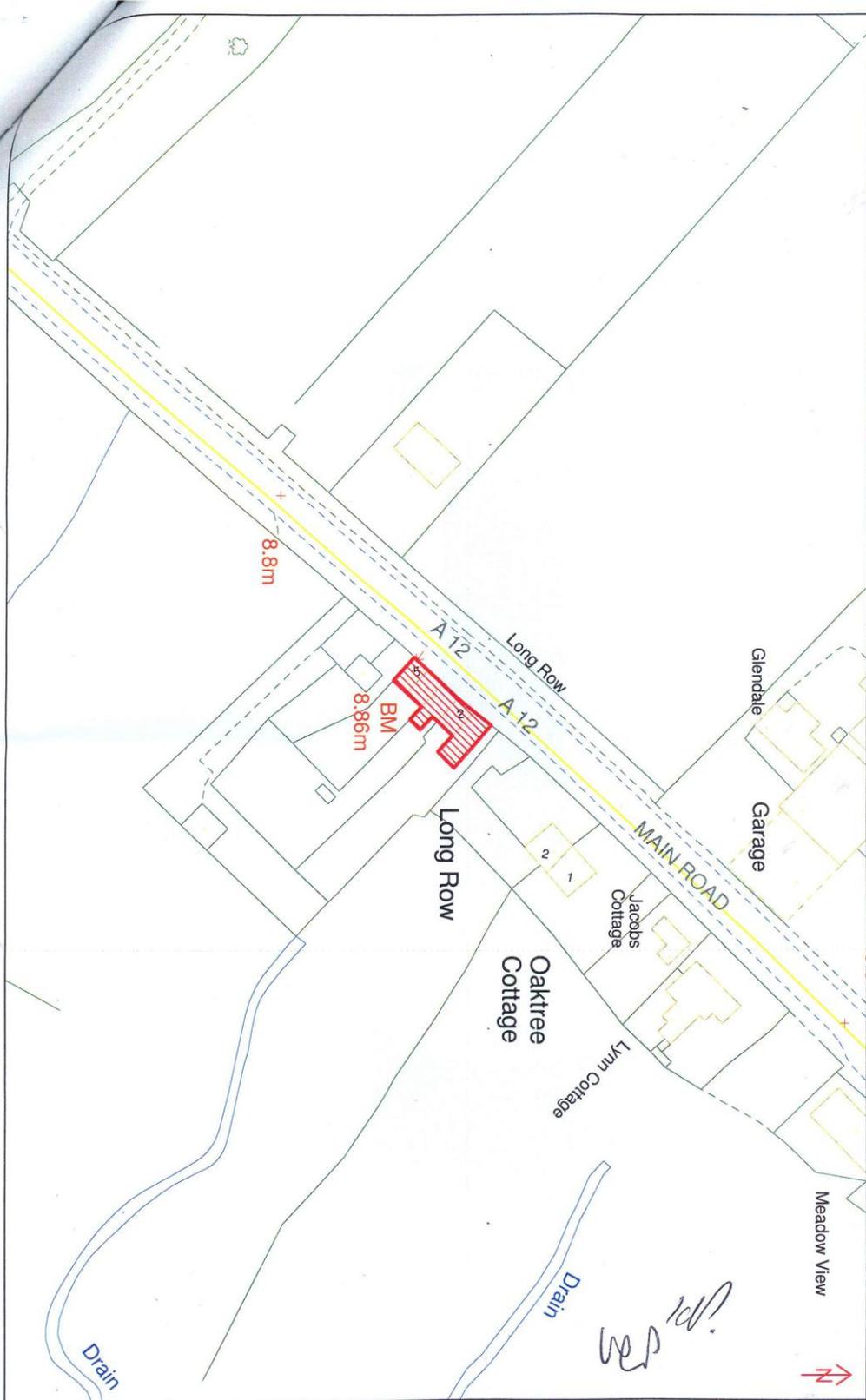


Suffolk Coastal District Council
© Crown Copyright and database rights 2012 Ordnance Survey 100019684

**Suffolk Coastal District Council Air Quality
Management Area Order No.3, 2014**

Scale 1:1,000

Map produced on 18 June 2014 at 15:26



Appendix F: Permitted Processes

Processes regulated under the Environmental Permitting Regulations 2010 by Suffolk Coastal District Council 2014.

Name and address of authorised process	Authority issuing authorisation (Public Register file reference – where applicable)	Grid reference for process	Installation Activity Section number and Process Guidance (PG) note under which process is authorised	Process description
Samkin of Saxmundham Ltd Chantry Road, Saxmundham	Suffolk Coastal District Council (EPA 02)	63846 26301	Combustion Activity Section 1.1	Waste Oil Burner; less than 0.4MW
Bridge Garage Charsfield	Suffolk Coastal District Council (EPA 05)	62642 25609	Combustion Activity Section 1.1	Waste Oil Burner; less than 0.4MW
Cemex Readymix East Anglia Sinks Pit, Kesgrave	Suffolk Coastal District Council (EPA 07)	62288 24636	Production of Cement and Lime Section 3.1	The blending of cement in bulk
Cemex Readymix East Anglia Theberton Airfield, Leiston	Suffolk Coastal District Council (EPA 08)	64134 26438	Production of Cement and Lime Section 3.1	The blending of cement in bulk
The Paddocks Hacheston	Suffolk Coastal District Council (EPA 13)	63075 25945	Combustion Activity Section 1.1	Waste Oil Burner; less than 0.4MW
The Garage Church Road, Dallinghoo	Suffolk Coastal District Council (EPA 36)	62642 25495	Combustion Activity Section 1.1	Waste Oil Burner; less than 0.4MW
Shell Garage A12 Northbound (Woodbridge), 715 Grove Road, Woodbridge	Suffolk Coastal District Council (EPA 38)	62598 24951	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
Shell Garage A12 Southbound (Woodbridge) 805 Grove Road, Woodbridge	Suffolk Coastal District Council (EPA 39)	62605 24950	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
Haynings Service Station Saxmundham Road, Framlingham	Suffolk Coastal District Council (EPA 40)	62885 26349	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
WM Morrisons Plc Grange Farm Avenue, Cavendish Park Estate, Felixstowe	Suffolk Coastal District Council (EPA 42)	62863 23477	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station

Name and address of authorised process	Authority issuing authorisation (Public Register file reference – where applicable)	Grid reference for process	Installation Activity Section number and Process Guidance (PG) note under which process is authorised	Process description
Solar Garage High Road West, Felixstowe	Suffolk Coastal District Council (EPA 44)	63034 23520	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
Sainsbury's Supermarkets Ltd Felixstowe Road, Purdis Farm	Suffolk Coastal District Council (EPA 45)	62015 24235	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
Martlesham Heath Services Service Area, Anson Road, Martlesham Heath	Suffolk Coastal District Council (EPA 47)	62466 24586	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
Moter Fuel Company Felixstowe Dock Service Area Anzani Avenue, Felixstowe	Suffolk Coastal District Council (EPA 49)	62798 23451	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
Tesco Stores Ltd Anson Road, Martlesham Heath	Suffolk Coastal District Council (EPA 50)	62473 24592	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
Stratford Service Station A12 Main Road, Stratford St Andrew	Suffolk Coastal District Council (EPA 52)	63578 26007	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
L. B. Shotter & Sons Waterloo Avenue, Leiston	Suffolk Coastal District Council (EPA 55)	64377 26260	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
John Grose Melton Road, Melton	Suffolk Coastal District Council (EPA 56)	62785 24987	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
A. G. Potter Ltd. Station Road, Framlingham	Suffolk Coastal District Council (EPA 58)	62852 26285	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station
Mr. M. Ladd, Vehicle Surgeon Grundisburgh Road, Hasketon	Suffolk Coastal District Council (EPA 59)	62420 25002	Combustion Activity Section 1.1	Waste Oil Burner; less than 0.4MW
Smith & Wesby (Sax) Limited Service Station, Main Road, A12, Darsham	Suffolk Coastal District Council (EPA 62)	64061 26980	Gasification, Liquefaction and Refining Activities Section 1.2	Unloading of petrol into storage tanks at a Service Station

Name and address of authorised process	Authority issuing authorisation (Public Register file reference – where applicable)	Grid reference for process	Installation Activity Section number and Process Guidance (PG) note under which process is authorised	Process description
Brett Concrete Limited Waldringfield Quarry, Martlesham Heath	Suffolk Coastal District Council (PPC 01)	62568 24485	Production of Cement and Lime Section 3.1	The blending of cement in bulk
VAS Autoservices Ltd 3/4 Quayside, Woodbridge	Suffolk Coastal District Council (PPC 02)	62759 24892	Combustion Activity Section 1.1	Waste Oil Burner; less than 0.4MW
Truckeast Limited 6 Hodgkinson Road, Felixstowe	Suffolk Coastal District Council (PPC 04)	62810 23446	Combustion Activity Section 1.1	Waste Oil Burner; less than 0.4MW
Nationwide Crash Repair Centres Ltd. 29 Gloster Road, Martlesham Heath	Suffolk Coastal District Council (PPC 05)	62481 24562	Coating Activity Section 6.4	Respraying of Road Vehicles
Eurovia Roadstone Foxhall Four Quarry, Foxhall Road Brightwell	Suffolk Coastal District Council (PPC 06)	62446 24375	Other Mineral Activities Section 3.5e	Coating road stone with tar or bitumen
L F Geater & Sons Ltd West End Nurseries, Westward Ho, Leiston	Suffolk Coastal District Council (PPC 07)	64380 26321	Combustion Activity Section 1.1	Straw Burning between 0.4 and 3 MW
Hazlewood Hand Laundry Aldeburgh Road, Aldringham, Leiston	Suffolk Coastal District Council (PPC 08)	64471 26033	Solvent Activity SED Directive Section 7	Dry Cleaning
West End Dry Cleaners Unit 12, Undercliff Road West, Felixstowe	Suffolk Coastal District Council (PPC 11)	62969 23411	Solvent Activity SED Directive Section 7	Dry Cleaning
Kesgrave Dry Cleaners Unit 3 Tesco Store, Ropes Drive, Kesgrave, Ipswich	Suffolk Coastal District Council (PPC 12)	62196 24538	Solvent Activity SED Directive Section 7	Dry Cleaning
Castle Cleaners 10A Church Street, Framlingham	Suffolk Coastal District Council (PPC 13)	62860 26353	Solvent Activity SED Directive Section 7	Dry Cleaning

Name and address of authorised process	Authority issuing authorisation (Public Register file reference – where applicable)	Grid reference for process	Installation Activity Section number and Process Guidance (PG) note under which process is authorised	Process description
Clappits Plant Ltd Clappits Pit, Woodbridge Road, Newbourne	Suffolk Coastal District Council (PPC 14)	62741 24381	Other Mineral Activities Section 3.5	Crushing, grinding or size reduction of bricks, tiles or concrete (mobile)
V W Anticks 2-4 The Forge, Bredfield	Suffolk Coastal District Council (PPC 15)	62661 25218	Combustion Activity Section 1.1	Waste Oil Burner; less than 0.4MW
East Suffolk Crematorium Ltd., Seven Hills Crematorium, Nacton	Suffolk Coastal District Council (EPR 01)	62300 24130	Incineration Activity Section 5.1	Cremation of human remains
Colin Carter Motor Engineer Clarendon Works, 13 Bridge Road, Felixstowe IP11 7SL	Suffolk Coastal District Council (EPR 03)	63014 23509	Combustion Activity Section 1.1	Waste Oil Burner; less than 0.4MW
Clarkes Demolition Ltd. Chapel Works, Waldringfield, IP12 4PT	Suffolk Coastal District Council (EPR 04)	62741 24380	Other Mineral Activities Section 3.5	Crushing, grinding or size reduction of bricks, tiles or concrete (mobile)

Processes regulated under the Environmental Permitting Regulations 2010 by the Environment Agency 2014

Pig and Poultry Units

Permit Number	Operator	Installation Location	Post Code	Installation Activity
TP3931MF	Vion Agriculture Ltd.	2 Units Badingham, Woodbridge	IP13 8LU	Intensive Farming Activity Poultry Broiler
SP3534UV	RH & R Paul	Broxtead Estate, Sutton	IP12 3HL	Intensive Farming Activity Pig Production
LP3730UU	Bacton Pigs Limited	Chediston Hall Farm, Chediston, Halesworth	IP19 0AW	Intensive Farming Activity Pig Production
MP3131MC	Countess Wells Breeding	Countess Wells Farm, New Road, Framlingham	IP13 9JE	Intensive Farming Activity

	Limited			Pig Production
MP3433UX	Crown Chicken Ltd.	Darsham Poultry Unit, Thorrington	IP17 3QW	Intensive Farming Activity Poultry Broiler
AP3333UV	Hook 2 Sisters Limited	Driftway Farm, Linstead Magna, Halesworth	IP19 0DT	Intensive Farming Activity Poultry Broiler
EP3431MH	Vion Agriculture Ltd.	Earl Soham Farm, Bedfield Road, Earl Soham	IP13 7SL	Intensive Farming Activity Poultry Broiler
HP3437MB	CS Buchanan Ltd	Great Pinners Farm, Clopton Road, Tuddenham St Martin	IP6 9EG	Intensive Farming Activity Duck Production
HP3831MY	Vion Agriculture Ltd.	High House Farm, Heveningham Long Lane, Peasenhall	IP17 2JW	Intensive Farming Activity Poultry Broiler
HP3137MR	Sewell Hewitt (Farms) Ltd	Hill Farm,Chillesford,Woodbridge,Suffolk	IP12 3PY	Intensive Farming Activity
VP3431ML	Vion Agriculture Ltd.	Lampard Brook, Framlingham, Woodbridge	IP13 9SB	Intensive Farming Activity Poultry Broiler
GP3633UM	Green Label	Loomswood Duck Unit, Loomswood Farm, Debach, Woodbridge	IP13 6JW	Intensive Farming Activity Duck Production
ZP3433UR	Green Label	Maple Tree Farm, Tuddenham	IP6 9EE	Intensive Farming Activity Duck Production
VP3931MZ	Vion Agriculture Ltd.	Otley Poultry Farm, Hall Lane, Otley	IP6 9PA	Intensive Farming Activity Poultry Broiler
PP3431XK	Loombest Ltd	Park Farm, Thorrington, Suffolk	IP17 3QW	Intensive Farming Activity Poultry Broiler
GP3436UX	Vion Agriculture Ltd.	Peasenhall Poultry Farm, Ceder Bungalow, Rendham Road, Peasenhall	IP17 2NQ	Intensive Farming Activity Poultry Broiler
PP3433UT	SJ & R Wright	Redhouse Farm, Badingham, Woodbridge	IP13 8JE	Intensive Farming Activity Poultry Broiler
KP3833UC	P R & R H Leggett Ltd	Walnut Tree Farm, Ashboking, Ipswich	IP6 9JX	Intensive Farming Activity Pig Production
RP3731MU	St Lawrence Hall Farms Limited	Wenhaston Farm, Bartholomews Lane, Blackheath, Wenhaston	IP19 9DF	Intensive Farming Activity Poultry Broiler

Installations

Permit Number	Operator	Installation Location	Post Code	Installation Activity
QP3938LY variation V005	Novera Energy Generation No. 2 Limited	Foxhall Generation Plant, Foxhall Landfill Site, Foxhall Road, Brightwell	IP10 0HT	Combustion Activity
BW2943IG variation v004	Viridor Waste Management Limited	Foxhall Landfill Site, Foxhall Road, Brightwell	IP10 0HT	Disposal of Waste by Landfill

Waste Operations and Installation Sites

Waste Management License Number	Operator	Installation Location	Post Code	Installation Activity and additional information
70779	FCC Recycling (UK) Ltd	Felixstowe Household Waste Recycling Centre, Carr Road, Felixstowe	IP11 3RX	Disposal of Waste
100216	Viridor	Foxhall Waste Transfer Station, Foxhall Landfill Site, Foxhall Road, Brightwell	IP10 0HT	Disposal of Waste (Storage of Waste)
70778 and 71228 consolidated	Waste Recycling Limited	Foxhall Household Waste Recycling Centre Foxhall Landfill Site, Foxhall Road, Brightwell	IP10 0HT	Disposal of Waste
210108	Brett Aggregates Limited	Waldringfield Landfill, Waldringfield Quarry, Martlesham Heath	IP10 0BL	Disposal of Waste
104224	Brett Aggregates Limited	Waldringfield Recycling Facility, Waldringfield Quarry, Martlesham Heath	IP10 0BL	Disposal of Waste (Waste recovery)
71353	DJ Spall Recycling Ltd	Dallinghoo Garage, Woodbridge	IP13 0LA	Disposal of Waste (End of life vehicles)
71093	Tamar Composting (East Anglia) Ltd	Parham Recycling Centre, Parham, Woodbridge	IP13 9AF	Disposal of Waste (In vessel composting)
101470	Skipaway	Leiston Transfer Station, Master Lord Industrial Estate, Station Road, Leiston	IP16 4JD	Disposal of Waste
70780	FCC Recycling (UK) Ltd	Leiston Household Waste Recycling Centre, Lovers Lane, Leiston	IP16 4RS	Disposal of Waste
70739	VW Harrowmead Limited	Breakers Yard, Moat Road, Theberton	IP16 4RS	Disposal of Waste
70794	Shotley Holdings (Leiston) (trading as Collins Skips)	Master Lord Industrial Estate, Station Road, Leiston	IP16 4JD	Disposal of Waste

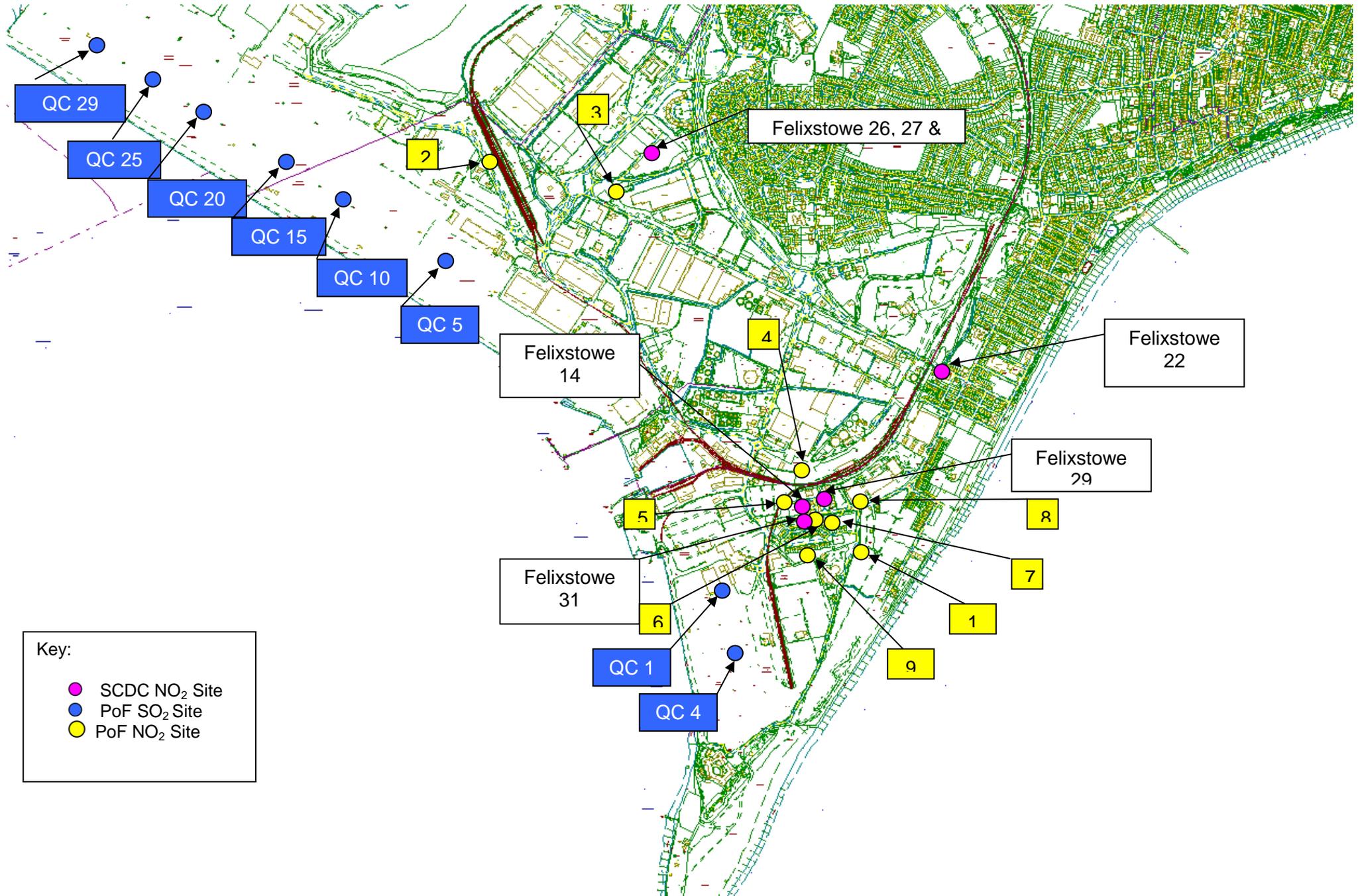
Appendix G:

Woodbridge Emissions Assessment - July 2014

This report is too large to attach within this document. It is available to read as a separate document.

Appendix H:

Port of Felixstowe monitoring locations for nitrogen dioxide and sulphur dioxide



Key:

- SCDC NO₂ Site
- PoF SO₂ Site
- PoF NO₂ Site

Glossary of Terms and Abbreviations

A

Adblue	Diesel Exhaust Fluid - used in selective catalytic reduction in order decrease NOx concentrations in diesel exhaust emissions from diesel engines.
Air Quality Action Plan (AQAP) or Action Plan	Plan required by the Government to be drawn up for an Air Quality Management Area (AQMA) to provide information on what action will be taken to try and reduce pollutant levels to within the set objectives.
Air Quality Action Plan (AQAP) Progress Report	Once an Action Plan has been developed for an Air Quality Management Area (AQMA) the Government require that an annual report be produced to provide an update on progress.
Air Quality Management Area (AQMA)	Each local authority in the UK is required to undertake a review and assessment of air quality in their area. This involves measuring air pollution and trying to predict how it will change in the next few years. The aim of the review is to make sure that the national air quality objectives will be achieved throughout the UK by the relevant deadlines. These objectives have been put in place to protect people's health and the environment. If a local authority finds any places where the objectives are not likely to be achieved, it must declare an Air Quality Management Area there.
Air Quality Management Area (AQMA) Order	Air Quality Management Area Order – the official order which is made declaring an AQMA.
Air Quality Objectives	Policy targets generally expressed as a maximum ambient concentration to be achieved, either without exception or with a permitted number of exceedences, within a specified timescale. The Objectives are set out in the UK Government's Air Quality Strategy for the key air pollutants.
Air Quality Standards	The concentrations of pollutants in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. The Standards are based on assessment of the effects of each pollutant on human health, including the effects on sensitive sub-groups.
Air Quality Strategy	The Air Quality Strategy for England, Scotland, Wales and Northern Ireland describes the plans drawn up by the Government and the Devolved Administrations to improve and protect ambient air quality in the UK in the medium-term. The Strategy sets Objectives for the main air pollutants to protect health. Performance against these Objectives is monitored where people regularly spend time and might be exposed to air pollution.
Analytical laboratory	Laboratory used to analyse air pollution samples collected.

Annualised mean	Calculation of an annual mean concentration using a period of less than a year to produce a calculation for the whole year .
Annual mean concentration	The average concentration of a pollutant measured over one year.
Automatic analyser	Equipment used to undertake accurate and reliable detailed monitoring of an air pollutant. Equipment records air pollution levels continuously and produces real-time measurements of pollutant concentrations.
<u>B</u>	
Bias	The overall tendency of (diffusion tube) readings to depart from the true value, i.e to over or under read when compared to the reference method (automatic analyser)
Bias adjustment/correction factor	Diffusion tubes used to monitor air pollutants (mainly nitrogen dioxide) are affected by several sources of interference which can cause substantial under or overestimation (often referred to as "bias") compared to an automatic analyser. This is a problem where diffusion tube results are to be compared with air quality objectives. As a result, local authorities using diffusion tubes are required to quantify the "bias" of their diffusion tube measurements and apply an appropriate bias adjustment factor to the annual mean if required.
Biomass combustion	Biomass is a renewable energy source - biological material from living, or recently living organisms, such as wood, waste, (hydrogen) gas, and alcohol fuels. Biomass is commonly plant matter grown to generate electricity or produce heat, usually by direct incineration. Biomass combustion is therefore a means of converting biomass to usable energy (both heat and electricity) by burning.
<u>C</u>	
CNG	Compressed Natural Gas – methane stored at high pressure.
CO₂	Carbon dioxide - a naturally occurring chemical compound composed of 2 oxygen atoms each covalently double bonded to a single carbon atom.
Co-location study	Study in which the accuracy of diffusion tubes is quantified by exposure alongside an automatic analyser, and the results used to calculate a bias adjustment factor.
<u>D</u>	
Data Capture	Term given to the percentage of measurements for a given period that were validly measured.
Defra	Department for the Environment, Food and Rural Affairs – government body who deal with air quality matters.

Detailed Assessment	Where an Updating and Screening Assessment identifies a risk that an air quality objective may be exceeded at a location then a Detailed Assessment of the site is required. The aim of a Detailed Assessment is to identify with reasonable certainty whether or not an exceedence will occur.
Diffusion tube	Low-cost method for indicative monitoring of ambient air pollutant concentrations, mainly used for measuring nitrogen dioxide. Collect pollutants by molecular diffusion along an inert tube to an efficient chemical absorbent. After exposure for a known time, the absorbent material is chemically analysed and the concentration calculated.
E	
ECO-RTG	ECO-Rubber Tyred Gantry Cranes employ a variable speed drive and a diesel engine energy hybrid management system to increase efficiency and reduce diesel fuel consumption by as much as 40%.
Environmental Management System – EMS	<p>The management of an organization's environmental programs in a comprehensive, systematic, planned and documented manner. It includes the organizational structure, planning and resources for developing, implementing and maintaining policy for environmental protection.</p> <p>More formally, EMS is "a system and database which integrates procedures and processes for training of personnel, monitoring, summarizing, and reporting of specialized environmental performance information to internal and external stakeholders of a firm."</p> <p>The most widely used standard on which an EMS is based is International Organization for Standardization (ISO) 14001.</p>
Energy Management System – EnMS – ISO 50001	<p>A system used to monitor, measure, and control electrical building loads. They allow facility and building managers to gather data and insight to make more informed decisions about energy activities across their sites.</p> <p>ISO 50001 is the international standard for energy management practices that are considered to be the best globally. This standard was developed by energy management experts from more than 60 countries.</p>
Environment Act 1995 Part IV	The Parliamentary Act which sets out the requirements for Local Air Quality Management.
Environmental Impact Assessment	An assessment of the possible positive or negative impact that a proposed project may have on the environment, consisting of the natural, social and economic aspects. The purpose of the assessment is to ensure that decision makers consider the ensuing environmental impacts when deciding whether to proceed with a project.
Environmental Permitting Regulations 2010	Regulations under which certain types of industry are required to have a permit to operate The industrial premises must show compliance with their permit conditions. Includes discharge consenting, groundwater authorisations and radioactive

substances regulation.

ERTG

Electric Rubber Tyred Gantry Crane (RTG) - specialised equipment for yard handling of containers.

European Emission Standards

These define the acceptable limits for exhaust emissions of new vehicles sold in EU member states. The emission standards are defined in a series of European Union directives staging the progressive introduction of increasingly stringent standards – Euro I to Euro VI.

E

Further Assessment

Where an Air Quality Management Area (AQMA) has been declared, a Further Assessment must be submitted to Defra within 12 months. This will supplement the information provided in the Detailed Assessment, confirm the objective exceedence, define what improvement in air quality and reduction in emissions is required to meet the objectives, and provide information on source contributions.

H

Haven Gateway

Area incorporating the five Haven ports of Felixstowe, Harwich International, Harwich Navyard, Ipswich and Mistley.

HDV – Heavy Duty Vehicle

A motor vehicle rated at more than 3,856 kg - includes trucks/lorries, buses and coaches.

HGV – Heavy Goods Vehicle

Goods [motor vehicles](#) (i.e. [trucks / lorries](#)) capable of carrying heavy loads over 3.5 tonnes maximum permissible gross vehicle weight and requiring a special license to drive.

**Hourly mean concentration
(1-hour mean)**

The average over a one hour period of an air pollutant concentration.

I

IMVs

Internal Movement Vehicles, used on the Port of Felixstowe to move containers on the site.

L

Laboratory bias

There is considerable difference in the performance of diffusion tubes prepared by different laboratories, such that they may systematically over or under read when compared with an automatic analyser. The laboratory bias is the figure derived in order to correct the over/under read to the reference method – the automatic analyser results.

Local Air Quality Management (LAQM)

Each local authority in the UK is required to carry out a regular review and assessment of air quality in their area. This involves measuring air pollution and trying to predict how it will change in the next few years. The aim of the review is to make sure that national air quality objectives will be achieved throughout the UK by the relevant deadlines. These objectives have been put in place to protect people's health and the environment.

LAQM.PG(09)

Local Air Quality Management Policy Guidance February 2009. Policy guidance issued by Defra to assist local authorities when carrying out review and assessment of air quality within their district.

LAQM.TG (09)

Local Air Quality Management Technical Guidance February 2009. Technical guidance issued by Defra to assist local authorities in reviewing and assessing air quality on their district.

LDV – Light Duty Vehicle

A motor vehicle up to and including 3.5 tonnes Gross Vehicle Weight

LGV – Light Goods Vehicle

Goods vehicles, mainly vans (including car derived vans), not over 3.5 tonnes maximum permissible gross vehicle weight.

LNG

Liquefied Natural Gas - natural gas (predominantly methane) that has been converted to liquid form for ease of storage or transport.

M

mg/m³

Milligrams per cubic metre – unit for measurement of an air pollutant concentration. A measure of concentration in terms of mass per unit volume. A concentration of 1mg/m³ means that one cubic metre of air contains one milligram of pollutant.

µg/m³

Micrograms per cubic metre – unit for measurement of an air pollutant concentration. A measure of concentration in terms of mass per unit volume. A concentration of 1µg/m³ means that one cubic metre of air contains one microgram of pollutant.

N

NO₂

Nitrogen Dioxide - a gas produced by the reaction of nitrogen and oxygen in combustion processes in air. Nitrogen Oxide (NO) is formed initially and this is subsequently oxidised to form NO₂.

NOx

Oxides of nitrogen – NOx is a generic term for the nitrogen oxides NO and NO₂ (nitric oxide and nitrogen dioxide). They are produced from the reaction of nitrogen and oxygen gases in the air during combustion, especially at high temperatures.

O

**OS Grid Ref – Ordnance Survey
Grid Reference**

The British Grid Reference System which can be used to accurately pinpoint any location in Great Britain and it's outlying islands through the use of a unique Ordnance Survey map reference – a Grid Reference.

Outline Planning Application

An outline of the plans and other information that developers send to the local authority for decision on whether or not to grant planning permission. If outline planning permission is granted the developers are required to provide more information later, in advance of each works, to make sure that they are acceptable.

P

Percentile

A value below which that percentage of data will either fall or equal. For instance the 98th percentile of values for a year is the value below which 98% of all the data in the year will fall or equal.

**Port Environmental Review System
- PERS**

The only Port-sector specific environmental management system (EMS).

An EMS is the management of an organization's environmental programs in a comprehensive, systematic, planned and documented manner. It includes the organizational structure, planning and resources for developing, implementing and maintaining policy for environmental protection.

More formally, EMS is "a system and database which integrates procedures and processes for training of personnel, monitoring, summarizing, and reporting of specialized environmental performance information to internal and external stakeholders of a firm."

Progress Report

A report intended to maintain the continuity of the Local Air Quality Management process and fill in the gaps between the 3 yearly cycle of the review and assessment process. Required in all years when an Updating and Screening Assessment is not undertaken.

PM₁₀

Particulate Matter with a diameter of less than 10 microns – air pollutant of concern

Q

**QA:QC – Quality Assurance :
Quality Control**

Relates to the collection of air quality monitoring data - the systematic monitoring and evaluation of the various aspects to maximize the probability that the data collected is of good quality.

R

Relevant exposure	Review and assessment of air quality must focus on locations where members of the public are likely to be regularly present and are likely to be exposed for a period of time appropriate to the averaging period of the specific objective, this is termed relevant exposure.
RTGs	Rubber Tyred Gantry Cranes – specialised equipment for yard handling of containers.
Review and Assessment process	Procedure put in place by Defra to ensure that all local authorities review and assess air quality within their district on a regular basis and take action for any location where the air quality objectives are exceeded.
Running mean	This is a mean - or series of means - calculated for overlapping time periods, and is used in the calculation of several of the National Air Quality Standards. For example, an 8-hour running mean is calculated every hour, and averages the values for eight hours. There are, therefore, 24 possible 8-hour running means in a day (calculated from hourly data).

S

SCC	Suffolk County Council
SCDC	Suffolk Coastal District Council
Section 106 planning agreements	Section 106 of the <i>Town and Country Planning Act 1990</i> (as amended) allows local planning authorities to negotiate arrangements whereby the developer makes some commitment if he obtains planning permission.
SO₂	Sulphur dioxide – air pollutant of concern.
Source apportionment	This exercise is undertaken if a Further Assessment is required for a site. All potential emission sources for the pollutant and site of concern are identified and investigations undertaken to determine how much of the problem is attributed to each emission source.
Supplementary Planning Document (SPD)	A supplementary planning document provides additional information on planning policies in a development plan. SPDs fit into the new type of local plan called the local development framework that has been introduced by the Planning and Compulsory Purchase Act 2004.

U

USA – Updating and Screening Assessment	The first step of the review and assessment process which must be undertaken by all local authorities every 3 years. Based on a checklist to identify those matters which have changed since the previous round of review and assessment
------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

was completed.

V

Vehicle Booking System - VBS

This is a real-time appointment system used by hauliers wishing to deliver or collect containers at The Port of Felixstowe. The simple-to-use web-based system allows hauliers to select a time for their visit, enabling the Port to proactively manage customer demand, providing a faster turnaround.

W

Worst case exposure

Location where air pollution from a specific source will be the highest.

15-minute mean

The average over a 15 minute period of an air pollutant concentration.

24-hour mean

The average over a 24 hour period of an air pollutant concentration.