2024 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management, as amended by the Environment Act 2021

Date: June 2024

Information	Wealden District Council Details
Local Authority Officer	Philip Wright
Department	Pollution Control
Address	Wealden District Council Vicarage Lane Hailsham BN27 2AX
Telephone	01323443281
E-mail	philip.wright@rother.gov.uk
Report Reference Number	WDC 2024 ASR
Date	June 2024

Executive Summary: Air Quality in Our Area

Air Quality in Wealden

Breathing in polluted air affects our health and costs the NHS and our society billions of pounds each year. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer and can cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in hospital admissions and mortality. In the UK, it is estimated that the reduction in healthy life expectancy caused by air pollution is equivalent to 29,000 to 43,000 deaths a year[1].

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Additionally, people living in less affluent areas are most exposed to dangerous levels of air pollution[2].

Table ES 1 provides a brief explanation of the key pollutants relevant to Local Air Quality Management and the kind of activities they might arise from.

Table ES 1 - Description of Key Pollutants

Pollutant	Description
Nitrogen Dioxide (NO_2)	Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation.
Sulphur Dioxide (SO_2)	Sulphur dioxide (SO_2) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil.
Particulate Matter (PM_{10} and $PM_{2.5}$)	Particulate matter is everything in the air that is not a gas. Particles can come from natural sources such as pollen, as well as human made sources such as smoke from fires, emissions from industry and dust from tyres and brakes. PM_{10} refers to particles under 10 micrometres. Fine particulate matter or $PM_{2.5}$ are particles under 2.5 micrometres.

---

[1] UK Health Security Agency. Chemical Hazards and Poisons Report, Issue 28, 2022.

[2] Defra. Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

The District of Wealden is the largest district in East Sussex, and one of the most rural districts in England. Road traffic is the dominant source of air pollution in the area, the major routes being the A22, the A26, the A267, the A259, the A27 and the A272. The main pollutants of concern with respect to road traffic are nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$). Currently, there are no areas in Wealden where members of the public are exposed to concentrations of these pollutants in excess of the UK Air Quality Strategy (AQS) objectives.

Wealden District Council (WDC) manages local air quality in close collaboration with East Sussex County Council (ESCC) (which contributed to monitoring until 2014) and the Sussex Air Quality Partnership (Sussex Air). The partnership provides assistance to members and information to the public via its website with recent air quality data, news updates, educational resources, links and other services such as airAlert.

In previous years, local monitoring has identified high concentrations of NO_2 at three roadside locations (A267 East of Cross in Hand (W7), West of Boship Roundabout (W8) and Forest Row High Street (W10)). In March 2017 the A267 East of Cross in Hand (W7) monitoring location was changed, due to difficulty with access and it not being a representative site, with the monitor moved along the road nearer to residential properties. In more recent years (2018 – 2023), concentrations at all monitoring locations in Wealden achieved the UK air quality objective for annual mean NO_2, with concentrations lower than 40 µg/m^3.

Two new locations for monitoring NO_2 were introduced in 2022, High Street Wadhurst (W15) and Styles Lane Wadhurst (W16). No new sites were added in 2023, with a total of 16 diffusion tube monitoring locations in operation. In 2023, the maximum annual mean NO_2 concentration was observed at site W4 (27.4 µg/m^3), well below the annual mean AQS NO_2 objective. At the beginning of 2024, one new monitoring site at Forest Row was implemented.

NO_2 concentrations were measured at Lullington Heath continuous monitoring site. In 2023, data capture for the Lullington Heath site was good (97%). PM_{10} and $PM_{2.5}$, concentrations were also measured for the second year in a row at this site. Both PM_{10} and $PM_{2.5}$ levels were significantly below annual mean AQS objectives.

As in other suburban and rural areas of East Sussex, ozone (O_3) is of considerable concern. The Isfield O_3 monitoring site was decommissioned at the end of 2020, therefore O_3 is now only monitored at Lullington Heath. Annual average O_3 concentrations at Lullington Heath have generally increased since 2011. The number of days with high O_3

concentrations (above the 8-hour objective) has also increased with exceedances of the 8-hour objective in each year from 2018 to 2023. Comparing 2022 and 2023 data for Lullington Heath, there has been a slight increase in O_3 annual mean concentration but a decrease in the number of days with O_3 8-hour exceedances.

Sulphur dioxide (SO_2) is also measured at the Lullington Heath station. However, in recent years there have been no exceedances of any of the three AQS objectives (15-minute, 1-hour and 24-hour).

Two-thirds of the Wealden district is designated as the High Weald and Sussex Downs Areas of Outstanding Natural Beauty (AONB) with 34 other conservation areas. The impact of traffic-related air pollution on some of these areas has been assessed in past years. This involved monitoring the impact of traffic on the Ashdown Forest Special Protection Area (SPA) and Special Area of Conservation (SAC). More recently, there has been the introduction of tariffs for new developments to reduce the impact of cumulative development upon the Ashdown Forest SPA/SAC.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, there are some areas where local action is needed to protect people and the environment from the effects of air pollution.

The Environmental Improvement Plan[3] sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term targets for fine particulate matter ($PM_{2.5}$), the pollutant of most harmful to human health. The Air Quality Strategy[4] provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero[5] details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of

---

[3] Defra. Environmental Improvement Plan 2023, January 2023

[4] Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

[5] DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

personal travel and the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

WDC is helping the public to avoid the worst effects of O_3 pollution by informing the public of pollution events through the airAlert pollution warning service using the O_3 monitoring data obtained from Lullington Heath. This service is provided and maintained through the Sussex Air partnership.

WDC contributes to the Air Quality and Emissions Mitigation Guidance for Sussex. The guidance supports the principles of the Sussex Air Quality Partnership to improve air quality across Sussex and encourage emissions reductions to improve the environment and health of the population. Other actions being implemented to improve public health include promoting active modes of transport like walking, cycling and using public transport, as well as car clubs and car sharing.

In 2023, WDC drafted a local plan that looks ahead to 2040 and was open for consultation from March to May 2024. The new local plan encompasses strategic and non-strategic policies to contribute towards social, environmental, economic sustainability goals. WDC also continued discussions with Planning Policy to ensure air quality mitigation requirements are integrated as policy into the Local Plan. Through 2023, there has been an increased use of the Air Quality Guidance produced by Sussex Air to apply conditions to major planning applications. This has ensured that air quality mitigation costs and air quality measures have been implemented into major developments. One additional diffusion tube site was installed in Forest Row in 2024, an area in the north of the district where existing coverage was light. WDC will continue to review the diffusion tube monitoring locations in future reporting years to try to identify whether there are other key areas of relevant exposure where there may be exceedances so the appropriate measures can be adopted accordingly.

Conclusions and Priorities

This ASR confirms that concentrations within Wealden continue to be well within the NO_2 annual mean AQS objective at relevant locations. No significant changes in emissions sources within the Council's area have been identified in the last year.

The priorities for the coming year will be to continue monitoring in the area and continue to implement measures to increase sustainable travel options and improve transport infrastructure. WDC will continue to review monitoring locations based on trends in pollutant concentrations. The Council will ensure assessment and mitigation measures for

new developments, particularly those allocated around the main urban centres. The Council will continue discussions around planning policy to ensure that air quality mitigation requirements become policy in the new Local Plan and continue work with Sussex Air and other Local Authorities.

The main challenge for air quality management in Wealden is balancing development of the district with further financial pressure on WDC's limited funds. The Council also has to manage the conservation of the natural habitats that constitute most of the district's territory. WDC will address this challenge by managing a sustainable level of development to reduce the impact of cumulative development on conservation areas such as the Ashdown Forest SPA/SAC. There are also challenges associated with increasing traffic as a result of development in the district.

WDC will continue to promote active travel such as walking, cycling and monitor car usage post COVID-19, as people continue to undertake forms of smart and hybrid working. These initiatives will be encouraged and promoted through the Sussex Air website.

Local Engagement and How to get Involved

Everyone concerned about air quality in Wealden and the rest of Sussex can find real-time information on pollution levels on the Sussex Air website sussex-air.net, and sign up for advance warnings with the airAlert service at airalert.info. Warnings are provided by text or voice message, email, or using an Android or iOS app. The service is also available to schools and is a great way to get everyone engaged in thinking about the importance of air quality. The reduction in using cars to travel to work, further home working and increasing walking and cycling are all encouraged.

Local Responsibilities and Commitment

This ASR was prepared by the Pollution Control Department of WDC.

If you have any comments on this ASR please send them to Philip Wright at:

Wealden District Council

Vicarage Lane

Hailsham

BN27 2AX

01323443281

philip.wright@rother.gov.uk

Table of Contents

Figures

Tables

1 Local Air Quality Management

This report provides an overview of air quality in WDC during 2023. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), 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 an exceedance is 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 order to achieve and maintain the objectives and the dates by which each measure will be carried out. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by WDC to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England are presented in Table E.1.

2 Actions to Improve Air Quality

This report provides an overview of air quality in Wealden during 2023. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), 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 an exceedance is 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 order to achieve and maintain the objectives and the dates by which each measure will be carried out. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by WDC to improve air quality and any progress that has been made. The statutory air quality objectives applicable to LAQM in England are presented in Table E.1.

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan (AQAP) within 18 months. The AQAP should specify how air quality targets will be achieved and maintained and provide dates by which measures will be carried out.

Wealden currently does not have any declared AQMAs. Therefore, no formal AQAP has been set up and implemented for the district. A local Air Quality Strategy is under development to prevent and reduce polluting activities.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
WDC has no declared AQMAs.									

☒ **Wealden District Council confirm the information on UK-Air regarding their AQMA(s) is up to date.**

☒ **Wealden District Council confirm that all current AQAPs have been submitted to Defra.**

2.2 Progress and Impact of Measures to address Air Quality in Wealden District Council

Defra's appraisal of last year's ASR concluded the report was well structured, detailed, and provides the information specified in the Guidance. The following comments have been addressed in this year's ASR:

- *Ozone concentrations at the automatic monitoring site LL1 exceeded the permitted number of exceedance of days of the running 8-hour mean objective in 2022 and there was an increase in both the number of exceedance days and annual mean concentrations compared to 2021. It is noted in this year's ASR that ozone concentrations at the automatic monitoring site LL1 exceeded the permitted number of exceedance of days of the running 8-hour mean objective in 2023 and there was an increase in the annual mean concentrations compared to 2022. However, there has been a decrease in the number of exceedance days.*

- *Two new diffusion tubes monitoring locations were added to the council's network during 2022. This is welcomed, however, as outlined in the Appraisal of the 2022 ASR, it would be beneficial to include a discussion around why these locations were chosen. Additionally, the Council should continue to review and consider whether monitoring should continue in locations where monitored results have been well below the annual mean NO_2 objective for the several years. Sufficient detail is included in the QA/QC procedures for both the automatic analysers and the NO_2 diffusion tubes. **The Council has continued to review and consider monitoring locations across Wealden. The addition of a new diffusion tube monitoring location in 2024 has been discussed in this year's ASR.***

- *The Council should ensure diffusion tube data is uploaded to the relevant section of the LAQM Portal in future reporting years. **This has been addressed for the 2024 reporting period.***

- *Defra recommends that Directors of Public Health approve draft ASRs. Sign off is not a requirement, however collaboration and consultation with those who have responsibility for Public Health is expected to increase support for measures to improve air quality, with co-benefits for all. Please bear this in mind for the next annual reporting process. **This has been considered for this annual reporting process.***

- *From 2023, those authorities who have not had to designate AQMAs and produce AQAPs should draw up a local Air Quality Strategy. The objective of a local Air Quality*

Strategy is to encourage prevention and reduction of polluting activities in preference to only taking steps to reduce air pollution once exceedances have been identified. This should be produced and considered in the 2024 ASR. **WDC is preparing an Air Quality Strategy.**

WDC has taken forward a number of direct measures during the current reporting year of 2023 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 22 measures are included, with the type of measure and the progress WDC have made during the reporting year of 2023 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

Key completed measures are:

- Actioned discussions with the Planning Policy Department to ensure air quality mitigation requirements are integrated into the Local Plan.
- Use of the Air Quality Guidance was increased in major planning applications.

WDC's priorities for the coming year are to continue work with Sussex Air and other Local Authorities. In addition, to keep prioritising work with Planning Policy to ensure air quality mitigation measures are in the Local Plan and considered in relevant planning applications.

WDC worked to implement these measures in partnership with the following stakeholders during 2023:

- Sussex Air

The principal challenges and barriers to implementation that WDC anticipates facing are continued development of the area and limited LA funds.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Air Quality and Emissions Mitigation Guidance for Sussex	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2014	2014	Sussex Air Quality Partnership	-	-	-	-	Completed	N/A	N/A	Completed - Guidance published	Under review by the partnership.
2	Air Quality Strategic Plan 2010	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	2010	2010	Sussex Air Quality Partnership	-	-	-	-	Completed	N/A	N/A	Completed - Plan published and currently implemented	None.
3	Sussex Air website	Public Information	Via the Internet	2012	2012 - Ongoing	Sussex Air Quality Partnership	-	-	-	-	Implementation	N/A	N/A	The website is online and reporting on monitored pollution levels	Under review by the partnership.
4	airAlert	Public Information	Via other mechanisms	2011	2011 - Ongoing	Sussex Air Quality Partnership	-	-	-	-	Implementation	N/A	921 registered subscribers, 70 from Wealden District	The service is running and the number of subscribers increasing every year	None.
5	Energise Network	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2014	2014 - Ongoing	Sussex Air Quality Partnership	-	-	-	-	Implementation	N/A	5 charging points installed in Wealden District	The service is running and several charging points are available in Wealden District	None.
6	Suitable Accessible Natural Green Space (SANGS) guidelines	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2013	2013	WDC	-	-	-	-	Completed	N/A	N/A	Guideline document to help identify SANGS sites published.	None.
7	Nitrogen Reduction Guidance	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2013	2013	WDC	-	-	-	-	Completed	N/A	N/A	Guidance note published for small scale developments on reducing traffic impacts on Ashdown Forest.	None.

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
8	Ashdown Forest Monitoring	Other	Other	2017	2017	WDC	-	-	-	-	Completed	N/A	N/A	Monitoring started 2014	None.
9	Publicly available advice on sustainability	Public Information	Via the Internet	2017	2017 - ongoing	WDC	-	-	-	-	Completed	N/A	N/A	The website is online and fully available	None.
10	Encouraging home working using IT solutions	Promoting Travel Alternatives	Encourage / Facilitate home-working	2017	2017 - ongoing	WDC	-	-	-	-	Completed	N/A	N/A	IT solutions in place for staff wishing to home-work	None.
11	Employee tax incentive scheme for purchasing bikes	Promoting Travel Alternatives	Promotion of cycling	2017	2017 - ongoing	WDC	-	-	-	-	Implementation	N/A	N/A	-	None.
12	Car sharing for employees and associated priority staff parking	Promoting Travel Alternatives	Workplace Travel Planning	2017	2017 - ongoing	WDC	-	-	-	-	Implementation	N/A	N/A	-	None.
13	Implementation of ESCC Local Transport Plan 3	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2016	2016 - ongoing	East Sussex County Council & WDC	-	-	-	-	Implementation	N/A	N/A	-	Under review
14	Bus route improvements in Wealden via Local Transport Plan 3	Transport Planning and Infrastructure	Bus route improvements	2016	2016 - ongoing	East Sussex County Council & WDC	-	-	-	-	Implementation	N/A	N/A	-	Under review
15	Cycle network improvements in Wealden via Local Transport Plan 3	Transport Planning and Infrastructure	Cycle network	2016	2016 - ongoing	East Sussex County Council & WDC	-	-	-	-	Implementation	N/A	N/A	-	Under review

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
16	Public transport improvements in Wealden via Local Transport Plan 3	Transport Planning and Infrastructure	Public transport improvements- interchanges stations and services	2016	2016 - ongoing	East Sussex County Council & WDC	-	-	-	-	Implementation	N/A	N/A	-	Under review
17	Introduction of tariffs for new developments to reduce the impact of cumulative development upon the Ashdown Forest SPA/SAC	Policy Guidance and Development Control	Other policy	2018	2018- Ongoing	WDC	-	-	-	-	Implementation	N/A	N/A	Ongoing	None
18	Commitment to a sustainable procurement strategy	Policy Guidance and Development Control	Sustainable Procurement Guidance	2014	2014-2017	WDC	-	-	-	-	Completed	N/A	N/A	WDC encourages key suppliers to demonstrate an awareness of sustainability issues and to promote practices that are consistence with their policies.	None
19	Promote health activities and encourage public to participate	Public Information	Via Other	2018	2018- Ongoing	WDC	-	-	-	-	Implementation	N/A	N/A	Introduced various 'Healthy Wealden' activities to encourage use of the Cuckoo Trail in 2018	None
20	Ensuring air quality mitigation is policy in the new local plan	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	-	Ongoing	WDC	-	-	-	-	Implementation	N/A	N/A	-	None
21	Use of Sussex Air Guidance and incorporation of planning conditions on major plans	Policy Guidance and Development Control	Other policy	-	Ongoing	WDC	-	-	-	-	Implementation	N/A	N/A	-	None
22	Support and involvement with Sussex Air	Policy Guidance and	Regional Groups Co- ordinating programmes	-	Ongoing	WDC	-	-	-	-	Implementation	N/A	N/A	-	None

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
	and it's initiatives	Development Control	to develop Area wide Strategies to reduce emissions and improve air quality												

2.3 PM$_{2.5}$ – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG22 (Chapter 8), local authorities are expected to work towards reducing emissions and/or concentrations of PM$_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5μm or less). There is clear evidence that PM$_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

WDC currently undertakes PM$_{2.5}$ monitoring at the Lullington Heath monitoring site. Concentrations monitored at this location indicate that PM$_{2.5}$ levels are significantly below annual mean AQS objectives.

Although there are no new specific measures targeting PM$_{2.5}$ currently, it is expected that the combination of actions and that are currently in force or coming into force will help to bring about a reduction in PM$_{2.5}$. However, discussions are being held with Public Health and other Local Authorities as part of Sussex Air to devise policies that will specifically target the reduction in PM$_{2.5}$. Any links measures have to the Public Health Outcomes Framework (available at https://fingertips.phe.org.uk/profile/public-health-outcomes-framework) will be considered.

The latest information from the Public Health Outcomes Framework stated that, in 2022, the fraction of mortality attributable to particulate air pollution in WDC was 3.8%, which is lower than the regional (5.7%) and national averages (5.8%).

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance

This section sets out the monitoring undertaken within 2023 by WDC and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2019 and 2023 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

WDC undertook automatic (continuous) monitoring at one site during 2023. This was Lullington Heath (for nitrogen dioxide (NO_2), sulphur dioxide (SO_2), Particulate Matter (PM_{10} and $PM_{2.5}$) and O_3). Both PM_{10} and $PM_{2.5}$ analysers were installed in June 2022. Table A.1 in Appendix A shows the details of the automatic monitoring sites.

Lullington Heath is part of the Automatic Urban and Rural Network (AURN), managed by the Environment Agency. National monitoring results are available at https://uk-air.defra.gov.uk/.

A map showing the location of the monitoring site is provided in Appendix D. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

WDC undertook non-automatic (i.e. passive) monitoring of NO_2 at 16 sites during 2023. Table A.2 in Appendix A presents the details of the non-automatic sites.

Data capture for 2023 was generally very good, and no sites required annualisation.

Maps showing the locations of the monitoring sites are provided in Appendix D. Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g. annualisation and/or distance correction), are included in Appendix C.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, annualisation (where the annual mean data capture is below 75% and greater than 25%), and distance correction. Further details on adjustments are provided in Appendix C

3.2.1 Nitrogen Dioxide (NO$_2$)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO$_2$ annual mean concentrations for the past five years with the AQS objective of 40µg/m^3. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2023 dataset of monthly mean values is provided in Appendix B. No distance correction has been applied as all concentrations were below 36 µg/m^3.

The results in Table A.3 and Table A.4 indicate that the annual mean NO$_2$ concentrations at all monitoring sites were well within the AQS objective (40 µg/m^3) in 2023. The highest annual mean NO$_2$ concentration was measured at Uckfield Town Centre (W4; 27.4 µg/m^3).

Table A.5 in Appendix A compares the ratified continuous monitored NO$_2$ hourly mean concentrations for the past five years with the AQS objective of 200µg/m^3, not to be exceeded more than 18 times per year. At Lullington Heath (AURN) there has not been exceedance of the 1-hour mean NO$_2$ objective since 2002. The results indicate that the 1-hour NO$_2$ AQS objective is unlikely to be exceeded at any location in the district.

Diffusion tubes do not provide hourly measurements of NO$_2$; however, the Defra Technical Guidance states that where annual mean NO$_2$ concentrations measured by diffusion tubes exceed 60 µg/m^3 there is a likelihood that the 1-hour AQS objective may be exceeded. All annual mean NO$_2$ concentrations at diffusion tube monitoring locations between 2015 and 2023 inclusive, were well below 60 µg/m^3 and so the 1-hour AQS objective is very unlikely to have been exceeded.

Error! Reference source not found. shows the trend in NO$_2$ concentrations monitored at the Lullington Heath. The results indicate there has been a gradual downward trend in NO$_2$ concentrations over the time period shown.

Error! Reference source not found. also shows the trend in annual mean NO_2 concentrations measured at non-automatic (diffusion tube) sites. All sites show decreasing concentrations since 2019. In 2020 the impact of the COVID-19 pandemic likely caused concentrations to drop sharply, before stabilising in subsequent years. In 2023, there was a small increase in NO_2 concentrations at 1 diffusion tube site compared to 2022 concentrations (W4, Uckfield Town Centre), whilst the remaining sites showed small decreases in NO_2 concentrations. All sites recorded NO_2 concentrations in 2023 below 2019 levels.

Annual mean NO_2 concentrations at W10 (Forest Row), exceeded the AQS objective in 2017. However, the 2023 concentration at this location was the lowest in the past five years, with a concentration of 22.6 µg/m^3. At the start of 2024, a new diffusion tube location at Forest Row was commissioned to continue close monitoring in this location.

3.2.2 Particulate Matter (PM$_{10}$)

PM$_{10}$ monitoring was undertaken at Lullington Heath starting mid-year in 2022, with consequently low data capture. The data capture for the analyser in 2023 improved and was 99.9%. Due to the monitoring starting mid- 2022, no figure with long-term trends can be determined.

Table A.6 in Appendix A compares the ratified and adjusted monitored PM$_{10}$ annual mean concentrations for the past five years with the AQS objective of 40µg/m^3. The results indicate that annual mean PM$_{10}$ concentrations were well below the AQS objective in 2022, with concentrations slightly lower in 2023.

Table A.7 in Appendix A compares the ratified continuous monitored PM$_{10}$ daily mean concentrations for the past five years with the 24 hourly AQS objective of 50µg/m^3, not to be exceeded more than 35 times per year. These results show that Lullington Heath has not had any exceedances since the PM$_{10}$ analyser was installed.

3.2.3 Particulate Matter (PM$_{2.5}$)

PM$_{2.5}$ monitoring was undertaken at Lullington Heath starting mid-year in 2022, with consequently low data capture. Data capture for the analyser in 2023 was 99.9%. Due to the monitoring starting mid 2022, no figure with long-term trends can be determined.

Table A.8 in Appendix A presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past five years. Between 2022 and 2023, the measured concentrations have been below the AQS objective of 20 µg/m^3.

3.2.4 Sulphur Dioxide (SO$_2$)

Table A.9 in Appendix A compares the ratified continuously monitored SO_2 concentrations for 2023 at the Lullington Heath rural site with the AQS objectives for SO_2. There have been no exceedances in 2023 of any of the three AQS objectives for SO_2 (15-minute, 1-hour or 24-hour).

3.2.5 Ozone (O$_3$)

The Isfield Ozone monitoring site was decommissioned at the end of 2020 due to Sussex Air funding ending. In 2023, the monitoring data for O_3 concentrations were recorded at only the Lullington Heath site.

Table A.10 in Appendix A presents the ratified continuous monitored annual mean O_3 concentrations at the Lullington Heath rural site. Between 2019 and 2023, annual mean concentrations have been between 58.3 µg/m^3 and 65.4 µg/m^3 at the Lullington Heath station. There is no annual mean AQS objective or target value for annual mean O_3 concentrations.

Figure A.2 shows the trend in annual mean O_3 concentrations at Lullington Heath. There was a general upward trend observed at Lullington Heath between 2016 and 2020. Concentrations decreased in 2021, however from 2022 to 2023, there was an increase in annual mean O_3 concentrations.

Table A.11 in Appendix A compares the ratified continuous monitored O_3 running 8-hour mean concentrations for the past 5 years with the AQS objective of 100 µg/m^3, not to be exceeded on more than 10 days per year. In 2023, the number of days that exceeded the O_3 running 8-hour mean concentration of 100 µg/m^3 was 21, and therefore represents an exceedance of the objective.

Figure A.3 shows the trend in the number days with O_3 8-hour running mean concentrations greater than 100 µg/m^3 between 2011 and 2023. The Lullington Heath site shows an overall decreasing trend between 2011 and 2016 and a general increasing trend between 2016 and 2022.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Inlet Height (m)
LL1	Lullington Heath AURN	Rural	553800	101600	NO_2; SO_2; O_3; PM_{10}; $PM_{2.5}$	No	Chemiluminiscence; UV Fluorescence; UV Absorption; FIDAS	> 1000	> 1000	3

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

(2) N/A if not applicable

Table A.2 – Details of Non-Automatic Monitoring Sites

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube Co-located with a Continuous Analyser?	Tube Height (m)
W1	Crowborough Background	Urban Background	552591	130667	NO_2	-	7.5	2.0	No	2.5
W2	Crowborough Town Centre	Roadside	551626	131090	NO_2	-	7.5	2.0	No	2.5
W3	Uckfield Background	Urban Background	547828	121954	NO_2	-	15.0	1.0	No	2.5
W4	Uckfield Town Centre	Roadside	547250	120977	NO_2	-	7.5	2.0	No	2.5
W5	Eastbourne Road, Polegate	Roadside	558079	104481	NO_2	-	13.0	1.0	No	2.0
W6	London Road, Hailsham	Roadside	558845	109783	NO_2	-	0.5	1.0	No	2.5
W7	A265 Nursery Way Heathfield	Roadside	557503	121318	NO_2	-	7.5	1.0	No	2.0
W8	A22 W of Boship roundabout	Roadside	556933	111165	NO_2	-	8.0	2.0	No	2.0
W9	Forest Row Riverside	Urban Background	542336	135324	NO_2	-	5.0	0.1	No	2.0
W10	Forest Row A22	Kerbside	542464	135279	NO_2	-	1.0	2.0	No	2.0
W11	Hailsham - Lower Horsebridge	Roadside	558024	111237	NO_2	-	0.5	1.0	No	2.0
W12	Hailsham A295 car park	Roadside	558892	109272	NO_2	-	8.5	1.0	No	2.5
W13	Stone Cross B2104 Red Lion Pub	Roadside	561558	104356	NO_2	-	16.5	1.0	No	2.5
W14	Stone Cross - Dittons Road	Roadside	560501	104629	NO_2	-	24.5	1.0	No	2.5
W15	High Street Wadhurst	Roadside	564050	131792	NO_2	-	1.0	1.0	No	2.5
W16	Styles Lane Wadhurst	Urban Background	563788	131694	NO_2	-	1.0	1.0	No	2.5

Table A.3 – Annual Mean NO₂ Monitoring Results: Automatic Monitoring (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
LL1	553855	101740	Rural	97.5	97.5	7.4	6.1	-	7.1	5.2

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22**

☒ **Reported concentrations are those at the location of the monitoring site (annualised, as required), i.e. prior to any fall-off with distance correction.**

☒ **Where exceedances of the NO₂ annual mean objective occur at locations not representative of relevant exposure, the fall-off with distance concentration has been calculated and reported concentration provided in brackets for 2023.**

Notes:

The annual mean concentrations are presented as µg/m³.

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Table A.4 – Annual Mean NO₂ Monitoring Results: Non-Automatic Monitoring (µg/m³)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
W1	552591	130667	Urban Background	100	100.0	12.0	9.2	15.7	9.3	8.2
W2	551626	131090	Roadside	100	100.0	21.9	14.1	10.3	15.3	14.3
W3	547828	121954	Urban Background	100	100.0	13.4	12.1	11.2	10.1	9.2
W4	547250	120977	Roadside	90.4	90.4	33.6	23.0	25.0	26.2	27.4
W5	558079	104481	Roadside	100	100.0	27.9	19.9	22.4	23.7	21.6
W6	558845	109783	Roadside	100	100.0	24.0	16.9	19.2	20.4	18.9
W7	557503	121318	Roadside	90.4	90.4	19.1	13.4	13.4	12.4	11.0
W8	556933	111165	Roadside	100	100.0	33.2	25.1	24.3	21.9	19.8
W9	542336	135324	Urban Background	100	100.0	9.5	6.9	7.3	7.3	6.1
W10	542464	135279	Kerbside	100	100.0	28.6	23.7	24.1	23.9	22.6
W11	558024	111237	Roadside	100.0	100.0	-	11.1	12.7	13.0	11.3
W12	558892	109272	Roadside	100.0	100.0	-	17.7	22.0	19.8	17.7
W13	561558	104356	Roadside	100.0	90.4	-	-	22.9	23.3	18.6
W14	560501	104629	Roadside	100.0	100.0	-	-	17.8	19.6	16.9
W15	564050	131792	Roadside	100.0	82.7	-	-	-	15.1	14.0
W16	563788	131694	Urban Background	100.0	100.0	-	-	-	6.8	5.0

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.**

☒ **Diffusion tube data has been bias adjusted.**

☒ **Reported concentrations are those at the location of the monitoring site (bias adjusted and annualised, as required), i.e. prior to any fall-off with distance correction.**

Notes:

The annual mean concentrations are presented as $\mu g/m^3$.

Exceedances of the NO_2 annual mean objective of $40\mu g/m^3$ are shown in **bold**.

NO_2 annual means exceeding $60\mu g/m^3$, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **<u>bold and underlined</u>**.

Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

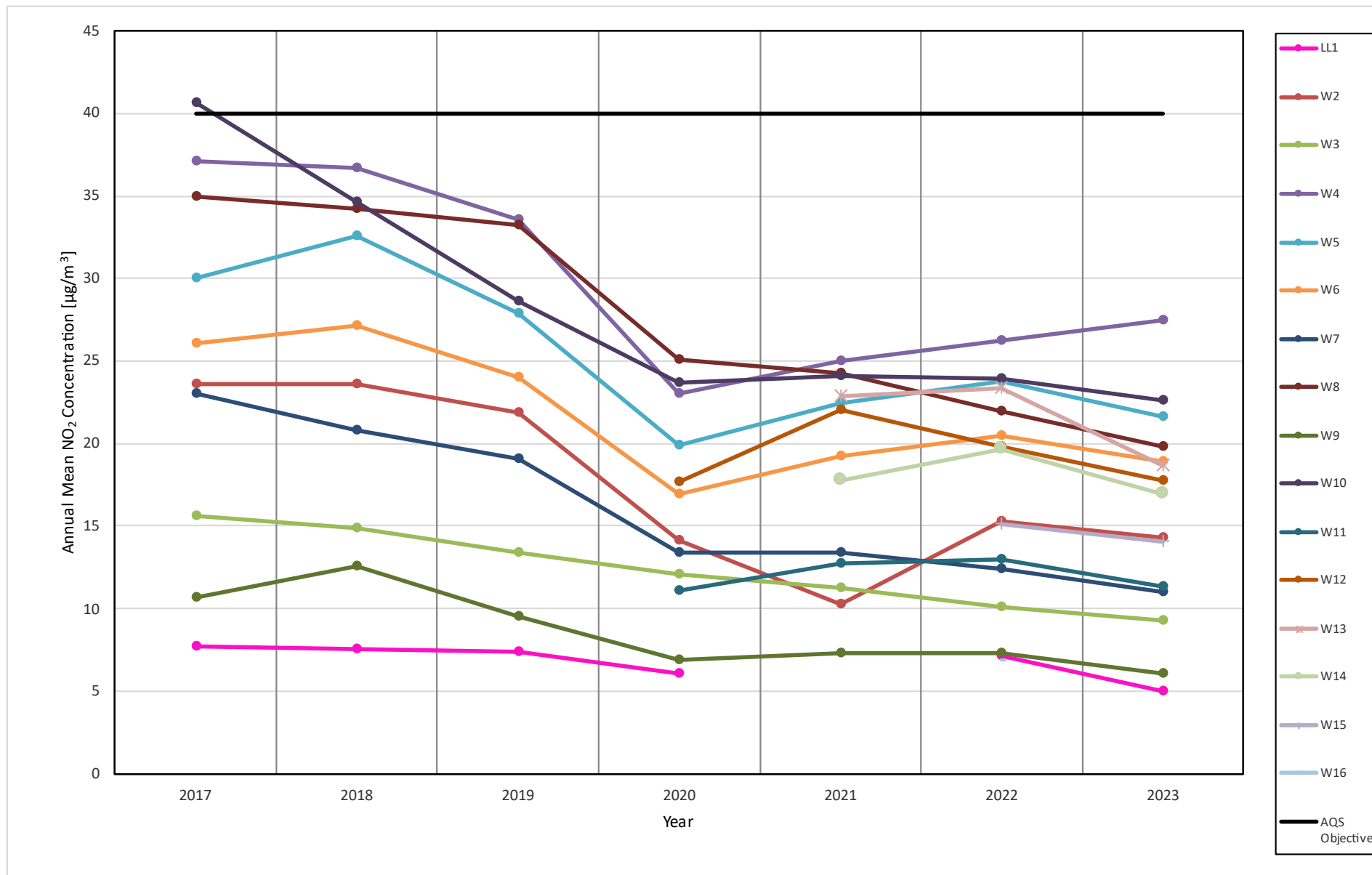**Figure A.1 – Trends in Annual Mean NO₂ Concentrations**

Table A.5 – 1-Hour Mean NO₂ Monitoring Results, Number of 1-Hour Means > 200µg/m³

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
LL1	553855	101740	Rural	97.5	97.5	0	0 (38.2)	0 (35.4)	0	0

Notes:

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m³ have been recorded.

Exceedances of the NO₂ 1-hour mean objective (200µg/m³ not to be exceeded more than 18 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 99.8th percentile of 1-hour means is provided in brackets.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Table A.6 – Annual Mean PM$_{10}$ Monitoring Results (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
LL1	553855	101740	Rural	99.9	99.9	-	-	-	12.3	11.6

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.**

Notes:

The annual mean concentrations are presented as µg/m^3.

Exceedances of the PM$_{10}$ annual mean objective of 40µg/m^3 are shown in **bold**.

All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Table A.7 – 24-Hour Mean PM$_{10}$ Monitoring Results, Number of PM$_{10}$ 24-Hour Means > 50µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
LL1	553855	101740	Rural	99.9	99.9	-	-	-	0	0

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m^3 have been recorded.

Exceedances of the PM$_{10}$ 24-hour mean objective (50µg/m^3 not to be exceeded more than 35 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Table A.8 – Annual Mean PM$_{2.5}$ Monitoring Results (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
LL1	553855	101740	Rural	99.9	99.9	-	-	-	7.6	7.1

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.**

Notes:

The annual mean concentrations are presented as µg/m^3.

All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Table A.9 – SO₂ 2023 Monitoring Results, Number of Relevant Instances

LL1	553855	101740	Rural	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	Number of 15-minute Means > 266µg/m³	Number of 1-hour Means > 350µg/m³	Number of 24-hour Means > 125µg/m³
LL1	553855	101740	Rural	81.9	81.9	0	0	0

Notes:

Results are presented as the number of instances where monitored concentrations are greater than the objective concentration.

Exceedances of the SO₂ objectives are shown in **bold** (15-min mean = 35 allowed a year, 1-hour mean = 24 allowed a year, 24-hour mean = 3 allowed a year).

If the period of valid data is less than 85%, the relevant percentiles are provided in brackets.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Table A.10 – Annual Mean O₃ 2023 Monitoring Results (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2022 (%) [2]	2019	2020	2021	2022	2023
LL1	544890	117380	Rural	99.2	99.2	61.4	65.4	58.3	61.6	65.2

Notes:

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).
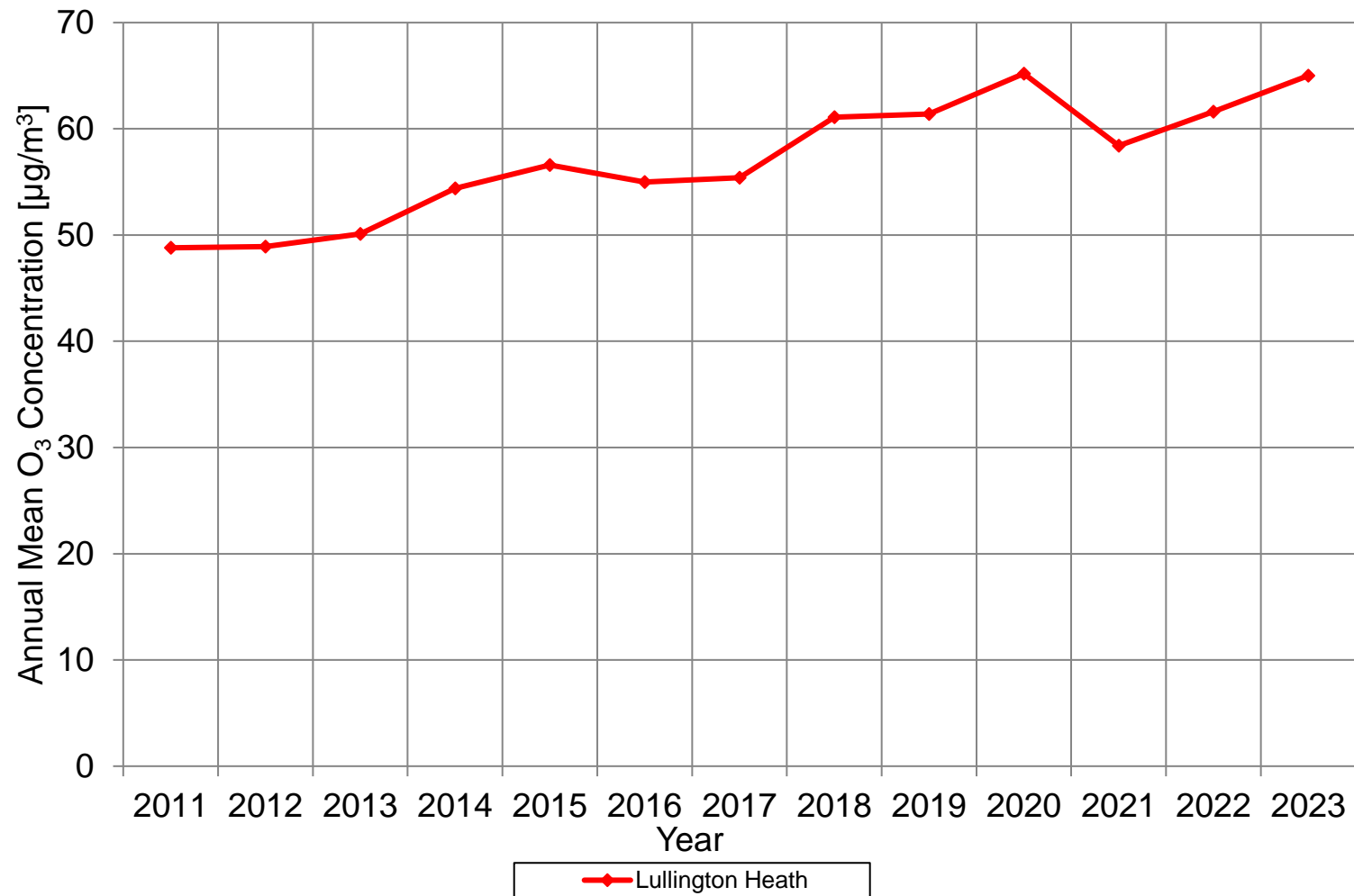
Figure A.2 – Trends in Annual Mean O₃ Concentrations

Table A.11 – Running 8-Hour Mean O₃ 2023 Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2021 (%) [2]	2019	2020	2021	2022	2023
LL1	544890	117380	Rural	89.8	89.8	**10**	**39**	**15**	**30**	**21**

Notes:

Exceedances of the O₃ running 8-hour mean AQS objective (100 µg/m³ not to be exceeded more than 10 days/year) are shown in **bold**.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Figure A.3 – Trends in Number of Days Exceeding the Running 8-Hour Mean O₃ AQS Objective
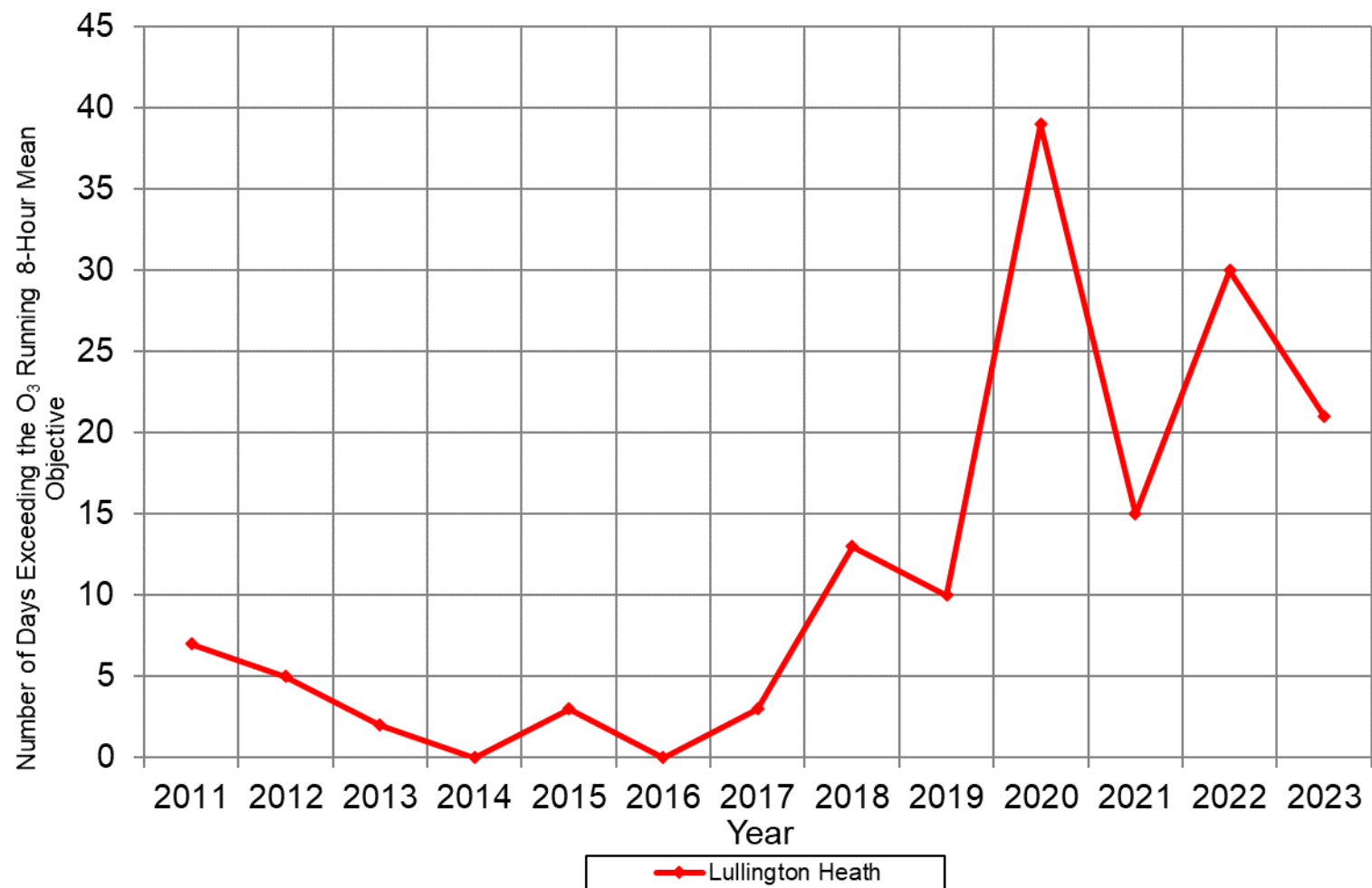
Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO₂ 2023 Diffusion Tube Results (µg/m³)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted 0.81	Annual Mean: Distance Corrected to Nearest Exposure	Comment
W1	552591	130667	15.2	14.4	11.5	9.3	6.8	8.1	6.7	7.7	8.6	10.5	13.6	9.1	10.1	8.2		
W2	551626	131090	20.1	22.4	18.4	17.9	15.1	15.2	14.2	16.2	18.9	17.8	20.1	15.8	17.7	14.3		
W3	547828	121954	17.6	16.4	11.6	10.0	7.7	8.4	8.0	8.6	10.8	11.9	14.2	11.8	11.4	9.2		
W4	547250	120977	39.6	39.3	Missing	28.8	26.0	30.5	31.7	31.3	35.0	38.9	37.9	33.6	33.9	27.4		
W5	558079	104481	28.9	34.4	26.1	26.6	24.2	26.6	21.3	25.2	29.5	29.5	27.9	20.0	26.7	21.6		
W6	558845	109783	25.7	30.1	23.9	26.3	20.2	22.5	17.6	20.4	25.3	26.1	24.9	17.2	23.4	18.9		
W7	557503	121318	14.0	20.7	Missing	13.7	10.1	10.4	10.3	12.3	16.7	15.7	14.8	11.1	13.6	11.0		
W8	556933	111165	28.8	29.9	22.9	23.7	20.6	22.0	20.0	24.3	28.0	27.7	26.7	19.1	24.5	19.8		
W9	542336	135324	10.2	10.6	8.6	8.0	5.9	5.7	4.7	5.6	6.0	7.6	10.3	7.0	7.5	6.1		
W10	542464	135279	32.6	32.0	29.8	24.5	18.4	24.3	29.5	23.9	28.9	32.0	32.0	26.5	27.9	22.6		
W11	558024	111237	16.5	18.0	15.4	15.2	11.4	11.3	9.0	12.9	14.3	15.0	17.2	11.2	14.0	11.3		
W12	558892	109272	27.0	27.5	20.6	19.8	15.1	19.8	17.6	19.2	22.0	26.0	26.5	21.4	21.9	17.7		
W13	561558	104356	27.8	33.0	Missing	22.2	18.7	22.2	16.8	20.0	26.5	25.0	23.9	16.9	23.0	18.6		
W14	560501	104629	25.0	27.8	19.8	21.7	18.5	20.6	15.1	19.9	21.7	22.6	20.8	16.8	20.9	16.9		
W15	564050	131792	21.0	22.2	16.5	19.2	18.2	17.0	Missing	15.0	15.8	15.3	Missing	13.3	17.3	14.0		
W16	563788	131694	4.6	10.1	7.2	6.6	5.4	6.0	4.4	5.7	5.8	6.2	7.5	5.0	6.2	5.0		

☒ **All erroneous data has been removed from the NO₂ diffusion tube dataset presented in Table B.1.**

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.**

☐ **Local bias adjustment factor used.**

☒ **National bias adjustment factor used.**

☒ **Where applicable, data has been distance corrected for relevant exposure in the final column.**

☒ **WDC confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

See Appendix C for details on bias adjustment and annualisation.

Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC

New or Changed Sources Identified Within Wealden During 2023

WDC has not identified any new sources relating to air quality within the reporting year of 2023.

Additional Air Quality Works Undertaken by Wealden District Council During 2023

WDC has not completed any additional works within the reporting year of 2023 year relating to the development of action plan measures or the declaration, amendment or revocation of an AQMA.

QA/QC of Diffusion Tube Monitoring

AIR is an independent analytical proficiency-testing (PT) scheme, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL). AIR PT is a new scheme, started in April 2014, which combines two long running PT schemes: LGC Standards STACKS PT scheme and HSL Workplace Analysis Scheme for Proficiency (WASP) PT scheme.

Defra and the Devolved Administrations advise that diffusion tubes used for Local Air Quality Management should be obtained from laboratories that have demonstrated satisfactory performance in the AIR PT scheme.

WDC used Gradko International for the supply and analysis of diffusion tubes, with a 20% triethanolamine (TEA) in water preparation.

The percentage of results submitted by Gradko International Ltd that were subsequently determined to be satisfactory was 100% for AIR-PT Rounds AR055 – AR059 (Jan – Oct 2023). These scores should be taken into account when interpreting the data.

All monitoring has been completed in adherence with the 2023 Diffusion Tube Monitoring Calendar.

Diffusion Tube Annualisation

In 2023, there were no diffusion tube monitoring locations that required annualisation. All sites had data capture greater than 75% (lowest data capture was 82.7%), therefore, it was not required to annualise any monitoring data.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2023 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

WDC have applied a national bias adjustment factor of 0.81 to the 2023 monitoring data. A summary of bias adjustment factors used by WDC over the past five years is presented in Table C.1.

WDC does not carry out a co-location study with diffusion tubes and an automatic continuous analyser, and so it is necessary to use the national database of bias adjustment factors (version 03/24, 23 studies).

Table C.1 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	National	03/24	0.81
2022	National	03/23	0.83
2021	National	03/22	0.84
2020	National	03/21	0.81
2019	National	03/20	0.93

Figure C.1 – National Diffusion Tube Bias Adjustment Factor for WDC (Gradko)

Analysed By[1]	Method	Year	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) ($\mu g/m^3$)	Automatic Monitor Mean Conc. (Cm) ($\mu g/m^3$)	Bias (B)	Tube Precision	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	20% TEA in Water	2023	R	Monmouthshire County Council	11	33	26	26.5%	G	0.79
Gradko	20% TEA in water	2023	R	Blackburn With Darwen Bc	12	23	16	43.8%	G	0.70
Gradko	20% TEA in water	2023	R	Lancaster City Council	10	35	27	28.6%	G	0.78
Gradko	20% TEA in water	2023	R	Eastleigh Borough Council	12	33	26	26.4%	G	0.79
Gradko	20% TEA in water	2023	R	Eastleigh Borough Council	12	22	19	12.5%	G	0.89
Gradko	20% TEA in water	2023	R	Plymouth City Council	12	35	26	38.3%	S	0.72
Gradko	20% TEA in water	2023	R	Plymouth City Council	10	39	31	24.2%	S	0.80
Gradko	20% TEA in water	2023	UC	Belfast City Council	10	26	19	38.3%	G	0.72
Gradko	20% TEA in water	2023	R	Cheshire West And Chester	12	35	32	10.0%	G	0.91
Gradko	20% TEA in water	2023	R	Cheshire West And Chester	10	32	28	14.6%	G	0.87
Gradko	20% TEA in water	2023	R	Dudley Mbc	12	27	23	17.1%	G	0.85
Gradko	20% TEA in water	2023	UB	Dudley Mbc	12	19	13	45.4%	G	0.69
Gradko	20% TEA in water	2023	R	Dudley Mbc	12	40	37	7.7%	G	0.93
Gradko	20% TEA in water	2023	R	Gateshead Council	12	23	20	17.7%	G	0.85
Gradko	20% TEA in water	2023	R	Gateshead Council	11	23	18	26.9%	G	0.79
Gradko	20% TEA in water	2023	R	Gateshead Council	12	27	22	20.7%	G	0.83
Gradko	20% TEA in water	2023	R	Gateshead Council	12	29	23	25.9%	G	0.79
Gradko	20% TEA in water	2023	R	Gateshead Council	12	30	33	-7.8%	G	1.08
Gradko	20% TEA in water	2023	KS	Marylebone Road intercomparison	11	45	38	20.3%	G	0.83
Gradko	20% TEA in water	2023	B	South Holland District Council	10	8	7	12.4%	G	0.89
Gradko	20% TEA in water	2023	R	Worcestershire	12	12	11	17.4%	G	0.85
Gradko	20% TEA in Water	2023	R	Ards And North Down Borough Council	12	33	21	60.2%	G	0.62
Gradko	20% TEA in Water	2023	R	Lisburn & Castlereagh City Council	11	24	20	22.1%	G	0.82
Gradko	20% TEA in water	2023		**Overall Factor[3] (23 studies)**				**Use**		**0.81**

NO₂ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO₂ fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO₂ concentrations corrected for distance are presented in Table B.1. However, no diffusion tube results from 2023 required distance correction.

QA/QC of Automatic Monitoring

The AURN site Lullington Heath is managed by Defra contractors and data collected at these sites are traceable to the UK AURN national standards.

**PM$_{10}$ and PM$_{2.5}$ Monitoring Adjustment**

The PM$_{10}$ data from the FIDAS continuous analyser at Lullington Heath measure gravimetric-equivalent PM$_{10}$ concentrations, and therefore no additional adjustment has been necessary.

Automatic Monitoring Annualisation

In 2023, the data capture for all pollutants were above 75% at Lullington Heath, and therefore did not require any annualisation.

Appendix D: Map(s) of Monitoring Locations and AQMAs

Figure D.1 – Map of Monitoring Sites
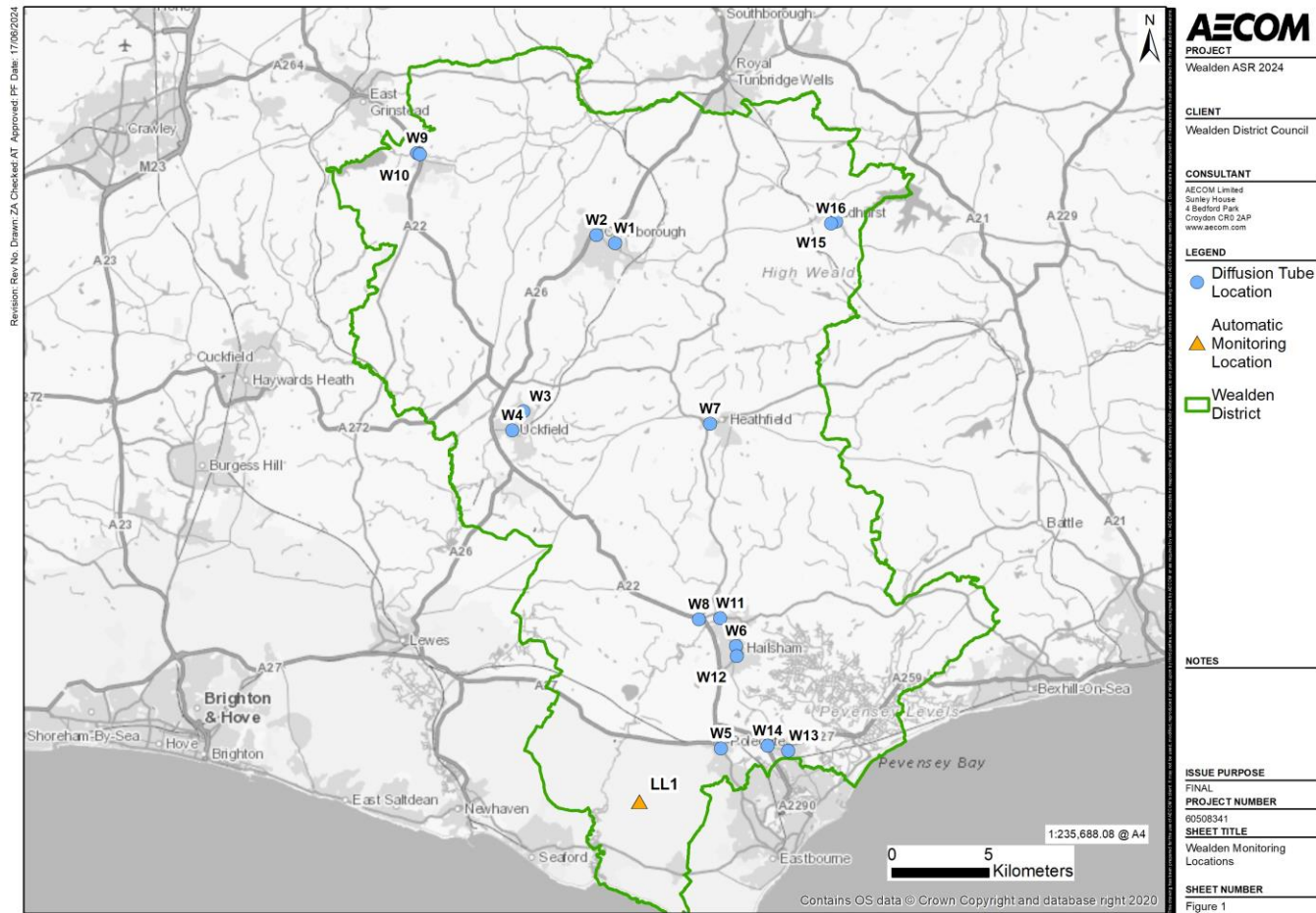
Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[6]

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as
Nitrogen Dioxide (NO_2)	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO_2)	40µg/m^3	Annual mean
Particulate Matter (PM_{10})	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM_{10})	40µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO_2)	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO_2)	266µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

---

[6] The units are in microgrammes of pollutant per cubic metre of air (µg/m^3).

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
O_3	Ozone
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10μm or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5μm or less
QA/QC	Quality Assurance and Quality Control
SANGS	Suitable Accessible Natural Green Space
SO_2	Sulphur Dioxide
AURN	Automatic Urban and Rural Network
WDC	Wealden District Council
ESCC	East Sussex County Council
AONB	Area of Outstanding Natural Beauty
SAC	Special Area of Conservation
SPA	Special Protection Area
SAQMN	Sussex Air Quality Monitoring Network

References

- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Chemical hazards and poisons report: Issue 28. June 2022. Published by UK Health Security Agency
- Air Quality Strategy – Framework for Local Authority Delivery. August 2023. Published by Defra.