



# 2023 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: August 2023

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## Executive Summary: Air Quality in Our Area

This report details the results of air quality monitoring undertaken in 2022 across Mid Sussex District and is prepared in accordance with the guidance issued by the Department for Environment, Food and Rural Affairs (Defra).

Local Authorities across the United Kingdom are required to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives set by the Government are likely to be achieved. Where exceedances 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.

Mid Sussex District Council (MSDC) declared an AQMA at Stonepound Crossroads in Hassocks in 2012. Since then, pollution levels have declined. The Council's AQAP includes measures such as "intelligent" traffic lights to improve traffic flow, "cut engine, cut pollution" signs, travel plans, planning controls and promotion of more sustainable transport.

We hope that by working together with the public and our partners, we can reduce reliance on the car and improve the air that we all breathe.

### Air Quality in Mid Sussex

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children, the elderly, and those with existing heart and lung conditions. There is also often a strong correlation with equalities issues because areas with poor air quality are also often less affluent areas<sup>1,2</sup>.

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<sup>1</sup> Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

<sup>2</sup> Defra. Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

The mortality burden of air pollution within the UK is equivalent to 29,000 to 43,000 deaths at typical ages<sup>3</sup>, with a total estimated healthcare cost to the NHS and social care of £157 million in 2017<sup>4</sup>.

The area covered by Mid Sussex District Council is primarily countryside, with three major towns. One area of the district, the Sussex Downs, has been designated as part of the South Downs National Park, with a significant number of villages, hamlets, ancient churches and woodlands and does not incorporate a significant heavy industrial base. The district also contains part of the High Weald Area of Outstanding Natural Beauty (AONB). Locally, the most significant contributions to poor air quality come from road transport, the air pollutant currently of most concern being nitrogen dioxide (NO<sub>2</sub>).

Road transport is responsible for approximately 80% of NO<sub>2</sub> concentrations at the roadside, with diesel vehicles of greatest concern at a local level. Expected improvements to the diesel vehicle fleet did not deliver the predicted reductions in emissions and this was demonstrated in real-world emissions testing.

The main source of air pollution in the district is road traffic emissions, mostly from major roads. Exposure to these emissions is highest where buildings are located close to these roads notably the A273 area north and south of Hassocks. Information on this declared AQMA has been included on the Council's web pages at [Air Quality - Mid Sussex District Council](#).

Previous air quality monitoring and modelling carried out by the Council indicated that despite good air quality within most of the District, the annual mean air quality objective for nitrogen dioxide (NO<sub>2</sub>) was not being met in the Stonepound Crossroads area of Hassocks where the A273 Brighton Road intersects with the B2116 Keymer Road.

Therefore, in March 2012 an Air Quality Management Area (AQMA) was declared at Stonepound Crossroads, Hassocks.

Monitoring results across the district in 2022 are encouraging overall. There are no exceedances in the district and all results are lower than 2019 pre-lockdown levels. As expected, there has been a general increase in NO<sub>2</sub> levels at some sites compared to

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<sup>3</sup> Defra. Air quality appraisal: damage cost guidance, January 2023

<sup>4</sup> Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report, May 2018

those recorded in 2021, as 2022 had no Coronavirus lockdown period but 2021 did. Nonetheless, a majority of sites have actually shown decreased levels compared to 2021. It is probable that factors such as new working patterns i.e. more working from home, as well as increasing numbers of electric vehicles and a reduction in older (more polluting) vehicles on the road play a significant factor. Caution should be applied to any conclusions drawn from this year's data in comparison to recent years given that restrictions in response to COVID-19 affected traffic levels significantly and future working trends are not yet clear.

Within the Council's only AQMA at Stonepound Crossroads in Hassocks, the main pollutant (NO<sub>2</sub>) is from road traffic emissions. Exceedances are attributed to the topography of the area and the volume of road traffic. Since the AQMA was declared there has been an overall reduction in measured NO<sub>2</sub>. For the fourth time in the last five years, there are no exceedances within the AQMA. An AQMA can usually be considered for revocation after three consecutive years with no exceedance, but the circumstances of the last few years would make any conclusions unreliable at the current time.

Due to concerns over measured levels of NO<sub>2</sub> in London Road, East Grinstead, we increased our monitoring sites in this area to get a clearer understanding of local exposure. Additionally, the Council installed a real time monitor close-by in August 2022, which has captured data for the subsequent 4 calendar months. The situation is complicated by the nearest residential facades being at first floor level, higher than the monitoring site, so we also installed a monitoring tube at first floor level (MSAQ38) to take account of this. Whilst recent data is not fully representative due to the unusual circumstances of COVID-19, the fact that the measured levels from MSAQ38 continue to be significantly lower than at nearby MSAQ29 is encouraging.

The Council have an Air Quality Action Plan (AQAP) for the existing AQMA in Hassocks, which focuses on a range of measures designed to limit the exceedance of the NO<sub>2</sub> air quality objective of 40ug/m<sup>3</sup>.

These include:

- Ensuring traffic light sequencing is operating at optimum efficiency.
- Signage and advertising to encourage use of the A2300 as an alternative route.
- Widening of the A2300 as part of major development to the North of Burgess Hill.
- "Cut engine, cut pollution" signs erected approaching each arm of the crossroads.

- Travel wise schemes to promote sustainable transport - to include more car share schemes and alternatives to the car. Promotion of school and work travel plans. Development and promotion of cycle routes.
- Education and raising awareness - increasing the availability of air quality information and incentivising people to change their travel behaviour.
- Working with Planners to ensure appropriate mitigation measures are implemented for new developments affecting the AQMA.

The work under Local Air Quality Management (LAQM) is the legal obligation of both district and county councils, as set out in Defra Policy Guidance PG22 paragraph 3.2:

*More than 200 local areas are governed by two-tier authorities e.g. a district council and a county council, each of which have powers and functions that are important in tackling air quality. There are obligations on both district and county councils within Part IV of the Environment Act 1995. The Environment Act 2021 ensures that responsibility for solutions to poor air quality is shared across local government....*

In practical terms, actions aimed at improving air quality often require the cooperation of various departments and organisations. MSDC Environmental Protection works in conjunction with other stakeholders, such as our Planning department, UK Health Security Agency, West Sussex County Council (WSCC) Highways, neighbouring districts, the Sussex Air Quality Partnership and the Environment Agency. The assessment and implementation of the identified traffic management schemes is done in cooperation with WSCC as they are the authority responsible for roads and transport management. An air quality action plan group has been set up, the work of which contributes largely to the development of Action Plans for the AQMA. The Council is consulted by the Environment Agency upon the granting of environmental permits for 'Part A1' industrial processes and liaises with the Agency regarding any issues concerning those permits.

Additionally, Mid Sussex District Council are members of the Sussex Air Quality Partnership ([Sussex-air](#)) which benefits from the co-ordinated monitoring of air pollutants across the region, and provides airAlert\* services.

**\*airAlert is a free service for the residents of Sussex which provides an early warning of poor air quality by text/SMS, voice-mail or email for individuals with asthma or poor respiratory health. This service is also available as a smart-phone app.**

## 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<sup>5</sup> sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term PM<sub>2.5</sub> targets. The National Air Quality Strategy, due to be published in 2023, will provide more information on local authorities' responsibilities to work towards these new targets and reduce PM<sub>2.5</sub> in their areas. The Road to Zero<sup>6</sup> details the approach to reduce exhaust emissions from road transport through a number of mechanisms; this is extremely important given that the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

MSDC has continued a number of measures during the current reporting year of 2022 in pursuit of improving local air quality. The key actions in 2022 focused on a range of measures designed to limit the exceedance of the NO<sub>2</sub> air quality objective in the AQMA. These include:

- Ensuring traffic light sequencing continues to operate at optimum efficiency – WSCC are trialling a new system of pollutant sensor responsive controls to allow the traffic light timings to adjust to measured pollution levels and we are working together to establish trigger parameters for this trial.
- Signage and advertising to encourage use of the A2300 as an alternative route.
- Completion and opening of the widened A2300 as part of a forthcoming development. The main carriageway is open, some infrastructure due for completion this year.
- Continuing to work with local schools to raise awareness.
- Using the planning system to ensure maximum mitigation measures are implemented for any new development affecting the AQMA, including using the

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<sup>5</sup> Defra. Environmental Improvement Plan 2023, January 2023

<sup>6</sup> DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

latest Sussex wide planning guidance for developers with regard to air quality. This guidance has been adopted as informal planning guidance.

- District Plan includes policies DP21 Transport and DP29 Noise, Air and Light requiring transport mitigation and due consideration to be given to Air Quality issues.
- MSDC were part of Sussex Air's successful bid to Defra for funding of a public awareness campaign, *Clean Burn Sussex*, regarding the use of cleaner fuels for domestic burning i.e. avoiding "wet" wood and bituminous coal. Web pages are hosted on the Sussex-Air website with information about the effects of particulate matter on health and what can be done to reduce it ([Clean Burn](#)). This campaign has also gathered data from a survey of over 1700 people regarding how, why and what they burn.
- The Council website's sustainability page provides a link to a map of EV charging points within the district. To register see [Sustainability - Mid Sussex District Council](#)

## Conclusions and Priorities

No exceedances for NO<sub>2</sub> were identified during this reporting year and the underlying trend in the district remains downward. If the trend continues, it seems likely that the AQMA can be considered for revocation in the next year or two. The large Northern Arc development in Burgess Hill has been assessed through the planning process and is not expected to have a significant impact upon air quality in the district. The Air Quality Action Plan and the locations of monitoring points will continue to be reviewed on an annual basis.

The Council's priorities for the coming year are:

- Continue to work in partnership with West Sussex Public Health and West Sussex County Council to raise awareness of the facts relating to poor air quality, how to reduce sources of air pollution, focusing on the co-benefits of active travel to health and wellbeing; and how to reduce exposure to air pollution during episodes of poor air quality (airAlert)
- The promotion of "green" travel at the Council with incentives for staff to take sustainable methods of travel into work to promote the cycle-to-work scheme. Council staff also have access to electric bikes.



- The Sayers Common to Hassocks Cycle Route has been approved by WSCC and it is hoped that several sections will be completed by the end of 2023. Design work on other sections will commence at the same time.
- MSDC are part of West Sussex County Council's *Breathing Better: a partnership approach to improving air quality in West Sussex* and we have previously attended the Inter Authority Air Quality Group made up of the county, districts and boroughs. The group have produced a county wide [Air Quality Plan](#) and released educational messages in their West Sussex Newsletter.
- WSCC has adopted the West Sussex Electric Vehicle Strategy 2019-2030. Connected Kerb is fully funding EV chargepoint deployment working with WSCC, Adur and Worthing, Arun, Crawley, Horsham and Mid Sussex district and borough councils.
- Car sharing continues to be promoted through the Sustainability pages on the MSDC intranet.
- Continuing to educate & encourage members of the public to reduce reliance on car use.
- Continued effective communication of the issues to the public, professional partners and colleagues.
- SAQP has extended the current Sustrans schools project for another year.
- Sustrans have been asked to develop educational content for the SAQP website.
- A Defra AQ grant of £150,000 was awarded to Brighton & Hove City Council to retrofit at least 17 double decker buses that will be in operation for the next 3 or 4 years. The affected routes have yet to be confirmed but are likely to include routes through the MSDC area and possibly through the AQMA. Mid Sussex will be notified if/when this happens.

## Local Engagement and How to get Involved

The Council holds an annual meeting of the Hassocks Air Quality Steering Group which reviews and updates the AQAP and is comprised of Air Quality officers, the Sustainability officer, colleagues from WSCC Highways and local Members from the Parish, District and County Councils.

MSDC continue to be members of the Sussex Air Quality Partnership (Sussex Air) which responds to Defra consultations and benefits from the co-ordinated monitoring of air pollutants across the region, including the airAlert service:

### **airAlert**

Sussex Air offers to residents of Sussex a free service which provides an early warning of poor air quality by text/SMS, voice-mail or email for individuals with asthma or poor respiratory health.

This service is also available as a smart-phone app.

To receive local air pollution alerts you register at

- airAlert online at [www.airalert.info/](http://www.airalert.info/)
- by telephone on 01273 484337
- alternatively download the airAlert app for Apple or Android phones

Additionally, members of the public are able to:

- Find out about bus and coach travel, community transport, and sustainable travel on the WSCC website.
- Find out from their child's school about available travel options for getting to school.
- See the Air Quality section of the council's website for information on Bonfires & Smoke, current & previous air quality reports, Stonepound Crossroads AQMA and AQAP [Environment - Mid Sussex District Council](#)

## Local Responsibilities and Commitment

This ASR was prepared by the Environmental Health Department of Mid Sussex District Council with the support and agreement of the following officers and departments:

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# 1 Local Air Quality Management

This report provides an overview of air quality in Mid Sussex during 2022. 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 Mid Sussex District Council 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

### 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.

A summary of AQMAs declared by Mid Sussex District Council can be found in Table 2.1. The table presents a description of the only AQMA that is currently designated within Mid Sussex. Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of the AQMA and also the air quality monitoring locations in relation to the AQMA. The air quality objectives pertinent to the current AQMA designation is as follows:

- NO<sub>2</sub> annual mean



**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
Mid Sussex District Council AQMA (No.1)	Declared 13/03/2012	NO <sub>2</sub> Annual Mean	An area encompassing 3 residential properties at the junction of Stonepound Crossroads	YES	47ug/m <sup>3</sup>	None (30.7ug/m <sup>3</sup> )	4	Mid Sussex District Council Air Quality Action Plan 2021	<a href="https://midsussex.gov.uk/stonepound-crossroads-air-quality-action-plan">Stonepound Crossroads Air Quality Action Plan (midsussex.gov.uk)</a>

Mid Sussex District Council confirm the information on UK-Air regarding their AQMA(s) is up to date

Mid Sussex District Council confirm that all current AQAPs have been submitted to Defra

## 2.2 Progress and Impact of Measures to address Air Quality in Mid Sussex

Defra's appraisal of last year's ASR concluded (Our responses in **bold**):

1. Discussion surrounding the commentary provided in the appraisal report of the 2022 ASR is provided. It is good to see that the Council is reflecting on and addressing these comments. This is encouraged to continue in future reporting years. **Agreed**
2. The report includes detailed discussion of PM<sub>2.5</sub> and draws links to the Public Health Outcomes Framework and fraction of mortality attributable to PM<sub>2.5</sub> emissions. Comparisons to neighbouring authorities and the national average are provided. It is also highlighted that a new method of calculating is being used within the Framework. This is indicative of good practice and is encouraged to be included in all future reports. **Agreed**
3. The installation of the new automatic monitor in East Grinstead was delayed due to administrative issues. It is expected that this will be deployed in Summer 2022, and therefore updates on this action and data will be presented within the Council's 2023 ASR. **Agreed – the monitor is now installed**
4. Once the new automatic monitor is deployed, it is encouraged that PM<sub>2.5</sub> concentrations are estimated based off of monitored PM<sub>10</sub> concentrations following the methodology detailed in LAQM.TG(16) until a PM<sub>2.5</sub> monitor is installed. **Noted and agreed**
5. It is encouraged that the monitoring network continues to be reviewed, with additional monitoring deployed within the AQMA at or near to relevant exposure to confirm annual concentrations. **Agreed**
6. The measures for reducing NO<sub>2</sub> contained within the council's AQAP will contribute to tackling PM<sub>2.5</sub> emissions as these emissions share similar sources. The council states that separate measures focused on reducing PM<sub>2.5</sub> within the AQMA are not currently considered to be feasible or cost effective. This should continue to be reviewed, and measures focusing on PM<sub>2.5</sub> may be considered as part of a district air quality strategy. **Agreed**
7. Minimal discussion is included in section 3.2.1. It is encouraged that discussion specific to monitoring within the AQMA is included, detailing the maximum reported annual mean concentrations and change in concentrations from previous years. **Noted and agreed**
8. Not all diffusion tube monitoring locations were presented within the trend graphs. It is important that all monitoring data is shown graphically where possible to allow for ease of understanding and trend analysis. It would also be beneficial to present these based on their geographical location. **Noted and agreed**

9. The level of exceedance within the current year in Table 2.1 is stated as “None”. Whilst this is accurate and accepted, it is preferred that the maximum reported NO<sub>2</sub> annual mean concentration within the AQMA is reported, even if below the AQO.

***Noted and agreed***

10. Within Table A.4, the valid data capture for the monitoring period was not provided. It is recommended that this is populated even if monitoring has been in place for the entire year. Please contact the LAQM Helpdesk if further clarification is required.

***Noted and agreed***

11. Table 2.2 has been completed in detail, and the Council have additionally provided an in-depth discussion on AQAP progress, which is commended. ***Agreed***
12. Diffusion tube mapping is robust and clearly demonstrates the extent of the Council’s monitoring network. The Council are encouraged to continue this level of mapping in future reports. ***Agreed***

Mid Sussex District Council has taken forward a number of direct measures during the current reporting year of 2022 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. Four current measures are included within Table 2.2, with the type of measure and the progress Mid Sussex District Council have made during the reporting year of 2022 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:

- Review of MOVA traffic light sequencing in AQMA
- Cut engine, cut pollution signage on each arm of crossroads in AQMA
- MSDC Travel Plan and Green Travel Scheme review
- Local schools travel plans
- Car share and sustainable travel promotion
- Link to Air Alert service on council website
- Promotion of energy efficiency schemes
- *Air quality and emissions mitigation guidance for Sussex* incorporated into Council planning policy
- Improved access into Burgess Hill via A2300 which should encourage HGV traffic in particular to avoid the AQMA

Mid Sussex District Council expects the following measures to be completed over the course of the next reporting year:

- Additional electric vehicle charging infrastructure to be installed as part of Connected Kerb
- Three more sections of Sayers Common to Hassocks cycle route to be completed

Mid Sussex District Council's priorities for the coming year are:

- Assess data from real time air quality monitor in East Grinstead (NO<sub>2</sub> and PM)
- Next stage of real time traffic light optimisation to be implemented in AQMA

The principal challenges and barriers to implementation that Mid Sussex District Council anticipates facing are:

- Change in priorities for MSDC and partners due to increased energy costs and the cost of living crisis
- Funding and resources likely to continue to be significantly reduced as a result of the above
- Further new development near to the AQMA likely to cause roadworks, traffic issues and additional HGV movements

Progress on the following measures has been slower than expected due to:

- Initial data from the real time traffic light optimisation trial was not in a suitable format – this has now been addressed and the next stage of agreeing suitable thresholds can go ahead
- Installation of real time air quality monitor was delayed due to administrative issues between MSDC and UK Power Networks but monitor commenced operation in August 2022

Mid Sussex District Council anticipates that the measures stated above and in Table 2.2 will achieve compliance in the Stonepound Crossroads AQMA.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	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	"Cut Engine, Cut Pollution" signs	Traffic Management	Other	2012	2023	WSCC	WSCC & MSDC	NO	Fully funded	< £10k	Completed	Reduced vehicle emissions	Measured concentration in AQMA	Signage in place	Needs regular trimming back of vegetation
2	Improve and Promote cycle routes	Promoting Travel Alternatives	Promotion of cycling	2014	2023	WSCC and S106	WSCC & MSDC	NO	Partially Funded	£1 million - £10 million	Implementation	Reduced traffic through AQMA	Measured concentration in AQMA	WSCC undertaking design work on part of the cycle route between Sayers Common and Hassocks. The design work has been divided into 9 sections. Sections 3.5, 8 and 9 should be completed by Summer 2023. TPO's affect St Georges Garden and The Meadow which are in section 3.5, so this part could possibly be delayed beyond Summer 2023. Design work on sections 5 and 6 (College Lane to Stonepound Crossroads) will also commence in 2022/23	Funding and TPO's may cause delays to implementation
3	Encourage alternative transport modes	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2015	2024	MSDC and neighbouring LA's	MSDC	NO	Partially Funded	£50k - £100k	Implementation	Reduced vehicle emissions	Measured Concentration in AQMA	Connected Kerb is fully funding EV chargepoint deployment working with WSCC, Adur and Worthing, Arun, Crawley, Horsham and Mid Sussex district and borough councils. 52 car park EVCP's have been installed with a further 14	On-going work. Due to the involvement of partner agencies with possible differing or conflicting priorities, it is difficult to be certain with regard to completion dates etc

Measure No.	Measure	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	
															in planned. Sustrans are working through the Sussex-air Partnership across West Sussex, East Sussex and B&H with schools on a DEFRA funded air quality project, including for a school each across Burgess Hill, East Grinstead and Haywards Heath	
4	Optimize Traffic Lights to Real time pollution data	Traffic Management	UTC, Congestion management, traffic reduction	2021	2024	WSCC	WSCC	NO	Funded	< £10k	Implementation	Reduced vehicle emissions	Measured Concentration in AQMA	Pollution sensors are installed and operational, and initial calibration is complete. Air quality threshold levels are to be agreed between WSCC and MSDC. Initial data was too granular, longer term data now made available. Configuration will then be undertaken to give priority/additional time to junction arms exceeding the agreed threshold. The proposal has a number of what if calculations, i.e. what if more than one arm exceeds the threshold in any given 15min period, as the key here is to improve the air quality levels, not continually layer priorities which will only increase delays and air pollution levels on other arms. If the trial is	New data should allow next stage to be completed	

Measure No.	Measure	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
														successful, a report will be prepared that explains how the special conditioning works in managing the site.	



## 2.3 PM<sub>2.5</sub> – 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<sub>2.5</sub> (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that PM<sub>2.5</sub> has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

The most recent data from Public Health Outcomes Framework (PHOF) indicator *Fraction of mortality attributable to particulate air pollution* (indicator D01) shows that the percentage in Mid Sussex was 5.1%. This compares to a national average of 5.5% and an average of 5.4% in the South East region. This data is for 2021 as more recent data is not yet available. Please note that a new method of calculation is now being used (see PHOF website for details).

By way of more local comparison, levels in neighbouring authorities are 5.1% in Horsham District, 5.4% in Crawley, 4.7% in Lewes District and 4.7% in Wealden District.

Mid Sussex District Council is taking the following measures to address PM<sub>2.5</sub>: MSDC undertakes air quality emissions reduction measures (set out in Table 2.2) which are aimed at reducing NO<sub>2</sub> but will also contribute to reducing PM<sub>2.5</sub> emissions as these air pollutants share some similar sources, e.g. road traffic emissions and combustion sources. At present Mid Sussex does not undertake any separate reduction measures aimed specifically at tackling PM<sub>2.5</sub> emissions as it is considered that it is more cost effective to continue with the specified measures that will help to reduce both NO<sub>2</sub> and PM<sub>2.5</sub>. However, this approach is regularly reviewed and will be assessed again in 2023 in conjunction with Sussex Air and the AQAP Steering Group. The approach will be informed by the latest PM<sub>2.5</sub> target values in accordance with the *Environment Act 2021*. Mid Sussex works in partnership with West Sussex Public Health to communicate the impacts of air pollution including PM<sub>2.5</sub>. Additionally, Mid Sussex utilises the “*Air quality and emissions mitigation guidance for Sussex*” to encourage lower emission developments with planning and transport authorities to assist in reducing PM<sub>2.5</sub> emissions.

The Council is part of Sussex Air, which previously received Defra funding for the *Clean Burn Sussex* project aimed at encouraging cleaner domestic burning. This project

incorporated publicising the message that domestic burning should be reduced where possible and that only clean fuels should be burned in domestic stoves and fireplaces as well as data collection and analysis – over 1700 responses were captured to an online survey of burning habits. This data has been analysed and will help to inform further initiatives and policy with regard to domestic burning. It may also form the basis of a bid for another Defra grant bid.

Finally, a real-time air quality monitoring station has been installed in the district (London Road, East Grinstead). It is currently monitoring NO<sub>2</sub>, and PM<sub>10</sub>. Once we have sufficient PM<sub>10</sub> data we intend to replace the PM head and start monitoring PM<sub>2.5</sub>. Background levels from national mapping indicated PM<sub>2.5</sub> in Mid Sussex at 8.7µg/m<sup>3</sup> as an annual mean in 2022. The underlying trend is gradually downwards (from 12.08µg/m<sup>3</sup> in 2011). This trend is encouraging and the background level does not exceed national target values. The additional data to be supplied by the real time monitor in future will allow a greater understanding and a fuller picture at a local level.

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

This section sets out the monitoring undertaken within 2022 by Mid Sussex District Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2018 and 2022 to allow monitoring trends to be identified and discussed.

### 3.1 Summary of Monitoring Undertaken

#### 3.1.1 Automatic Monitoring Sites

Mid Sussex District Council undertook automatic (continuous) monitoring at 1 site during a proportion of 2022. Table A.1 in Appendix A shows the details of the automatic monitoring sites. NB. Local authorities do not have to report annually on the following pollutants: 1,3 butadiene, benzene, carbon monoxide and lead, unless local circumstances indicate there is a problem. The [Sussex-air :: Promoting better Air Quality in Sussex :: sussex-air.net :: Monitoring Data Download](https://www.sussex-air.net/monitoring-data-download) page presents automatic monitoring results for Mid Sussex District Council, with regional automatic monitoring results also available through the UK-Air website.

Maps showing the location of the monitoring site are provided in Appendix D.

#### 3.1.2 Non-Automatic Monitoring Sites

Mid Sussex District Council undertook non- automatic (i.e. passive) monitoring of NO<sub>2</sub> at 34 sites during 2022. Table A.2 in Appendix A presents the details of the non-automatic sites.

Maps showing the location 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<sub>2</sub>)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO<sub>2</sub> annual mean concentrations for the past five years with the air quality objective of 40µg/m<sup>3</sup>. 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 2022 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values only where relevant.

Site locations are reviewed regularly to allow site rotation to ensure that new locations can be added as appropriate. This allows for new development, new roads and local knowledge to be accounted for so that monitoring can be flexible and adapt to local circumstances.

Following a review of monitoring sites in 2021, no sites were changed. However, when the automatic monitoring station was commissioned in August trilocated diffusion tubes were installed.

Table A.5 in Appendix A compares the ratified continuous monitored NO<sub>2</sub> hourly mean concentrations for the past five years with the air quality objective of 200µg/m<sup>3</sup>, not to be exceeded more than 18 times per year (note – we only have data from when our new real time air quality monitor was installed, not for previous years).

The 2022 data showed no exceedances of the air quality objectives and measured levels showed a continuation of the previous long-term downward trend. The maximum annual mean concentration for NO<sub>2</sub> within the AQMA was 30.7 µg/m<sup>3</sup> compared to a maximum of 31.3 µg/m<sup>3</sup> in 2021. It should be noted that in the short-term, 18 of the 33 tubes common to both the 2021 and 2022 data showed a slight decrease in levels from 2021 following the removal of Coronavirus restrictions which had affected traffic levels significantly in both 2020 and 2021, and 14 of the tubes showed a slight increase (1 tube remained the same), so care should be taken in trying to draw conclusions from data derived from this period,

especially given the impact of lockdowns and new patterns of working from home. The fact that 2022 levels are consistently lower than the pre-Coronavirus data does seem to suggest that the long-term trend remains the underlying one.

### **3.2.2 Particulate Matter (PM<sub>10</sub>)**

Table A.6 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM<sub>10</sub> annual mean concentrations for the past five years with the air quality objective of 40µg/m<sup>3</sup> (note – we only have data from when our new real time air quality monitor was installed, not for previous years).

Table A.7 in Appendix A compares the ratified continuous monitored PM<sub>10</sub> daily mean concentrations for the past five years with the air quality objective of 50µg/m<sup>3</sup>, not to be exceeded more than 35 times per year.

### **3.2.3 Particulate Matter (PM<sub>2.5</sub>)**

Mid Sussex do not presently monitor for PM<sub>2.5</sub>

### **3.2.4 Sulphur Dioxide (SO<sub>2</sub>)**

Mid Sussex do not monitor for SO<sub>2</sub>

## 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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Inlet Height (m)
MSAQ43	London Road East Grinstead	Kerbside	539100	138407	NO <sub>2</sub> , PM <sub>10</sub>	NO	Chemiluminescent; TEOM	10	1	1.7

**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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
MSAQ1	South Road Haywards Heath	Roadside	533342	123587	NO2	NO	0.0	2.5	No	1.6
MSAQ3	Southwick House London Road East Grinstead	Kerbside	538690	138759	NO2	NO	18.0	0.5	No	2.2
MSAQ5	Bus Stop Lewes Road East Grinstead	Suburban	541245	136996	NO2	NO	16.0	1.5	No	2.3
MSAQ9	Water Tower Colwood Lane Warninglid	Rural	525664	125035	NO2	NO	40.0	35.0	No	2.1
MSAQ10	Traffic Light Keymer Road Hassocks	Roadside	529911	115489	NO2	Yes, MSDC AQMA (No 1)	6.7	1.5	No	1.7
MSAQ11a, MSAQ11b, MSAQ11c	Over Court Keymer Road Hassocks	Roadside	529930	115481	NO2	Yes, MSDC AQMA (No 1)	0.0	5.5	No	2.5
MSAQ12	Telegraph Pole Keymer Road Hassocks	Kerbside	529999	115488	NO2	NO	26.0	1.1	No	2.4
MSAQ13	Lamp Post Keymer Road Hassocks	Kerbside	529995	115476	NO2	NO	19.0	0.9	No	2.3
MSAQ14	Bus Stop London Road Hassocks	Kerbside	529911	115598	NO2	NO	23.0	1.6	No	2.6
MSAQ15	Traffic Lights sign London Road Hassocks	Kerbside	529930	115600	NO2	NO	6.5	1.6	No	2.4

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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
MSAQ17	Lamp Post Brighton Road Hassocks	Kerbside	529894	115340	NO2	NO	10.0	1.3	No	2.2
MSAQ18	Bus Stop Brighton Road Hassocks	Kerbside	529907	115428	NO2	NO	9.0	2.0	No	2.6
MSAQ19	Lamp Post Hurst Road Hassocks	Roadside	529779	115557	NO2	NO	13.2	1.3	No	2.5
MSAQ21	London Road Burgess Hill	Roadside	530792	119821	NO2	NO	2.5	1.9	No	2.0
MSAQ22	Leylands Road Burgess Hill	Roadside	532160	120069	NO2	NO	3.0	1.5	No	2.0
MSAQ23	Over Court Eastern Façade Keymer Road Hassocks	Roadside	529935	115478	NO2	NO	0.0	5.8	No	2.0
MSAQ24	Over Court Western Façade Keymer Road Hassocks	Roadside	529918	115476	NO2	NO	0.0	7.5	No	1.8
MSAQ25a, MSAQ25b, MSAQ25c	Erica Way Copthorne	Kerbside	531176	138829	NO2	NO	0.0	4.0	No	2.0
MSAQ26	High Street Hurstpierpoint	Suburban	528289	116395	NO2	NO	0.8	2.1	No	2.5
MSAQ27	Telegraph Pole London Road Hickstead	Suburban	526870	120238	NO2	NO	10.0	3.8	No	2.2



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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
MSAQ28	Lamp Post Rocky Lane Haywards Heath	Suburban	533342	122625	NO2	NO	11.0	1.3	No	2.3
MSAQ29	184 London Road East Grinstead	Roadside	539040	138452	NO2	NO	0.7	2.7	No	2.4
MSAQ31	Traffic sign outside entrance to Imberhorne School Imberhorne Lane East Grinstead	Roadside	537680	139009	NO2	NO	47.0	3.8	No	2.2
MSAQ32	Lamp Post Woodcroft Burgess Hill	Roadside	530791	120295	NO2	NO	5.5	1.5	No	2.2
MSAQ34	Lamp Post No 12 Queen Elizabeth Avenue Burgess Hill	Roadside	531144	118862	NO2	NO	5.0	4.4	No	2.4
MSAQ35	New Way Lane Hustpierpoint	Rural	528904	114415	NO2	NO	20.0	n/a	No	1.8
MSAQ36	Lamp Post adjacent Bridgeway London Road East Grinstead	Roadside	537612	139405	NO2	NO	10.5	1.5	No	2.3
MSAQ37	Lamp Post adjacent 10 Station Road East Grinstead	Roadside	533932	138472	NO2	NO	5.1	2.5	No	2.3
MSAQ38	Lamp Post adjacent to La	Roadside	539004	138481	NO2	NO	0.4	2.1	No	4.2

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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
	Farola London Road East Grinstead									
MSAQ39	Highway sign adjacent to 1 to 45 White Lion Close East Grinstead	Roadside	539095	138404	NO2	NO	1.1	2.8	No	2.3
MSAQ40	Telegraph Pole adjacent to Stroudley Drive Burgess Hill	Roadside	532892	118062	NO2	NO	18.5	4.0	No	2.0
MSAQ41	Prospect House Junction Road Burgess Hill	Roadside	531745	118753	NO2	NO	0.0	1.6	No	2.3
MSAQ42	20 High Street Ardingly	Roadside	534785	129560	NO2	NO	0.0	0.8	No	2.0
MSAQ43a, MSAQ43b, MSAQ43c	London Road East Grinstead	Roadside	539090	138412	NO2	NO	10.0	1.0	Yes	1.7

**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.3 – Annual Mean NO<sub>2</sub> Monitoring Results: Automatic Monitoring (µg/m<sup>3</sup>)**

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
MSAQ43	539100	138407	Kerbside	92.6	36.5					25.1

☒ **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.**

**Notes:**

The annual mean concentrations are presented as µg/m<sup>3</sup>.

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> 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 NO<sub>2</sub> Monitoring Results: Non-Automatic Monitoring (µg/m<sup>3</sup>)**

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
MSAQ1	533342	123587	Roadside	100	100.0	20.1	19.3	12.7	14.8	14.4
MSAQ3	538690	138759	Kerbside	84.9	84.9	34.4	31.7	22.7	23.4	22.8
MSAQ5	541245	136996	Suburban	92.3	92.3	30.0	28.6	20.9	22.5	20.7
MSAQ9	525664	125035	Rural	100	100.0	9.0	8.5	6.1	6.1	6.3
MSAQ10	529911	115489	Roadside	100	100.0	<b>41.2</b>	39.4	28.4	31.3	30.7
MSAQ11a, MSAQ11b, MSAQ11c	529930	115481	Roadside	100	100.0	<b>40.1</b>	36.3	27.6	29.6	30.4
MSAQ12	529999	115488	Kerbside	84.6	84.6	33.5	33.9	23.9	25.2	23.7
MSAQ13	529995	115476	Kerbside	100	100.0	38.9	36.6	26.1	30.0	29.1
MSAQ14	529911	115598	Kerbside	92.3	92.3	34.0	33.5	26.0	26.1	26.9
MSAQ15	529930	115600	Kerbside	100	100.0	35.1	34.0	26.0	27.7	27.8
MSAQ17	529894	115340	Kerbside	100	100.0	28.7	24.3	20.6	22.0	22.5
MSAQ18	529907	115428	Kerbside	100	100.0	28.1	29.3	17.9	21.5	17.4
MSAQ19	529779	115557	Roadside	100	100.0	17.4	15.7	11.9	13.5	12.4

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
MSAQ21	530792	119821	Roadside	100	100.0	29.0	27.6	21.0	24.0	20.2
MSAQ22	532160	120069	Roadside	100	100.0	27.0	26.0	20.1	22.2	21.3
MSAQ23	529935	115478	Roadside	100	100.0	34.5	33.4	23.4	24.4	25.7
MSAQ24	529918	115476	Roadside	100	100.0	24.0	22.9	17.8	19.3	18.8
MSAQ25a, MSAQ25b, MSAQ25c	531176	138829	Kerbside	100	100.0	26.9	26.8	18.4	18.8	20.6
MSAQ26	528289	116395	Suburban	100	100.0	23.6	21.5	16.1	16.8	16.8
MSAQ27	526870	120238	Suburban	100	100.0	22.8	19.3	13.6	14.7	15.4
MSAQ28	533342	122625	Suburban	100	100.0	24.7	25.3	22.2	22.4	24.5
MSAQ29	539040	138452	Roadside	100	100.0		<b>44.1</b>	32.5	33.4	31.6
MSAQ31	537680	139009	Roadside	84.9	84.9		13.2	10.3	11.2	11.3
MSAQ32	530791	120295	Roadside	82.7	82.7		13.7	11.2	11.4	12.3
MSAQ34	531144	118862	Roadside	92.3	92.3		24.4	19.0	19.6	18.7
MSAQ35	528904	114415	Rural	73.4	73.4		7.2	6.6	6.7	6.8
MSAQ36	537612	139405	Roadside	100	100.0			31.6	32.7	33.5

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
MSAQ37	533932	138472	Roadside	92.0	92.0			29.8	31.9	31.0
MSAQ38	539004	138481	Roadside	100	100.0			20.4	20.6	21.0
MSAQ39	539095	138404	Roadside	100	100.0			23.6	25.0	25.3
MSAQ40	532892	118062	Roadside	100	100.0			11.5	13.1	12.5
MSAQ41	531745	118753	Roadside	90.4	90.4				18.6	18.2
MSAQ42	534785	129560	Roadside	100	100.0				21.4	20.6
MSAQ43a, MSAQ43b, MSAQ43c	539090	138412	Roadside	100	34.6					27.4

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  $\mu\text{g}/\text{m}^3$ .

Exceedances of the NO<sub>2</sub> annual mean objective of  $40\mu\text{g}/\text{m}^3$  are shown in **bold**.

NO<sub>2</sub> annual means exceeding  $60\mu\text{g}/\text{m}^3$ , indicating a potential exceedance of the NO<sub>2</sub> 1-hour mean objective are shown in **bold and underlined**.

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 NO<sub>2</sub> Concentrations

#### Nitrogen Dioxide Monitoring Trends at East Grinstead sites 2018 - 2022

Year	London Road East Grinstead MSAQ3	Lewes Road East Grinstead MSAQ5	184 London Road East Grinstead MSAQ29	Imberhorne Lane East Grinstead MSAQ31	Lamp Post adj Bridgeway London Road East Grinstead MSAQ36	Lamp Post adj 10 Station Road East Grinstead MSAQ37	Lamp Post adj La Farola London Road East Grinstead MSAQ38	Lamp Post adj 1 to 45 White Lion Close East Grinstead MSAQ39
2018	34.4	30.0						
2019	31.7	28.6	<b>44.1</b>	13.2				
2020	22.6	20.8	32.5	10.3	31.6	29.8	20.4	23.6
2021	23.4	22.5	33.4	11.2	32.7	31.9	20.6	25.0
2022	22.8	20.7	31.6	11.3	33.5	31.0	21.0	25.3

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

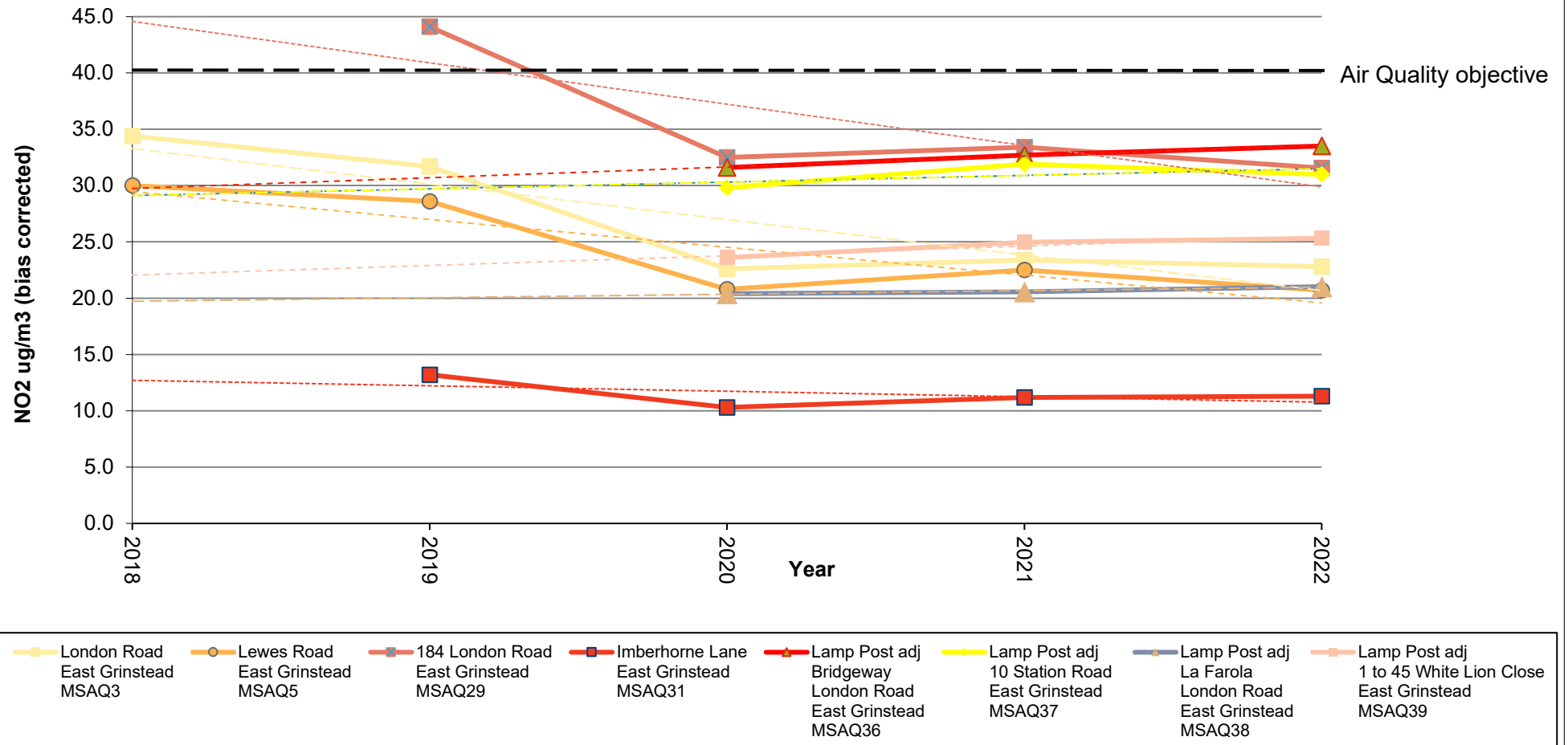
Sites MSAQ3, 5, 29, and 31 have shown a reduction in recorded levels from 2018 to 2022.

Sites MSAQ36, 38 and 39 levels have shown an increase from 2020 to 2022.

All are currently below the Air Quality Objective of 40µg/m<sup>3</sup>



**Nitrogen Dioxide Monitoring Trends at East Grinstead sites 2018 - 2022**



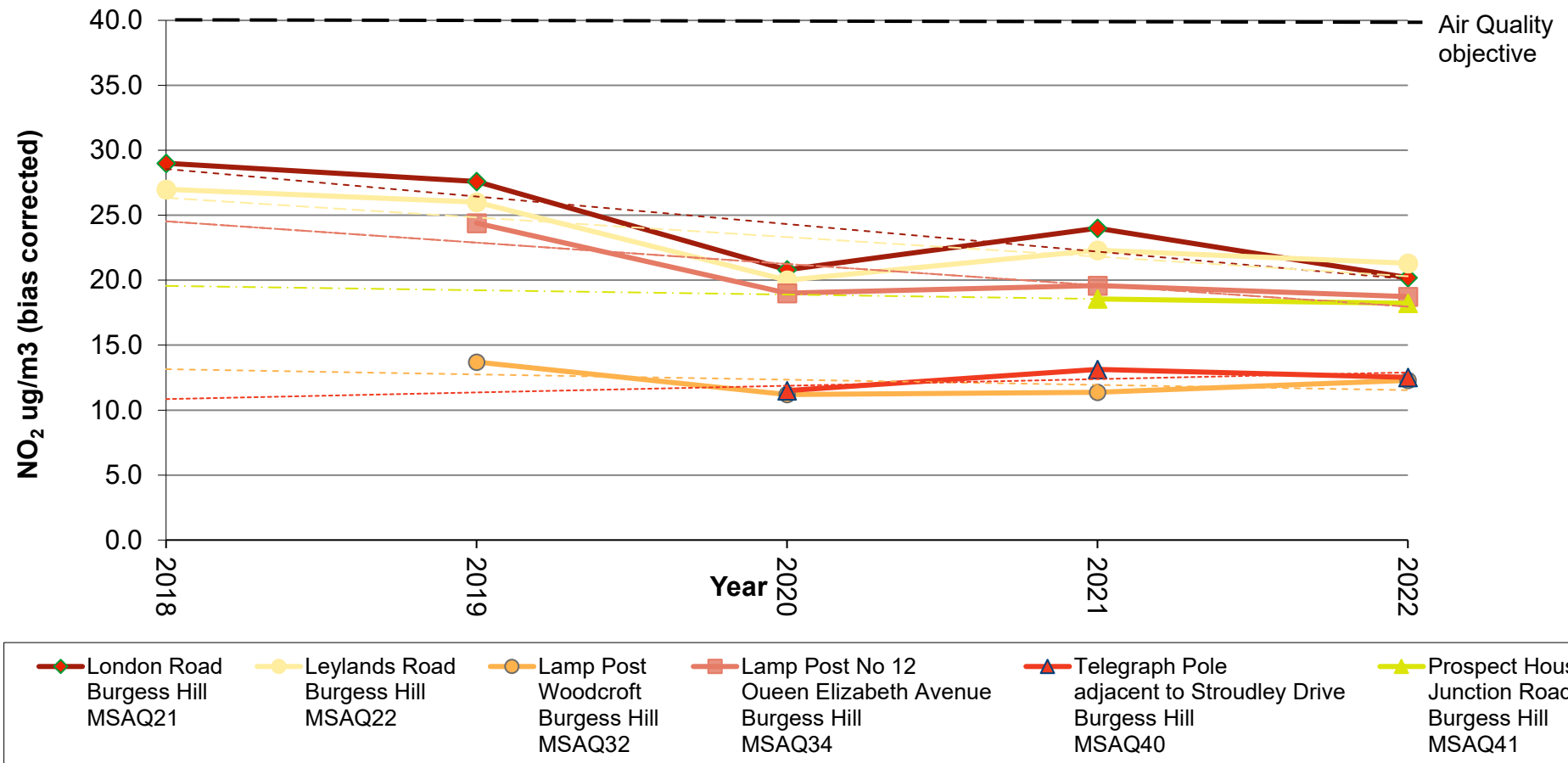
**Nitrogen Dioxide Monitoring Trends at Burgess Hill 2018 - 2022**

Year	London Road Burgess Hill MSAQ21	Leylands Road Burgess Hill MSAQ22	Lamp Post Woodcroft Burgess Hill MSAQ32	Lamp Post No 12 Queen Elizabeth Avenue Burgess Hill MSAQ34	Telegraph Pole adjacent to Stroudley Drive Burgess Hill MSAQ40	Prospect House Junction Road Burgess Hill MSAQ41
2018	29.0	27.0				
2019	27.6	26.0	13.7	24.4		
2020	20.8	20.0	11.2	19.0	11.5	
2021	24.0	22.3	11.4	19.6	13.1	18.6
2022	20.2	21.3	12.3	18.7	12.5	18.2

All of the sites have shown a reduction in recorded levels from 2018 to 2020 followed by a slight increase in 2021.

In 2022 the levels were similar to 2020.

Nitrogen Dioxide Monitoring Trends at Burgess Hill 2018 - 2022



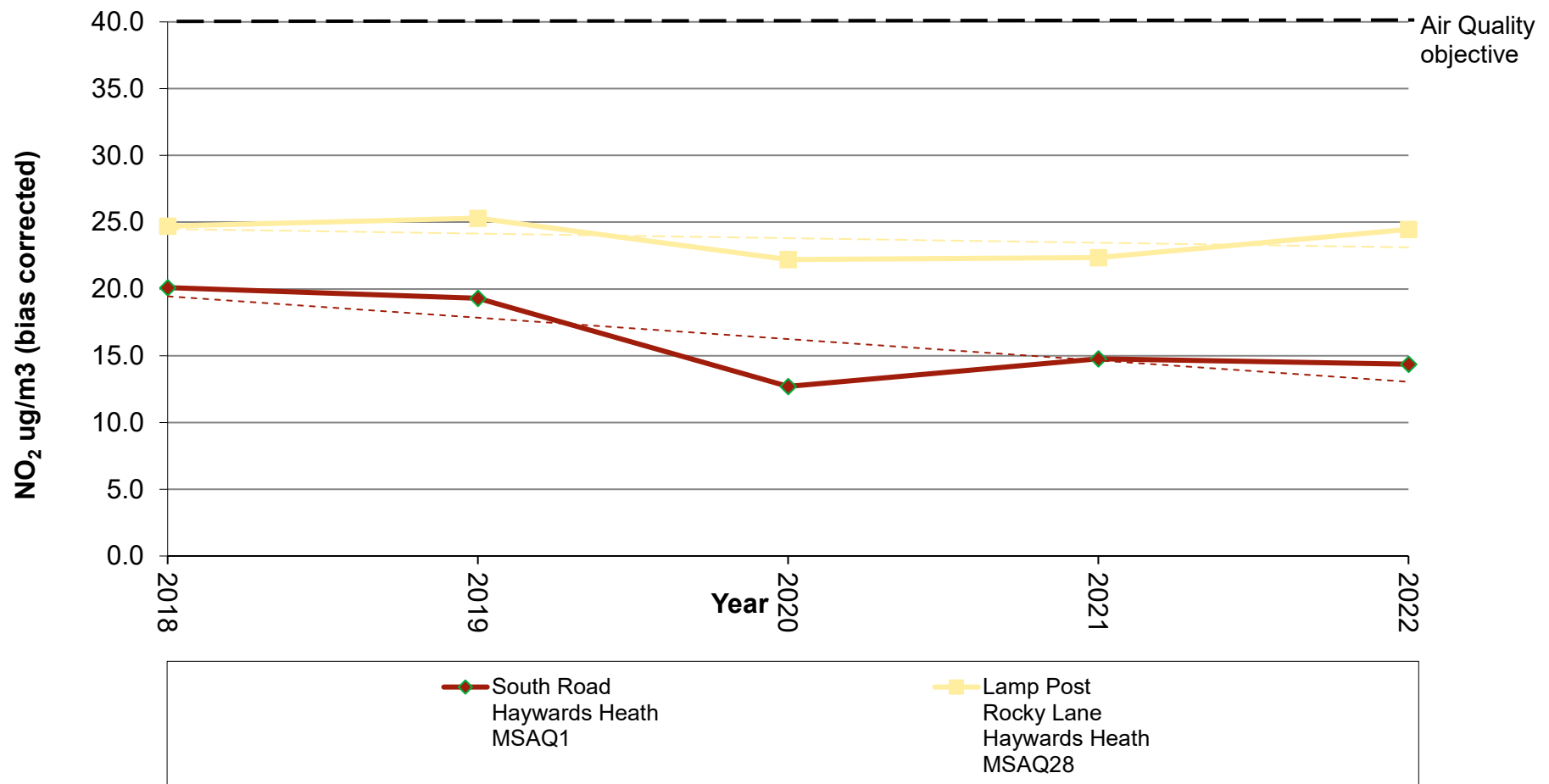
**Nitrogen Dioxide Monitoring Trends at Haywards Heath 2018 - 2022**

Year	South Road Haywards Heath MSAQ1	Lamp Post Rocky Lane Haywards Heath MSAQ28
2018	20.1	24.7
2019	19.3	25.3
2020	12.7	22.2
2021	14.8	22.4
2022	14.4	24.5

All of the sites have shown a reduction in recorded levels from 2018 to 2020 and a slight increase in 2021.

MSAQ1 showed a slight reduction in levels in 2022 whilst MSAQ28 showed an increase.

**Nitrogen Dioxide Monitoring Trends at Haywards Heath 2018 - 2022**



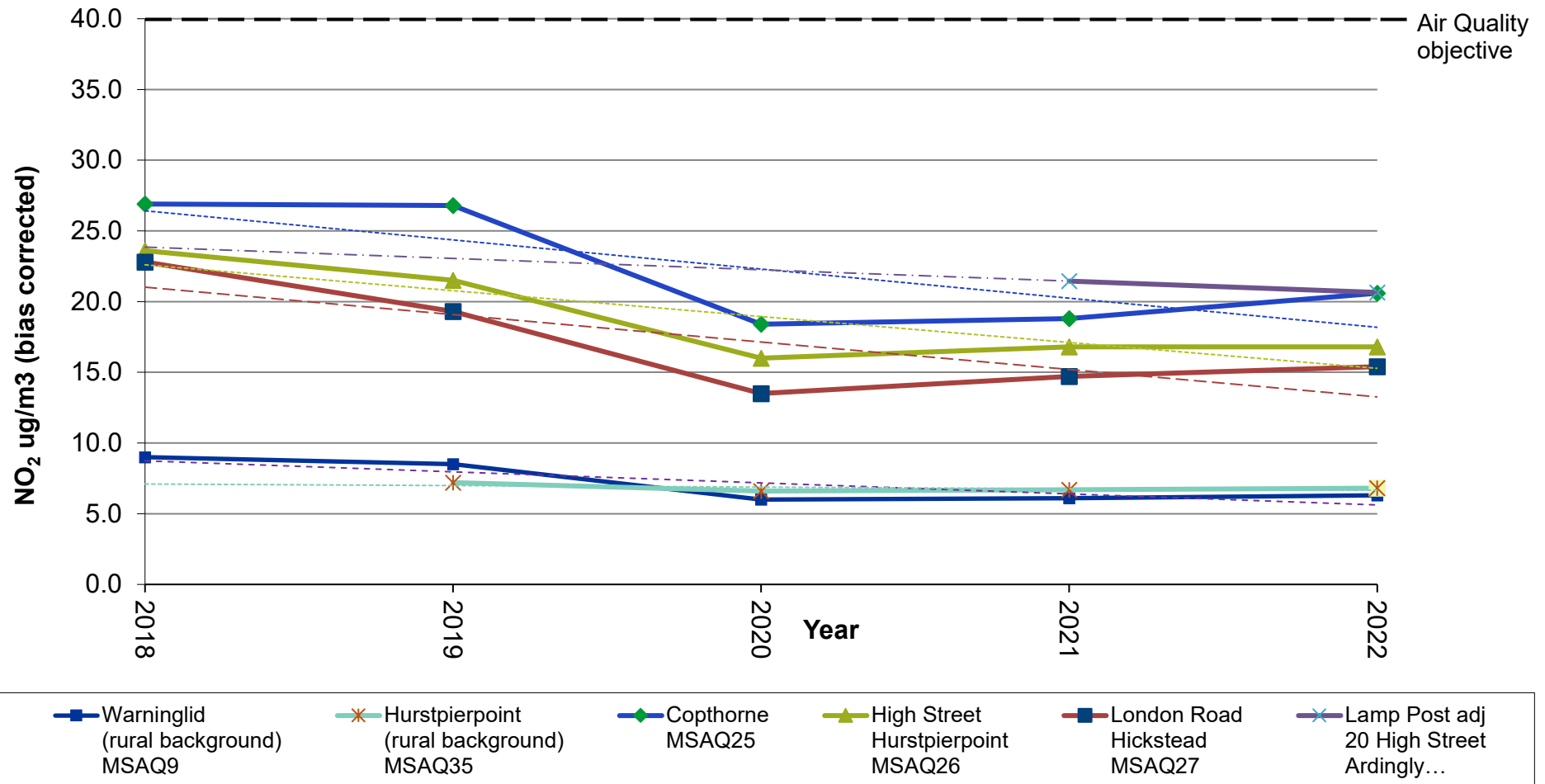
**Nitrogen Dioxide Monitoring Trends at 4 Villages and 2 Rural Background Sites 2018 - 2022**

Year	Warninglid (rural background) MSAQ9	Hurstpierpoint (rural background) MSAQ35	Copthorne MSAQ25	High Street Hurstpierpoint MSAQ26	London Road Hickstead MSAQ27	Lamp Post adj 20 High Street Ardingly MSAQ42
2018	9.0		26.9	23.6	22.8	
2019	8.5	7.2	26.8	21.5	19.3	
2020	6.0	6.6	18.4	16.0	13.5	
2021	6.1	6.7	18.8	16.8	14.7	21.4
2022	6.3	6.8	20.6	16.8	15.4	20.6

MSAQ9, 25, 26, 27 and 35 all have shown a reduction in recorded levels from 2018 to 2020 and a slight increase in 2021 and 2022.

MSAQ42 has shown a level reduction in 2022.

**Nitrogen Dioxide Monitoring Trends at 4 Villages and 2 Rural Background Sites 2018 - 2022**



## Nitrogen Dioxide Monitoring Trends at Hassocks 2018 - 2022

Year	Telegraph Pole Keymer Road Hassocks MSAQ12	Lamp Post Keymer Road Hassocks MSAQ13	Traffic lights Keymer Road Hassocks MSAQ10	Northern Façade (residential premises) Keymer Road Hassocks MSAQ11	Eastern Façade (residential premises) Keymer Road Hassocks MSAQ23	Western Façade (residential premises) Keymer Road Hassocks MSAQ24
2018	33.5	38.9	<b>41.2</b>	<b>40.1</b>	34.5	24.0
2019	33.9	36.6	39.4	36.3	33.4	22.9
2020	23.9	25.9	28.2	27.5	23.3	17.6
2021	25.2	30.0	31.3	29.6	24.4	19.3
2022	23.7	29.1	30.7	30.4	25.7	18.8

Year	Bus Stop London Road Hassocks MSAQ14	Traffic sign London Road Hassocks MSAQ15	Façade (residential premises) Brighton Road Hassocks MSAQ16	Lamp Post Brighton Road Hassocks MSAQ17	Bus Stop Brighton Road Hassocks MSAQ18	Lamp Post Hurst Road Hassocks MSAQ19
2018	34.0	35.1	19.9	28.7	28.1	17.4
2019	33.5	34.0	18.0	24.3	29.3	15.7
2020	25.8	26.0	13.5	20.5	17.7	11.9
2021	26.1	27.7	Site retired Jan 21	22.0	21.5	13.5
2022	26.9	27.8		22.5	17.4	12.4

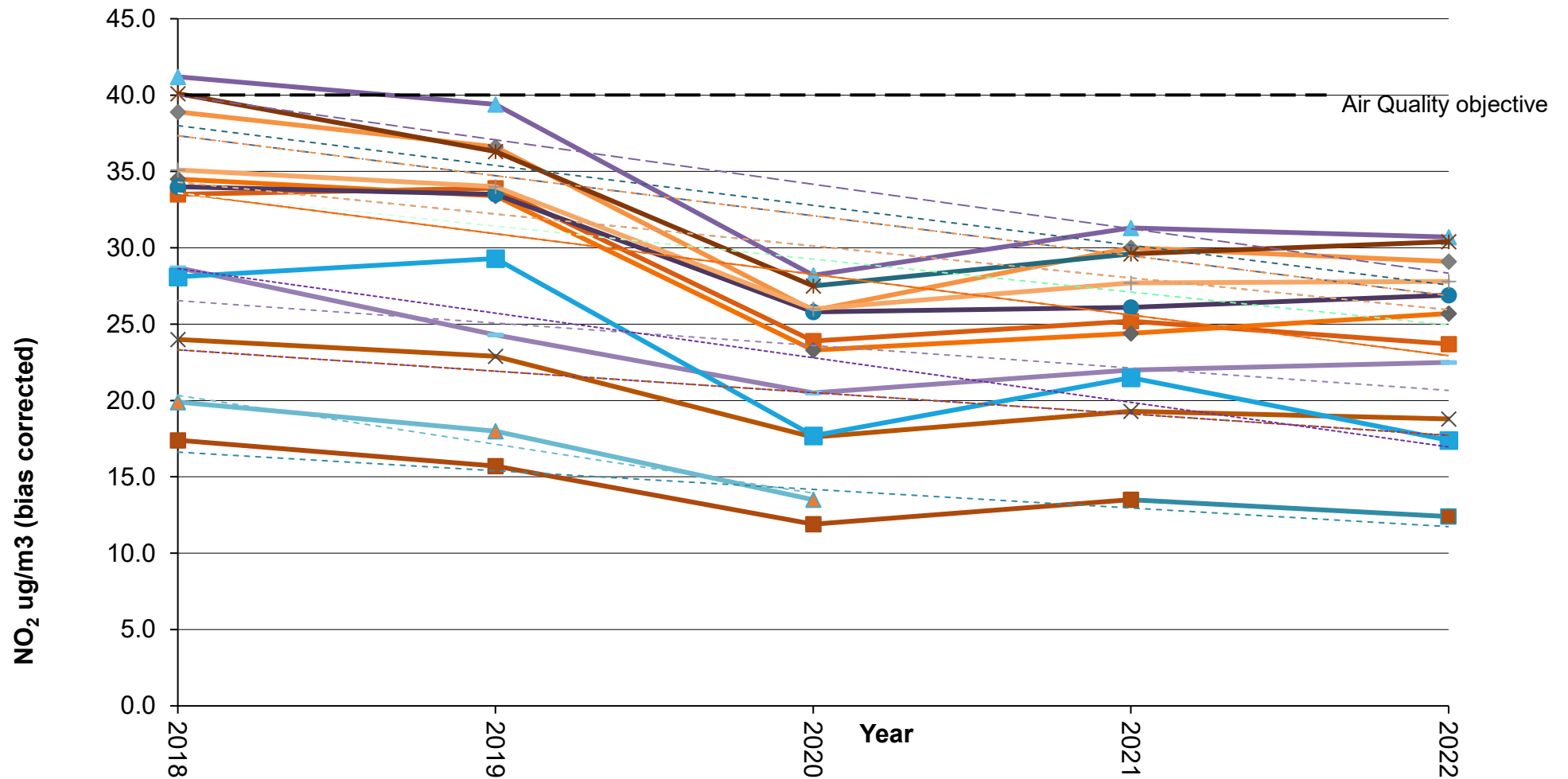
Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

All of the sites have shown a reduction in recorded levels from 2018 to 2020 and a slight increase in 2021. MSAQ10, 12, 13, 18, 19 and 24 levels reduced slightly in 2022 whilst those at sites MSAQ 11, 14, 15, 17 and 23 showed a slight increase.

All are currently below the Air Quality Objective of 40µg/m<sup>3</sup>



### Nitrogen Dioxide Monitoring Trends at Hassocks 2018 - 2022



### Nitrogen Dioxide Monitoring Trends in AQMA Hassocks 2018 – 2022

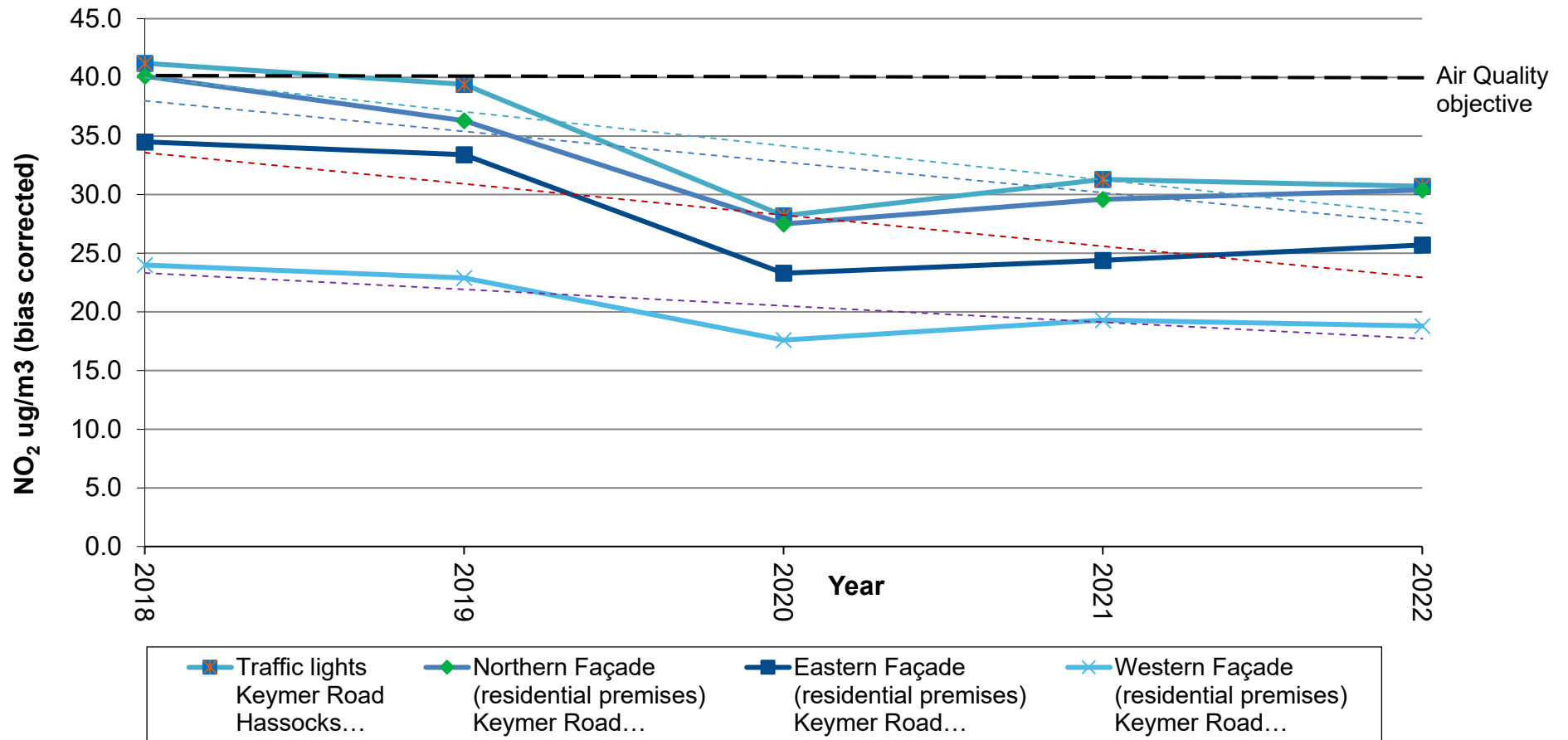
Year	Traffic lights Keymer Road Hassocks MSAQ10	Northern Façade (residential premises) Keymer Road Hassocks MSAQ11	Eastern Façade (residential premises) Keymer Road Hassocks MSAQ23	Western Façade (residential premises) Keymer Road Hassocks MSAQ24
2018	<b>41.2</b>	<b>40.1</b>	34.5	24.0
2019	39.4	36.3	33.4	22.9
2020	28.2	27.5	23.3	17.6
2021	31.3	29.6	24.4	19.3
2022	30.7	30.4	25.7	18.8

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

There has been an overall reduction in the levels recorded at the sites within the AQMA area since it was declared in 2012.

Currently none of the sites have recorded NO<sub>2</sub> levels above the Air Quality Objective.

Nitrogen Dioxide Monitoring Trends in AQMA Hassocks 2018 - 2022



**Table A.5 – 1-Hour Mean NO<sub>2</sub> Monitoring Results, Number of 1-Hour Means > 200µg/m<sup>3</sup>**

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
MSAQ43	539100	138407	Kerbside	92.6	36.5					<b>0 (89.1)</b>

**Notes:**

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m<sup>3</sup> have been recorded.

Exceedances of the NO<sub>2</sub> 1-hour mean objective (200µg/m<sup>3</sup> 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<sub>10</sub> Monitoring Results (µg/m<sup>3</sup>)**

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
MSAQ43	539100	138407	Kerbside	97.5	38.5					19.3

**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<sup>3</sup>.

Exceedances of the PM<sub>10</sub> annual mean objective of 40µg/m<sup>3</sup> 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<sub>10</sub> Monitoring Results, Number of PM<sub>10</sub> 24-Hour Means > 50µg/m<sup>3</sup>**

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
MSAQ43	539100	138407	Kerbside	97.5	38.5					<b>0 (31.3)</b>

**Notes:**

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

Exceedances of the PM<sub>10</sub> 24-hour mean objective (50µg/m<sup>3</sup> 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<sub>2.5</sub> Monitoring Results (µg/m<sup>3</sup>)**

Mid Sussex do not currently undertake monitoring for PM<sub>2.5</sub>

However, the PM<sub>2.5</sub> concentration can be estimated using guidance available in [Technical Guidance LAQM.TG22](#)

The nationally derived factor available at [Estimating PM2.5 from PM10 Measurements | LAQM \(defra.gov.uk\)](#) is 6.4

The annualised PM<sub>10</sub> result from Table A.6 is 19.3µg/m<sup>3</sup>

The PM<sub>2.5</sub> concentration at this site (MSAQ43) can be estimated as follows:

**19.3 – 6.4**

Estimated annual mean **PM<sub>2.5</sub> = 12.9µg/m<sup>3</sup>**

## Appendix B: Full Monthly Diffusion Tube Results for 2022

Table B.1 – NO<sub>2</sub> 2022 Diffusion Tube Results (µg/m<sup>3</sup>)

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 (0.83)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
MSAQ <sub>1</sub>	533342	123587	25.7	15.3	18.8	14.1	13.5	12.8	15.2	14.9	18.5	16.6	19.9	22.4	17.3	14.4	-	
MSAQ <sub>3</sub>	538690	138759	40.6	Lost	27.2	22.4	23.5	24.1	Lost	22.2	31.2	24.8	28.9	30.4	27.5	22.8	-	
MSAQ <sub>5</sub>	541245	136996	36.0	24.8	22.8	21.1	21.1	21.1	23.1	20.5	28.9	25.1	Lost	29.6	24.9	20.7	-	
MSAQ <sub>9</sub>	525664	125035	10.8	5.2	9.8	7.1	5.2	4.9	6.8	7.0	8.3	6.7	7.5	12.0	7.6	6.3	-	
MSAQ <sub>10</sub>	529911	115489	43.7	28.5	41.7	38.7	32.0	35.0	39.9	44.9	40.1	31.3	33.4	35.3	37.0	30.7	-	
MSAQ <sub>11a</sub>	529930	115481	43.3	37.4	30.9	35.0	34.3	35.9	39.5	39.2	37.2	33.7	36.9	36.0	-	-	-	Triplicate Site with MSAQ11a, MSAQ11b and MSAQ11c - Annual data provided for MSAQ11c only
MSAQ <sub>11b</sub>	529930	115481	43.7	39.4	35.3	34.8	33.7	37.0	39.2	40.5	34.3	33.0	36.7	34.5	-	-	-	Triplicate Site with MSAQ11a, MSAQ11b and MSAQ11c - Annual data provided for MSAQ11c only
MSAQ <sub>11c</sub>	529930	115481	45.7	36.4	34.7	33.4	32.8	36.6	37.9	38.1	37.1	33.3	36.6	35.9	36.7	30.4	-	Triplicate Site with MSAQ11a, MSAQ11b and MSAQ11c - Annual data provided for MSAQ11c only
MSAQ <sub>12</sub>	529999	115488	Lost	29.6	31.5	31.6	26.7	27.8	29.8	Lost	28.7	21.8	26.8	31.8	28.6	23.7	-	
MSAQ <sub>13</sub>	529995	115476	47.5	35.7	40.8	32.5	31.2	29.1	34.7	37.4	36.6	20.2	37.2	37.4	35.0	29.1	-	
MSAQ <sub>14</sub>	529911	115598	33.6	31.7	34.4	25.7	29.2	32.7	35.0	33.8	29.9	37.9	Lost	33.1	32.5	26.9	-	
MSAQ <sub>15</sub>	529930	115600	37.7	32.8	28.6	27.7	29.8	33.8	34.9	33.1	35.7	33.9	36.2	37.1	33.4	27.8	-	
MSAQ <sub>17</sub>	529894	115340	34.8	26.3	27.0	26.4	25.2	27.2	28.0	28.1	30.6	27.2	19.7	24.1	27.1	22.5	-	
MSAQ <sub>18</sub>	529907	115428	25.5	17.5	25.1	18.7	16.1	16.9	19.4	22.1	19.2	19.9	28.4	23.2	21.0	17.4	-	
MSAQ <sub>19</sub>	529779	115557	23.9	13.3	19.3	11.6	10.2	10.3	11.7	12.4	13.6	12.4	17.3	22.8	14.9	12.4	-	
MSAQ <sub>21</sub>	530792	119821	38.7	19.0	29.7	21.5	17.0	17.9	20.9	25.1	25.2	22.1	23.6	31.2	24.3	20.2	-	



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 (0.83)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
MSAQ 22	532160	120069	36.8	27.6	24.2	25.5	18.9	19.8	20.7	25.4	25.4	22.7	29.6	30.9	25.6	21.3	-	
MSAQ 23	529935	115478	40.7	31.9	30.6	28.8	26.0	28.4	28.6	33.7	30.6	28.7	32.1	31.0	30.9	25.7	-	
MSAQ 24	529918	115476	27.8	17.4	25.9	24.0	16.1	16.2	18.3	26.2	23.4	19.0	31.6	26.6	22.7	18.8	-	
MSAQ 25a	531176	138829	27.2	23.8	24.1	22.0	23.3	24.5	26.2	22.3	23.0	25.1	28.8	28.3	-	-	-	Triplicate Site with MSAQ25a, MSAQ25b and MSAQ25c - Annual data provided for MSAQ25c only
MSAQ 25b	531176	138829	29.0	25.4	25.1	21.4	24.5	24.0	26.1	24.4	21.7	26.9	27.7	26.8	-	-	-	Triplicate Site with MSAQ25a, MSAQ25b and MSAQ25c - Annual data provided for MSAQ25c only
MSAQ 25c	531176	138829	27.4	25.0	24.5	21.6	22.5	23.3	24.9	24.7	20.9	25.3	26.7	26.7	24.9	20.6	-	Triplicate Site with MSAQ25a, MSAQ25b and MSAQ25c - Annual data provided for MSAQ25c only
MSAQ 26	528289	116395	29.5	18.8	19.5	20.1	16.9	17.3	18.0	18.5	21.3	18.0	20.7	24.1	20.2	16.8	-	
MSAQ 27	526870	120238	22.1	14.0	24.6	19.5	14.2	14.1	17.5	20.8	19.2	16.7	18.2	21.9	18.6	15.4	-	
MSAQ 28	533342	122625	37.3	24.4	28.2	23.4	23.0	24.7	25.3	26.2	29.0	30.7	41.5	39.9	29.5	24.5	-	
MSAQ 29	539040	138452	42.6	38.7	35.4	33.8	35.2	37.4	42.0	38.6	34.3	36.8	41.3	40.1	38.0	31.6	-	
MSAQ 31	537680	139009	21.1	Lost	17.6	12.8	8.0	7.9	10.3	Lost	13.5	11.4	12.7	20.7	13.6	11.3	-	
MSAQ 32	530791	120295	18.0	13.6	31.9	11.7	9.9	10.4	12.0	13.3	Vandalised	11.8	15.6	Lost	14.8	12.3	-	
MSAQ 34	531144	118862	Lost	21.7	29.2	21.6	17.8	16.9	21.1	23.9	23.4	21.6	24.1	27.0	22.6	18.7	-	
MSAQ 35	528904	114415	10.9	Spurious result	9.4	Lost	Lost	5.1	6.4	6.7	7.0	7.0	8.2	12.5	8.1	6.8	-	
MSAQ 36	537612	139405	50.1	35.3	41.8	35.1	35.5	37.7	43.8	44.0	41.9	37.6	41.3	40.4	40.4	33.5	-	
MSAQ 37	533932	138472	48.0	34.9	Lost	32.2	28.4	34.7	37.7	37.6	41.6	37.2	39.4	39.0	37.3	31.0	-	
MSAQ 38	539004	138481	33.5	22.3	28.3	20.9	21.7	20.7	25.0	23.6	26.6	25.3	26.8	29.3	25.3	21.0	-	
MSAQ 39	539095	138404	40.5	24.1	31.6	25.9	21.5	25.6	32.1	27.6	40.1	31.0	32.2	33.8	30.5	25.3	-	
MSAQ 40	532892	118062	22.5	13.0	18.0	14.4	10.7	11.1	13.4	15.5	15.8	13.6	13.9	19.2	15.1	12.5	-	

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 (0.83)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
MSAQ 41	531745	118753	33.2	21.1	19.5	19.4	17.8	16.6	18.9	22.2	23.7	Spurious result	22.1	27.0	22.0	18.2	-	
MSAQ 42	534785	129560	32.5	22.3	26.3	23.8	18.8	18.1	21.9	23.6	28.8	22.4	27.4	32.6	24.9	20.6	-	
MSAQ 43a	539090	138412									36.2	28.6	31.6	35.8	-	-	-	Triplicate Site with MSAQ43a, MSAQ43b and MSAQ43c - Annual data provided for MSAQ43c only
MSAQ 43b	539090	138412									37.1	31.0	30.6	33.2	-	-	-	Triplicate Site with MSAQ43a, MSAQ43b and MSAQ43c - Annual data provided for MSAQ43c only
MSAQ 43c	539090	138412									35.7	28.5	30.0	33.0	32.6	27.4	-	Triplicate Site with MSAQ43a, MSAQ43b and MSAQ43c - Annual data provided for MSAQ43c only

- All erroneous data has been removed from the NO<sub>2</sub> 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.
- Mid Sussex confirm that all 2022 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

**Notes:**

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

NO<sub>2</sub> annual means exceeding 60µg/m<sup>3</sup>, indicating a potential exceedance of the NO<sub>2</sub> 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 Mid Sussex During 2022**

Mid Sussex District Council has not identified any new sources relating to air quality within the reporting year of 2022.

### **Additional Air Quality Works Undertaken by Mid Sussex During 2022**

Mid Sussex has not completed any additional works within the reporting year of 2022.

### **QA/QC of Diffusion Tube Monitoring**

The tubes are supplied by Gradko laboratories and are prepared using 20% TEA in water.

Results for the nitrogen dioxide diffusion colocation studies available at [Precision and Accuracy | LAQM \(defra.gov.uk\)](#) show Gradko laboratory had good precision for 2022.

The 2022 Diffusion Tube Monitoring Calendar was adhered to.

## Diffusion Tube Annualisation

**Table C.1 – Annualisation Summary (concentrations presented in  $\mu\text{g}/\text{m}^3$ )**

### Diffusion tubes annualisation ( $\text{NO}_2$ ) MSAQ43

Site ID	Annualisation factor Site 1 Lullington Heath West Sussex (AURN Rural)	Annualisation factor Site 2 Brighton Preston Park East Sussex (AURN Urban Background)	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
MSAQ 43a	1.0411	0.9800	1.0106	-	-	<i>Triplicate Site with MSAQ43a, MSAQ43b and MSAQ43c - Annual data provided for MSAQ43c only</i>
MSAQ 43b	1.0411	0.9800	1.0106	-	-	<i>Triplicate Site with MSAQ43a, MSAQ43b and MSAQ43c - Annual data provided for MSAQ43c only</i>
MSAQ 43c	1.0411	0.9800	1.0106	32.6	33.0	<i>Triplicate Site with MSAQ43a, MSAQ43b and MSAQ43c - Annual data provided for MSAQ43c only</i>

### Continuous monitor annualisation ( $\text{NO}_2$ ) MSAQ43

Site ID	Annualisation factor Site 1 Lullington Heath West Sussex (AURN Rural)	Annualisation factor Site 2 Brighton Preston Park East Sussex (AURN Urban Background)	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
MSAQ 43	1.09	1.01	1.05	23.9	25.1	

Continuous monitor annualisation (PM<sub>10</sub>) MSAQ43

Site ID	Annualisation factor Site 1 Lullington Heath West Sussex (AURN Rural)	Annualisation factor Site 2 Holly Place Eastbourne East Sussex (AURN Urban Background)	Annualisation factor Site 3 Buckingham Gate Gatwick Airport Crawley East Sussex (AURN Urban Background)	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
MSAQ 43	0.9821	1.1318	1.0455	1.0531	18.3	19.3	

**Diffusion Tube Bias Adjustment Factors**

The diffusion tube data presented within the 2022 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<sub>x</sub>/NO<sub>2</sub> continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

A continuous monitor was installed in August 2022 at London Road East Grinstead (MSAQ43).

Using the Diffusion Tube Data Processing Tool v3.0 NO<sub>2</sub> hourly concentrations (µg/m<sup>3</sup>) for data recorded from 1 September 2022 to 31 December 2022 was entered into the local bias adjustment spreadsheet. The resulting calculation gave a local bias of 0.75.

Local Bias Adjustment Outputs - Information Only							
Go back to STEP 3 - Bias Adjustment to define factor							
	STEP 3a Local Bias Adjustment Input 1	STEP 3b Local Bias Adjustment Input 2	STEP 3c Local Bias Adjustment Input 3	STEP 3d Local Bias Adjustment Input 4	STEP 3e Local Bias Adjustment Input 5	STEP 3f Local Bias Adjustment Input 6	STEP 3g Local Bias Adjustment Input 7
Periods used to calculate bias	4						
Bias Adjustment Factor A	0.75 (0.64 - 0.92)						
Diffusion Tube Bias B	33% (8% - 57%)						
Diffusion Tube Mean (µg/m <sup>3</sup> )	32.6						
Mean CV (Precision)	3.5%						
Automatic Mean (µg/m <sup>3</sup> )	24.6						
Data Capture	95%						
Adjusted Tube Mean (µg/m <sup>3</sup> )	24 (21 - 30)						
Overall Diffusion Tube Precision	Good Overall Precision						
Overall Continuous Monitor Data Capture	Poor Overall Data Capture						
Local Bias Adjustment Factor	0.75	Warning - One or more Co-location studies has Poor Overall Continuous Monitor Data Capture (i.e. <90%). Local Bias Adjustment Factor should be treated with caution.					

However, as the overall data capture for the continuous monitor was poor, it was decided to use a national bias adjustment factor.

Mid Sussex District Council have applied a national bias adjustment factor of 0.83 from [Database Diffusion Tube Bias Factors v03\\_23](#) for Gradko laboratory to the 2022 monitoring data.

There were 27 studies applicable to this factor.

A summary of bias adjustment factors used by Mid Sussex District Council over the past five years is presented in Table C.2.

**Table C.2 – Bias Adjustment Factor**

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2022	National	V03_23	0.83
2021	National	v03_22	0.84
2020	National	v03_21	0.91
2019	National	v03_20	0.93
2018	National	V06_19	0.92

## QA/QC of Automatic Monitoring

### PM<sub>10</sub> and PM<sub>2.5</sub> Monitoring Adjustment

The data is corrected by Bureau Veritas using a factor of 1.3 as there are no viable TEOM (tapered element oscillating microbalances) FDMS (filter dynamics measurement system) type units in the region to allow a VCM (volatile correction model) correction.

### Automatic Monitoring Annualisation

An automatic continuous monitor was installed at London Road East Grinstead in August 2022 (MSAQ43)

The monitor measures both NO<sub>2</sub> and PM<sub>10</sub> levels. As the data capture over the monitoring period was only 36.5% for NO<sub>2</sub> and 38.5% for PM<sub>10</sub> the results were annualised as detailed in [Technical Guidance LAQM.TG22](#)

The results are shown above in table C.1

### NO<sub>2</sub> Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO<sub>2</sub> concentration at the nearest location relevant for exposure can be estimated using the NO<sub>2</sub> fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO<sub>2</sub> concentrations corrected for distance are presented in Table B.1.

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



Figure D.1 – Map of Non-Automatic Monitoring Sites in Mid Sussex

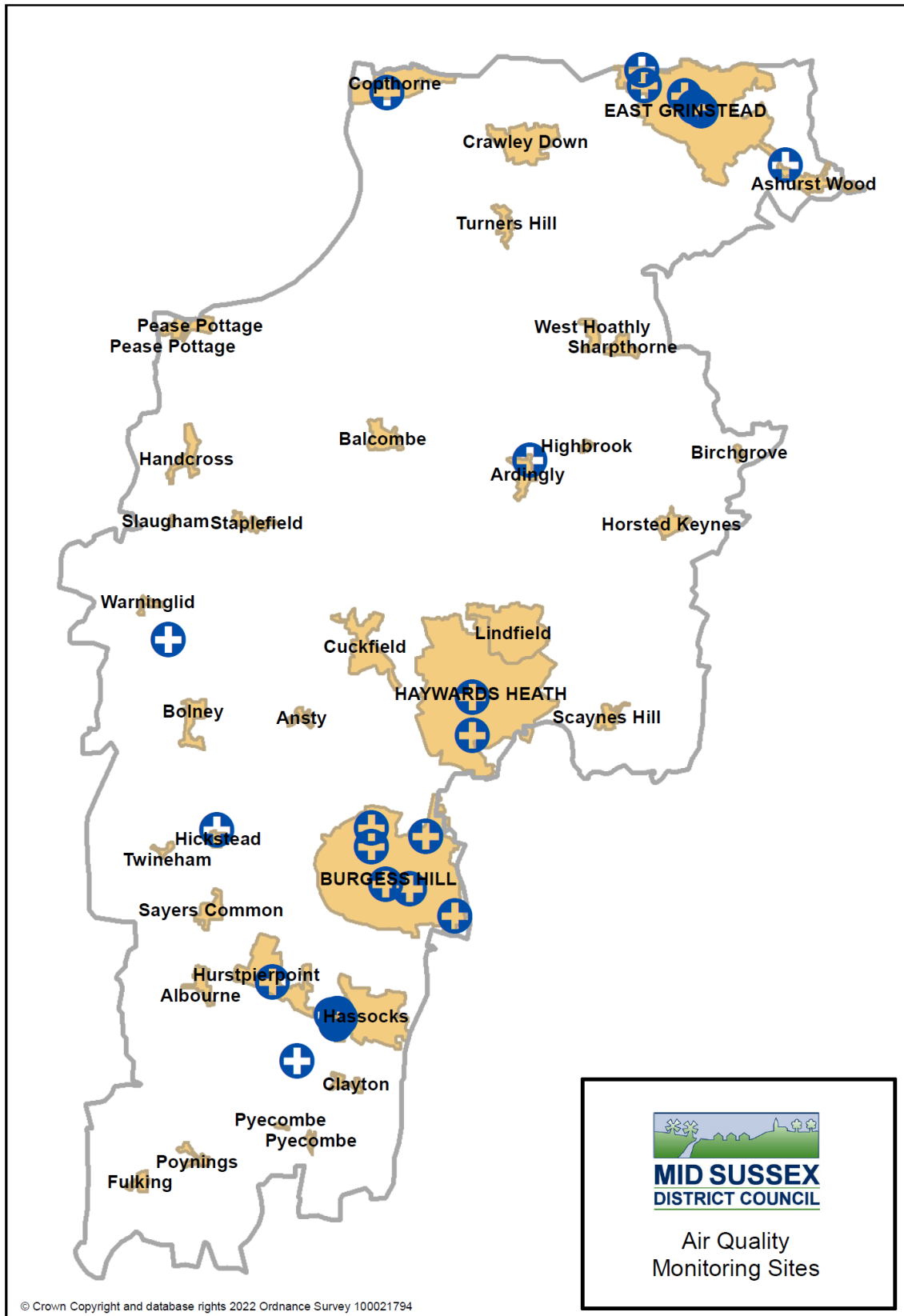


Figure D. 2 – MSAQ1 South Road, Haywards Heath

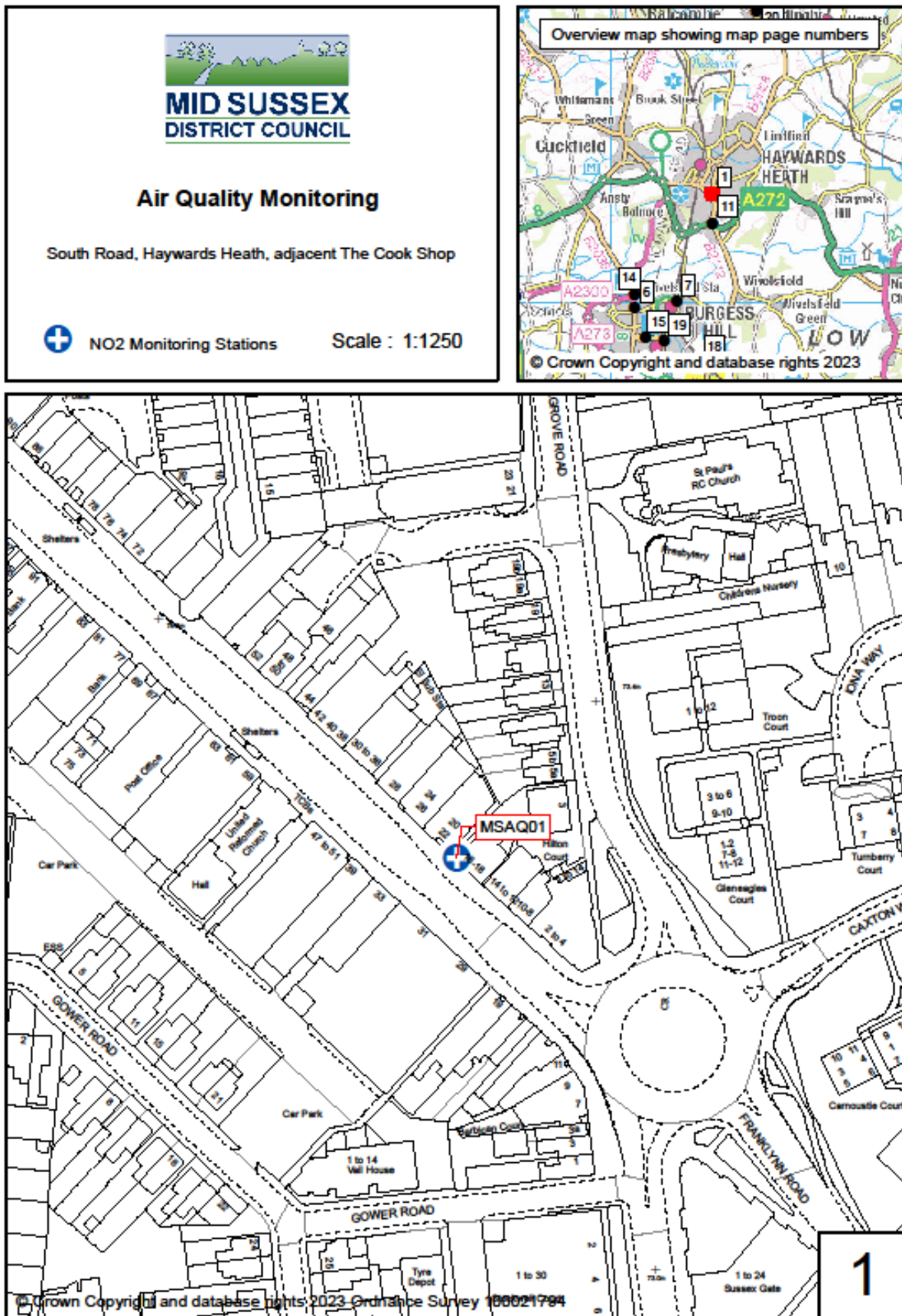


Figure D 3 – MSAQ3 London Road, East Grinstead

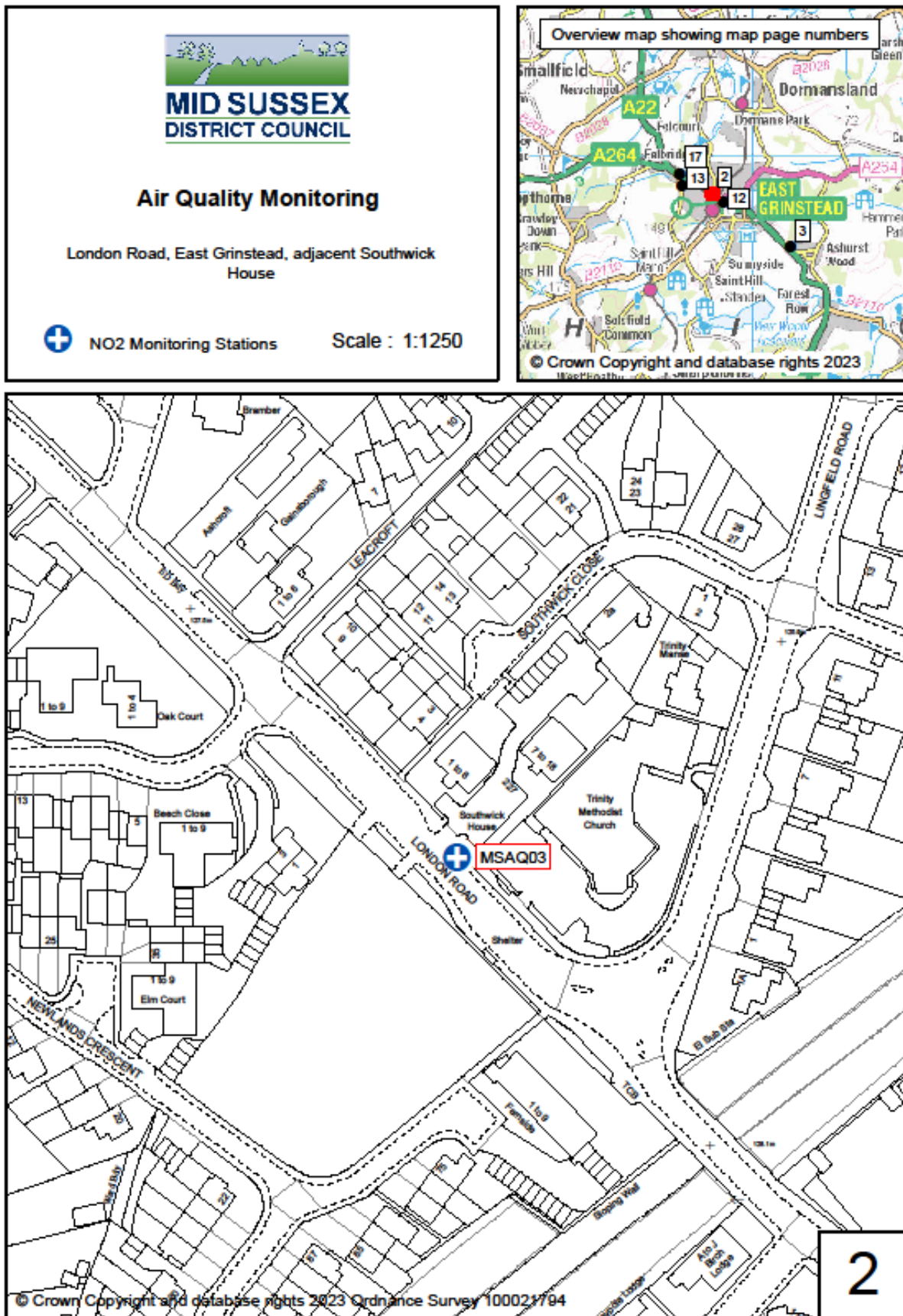


Figure D4 – MSAQ5 Lewes Road, East Grinstead

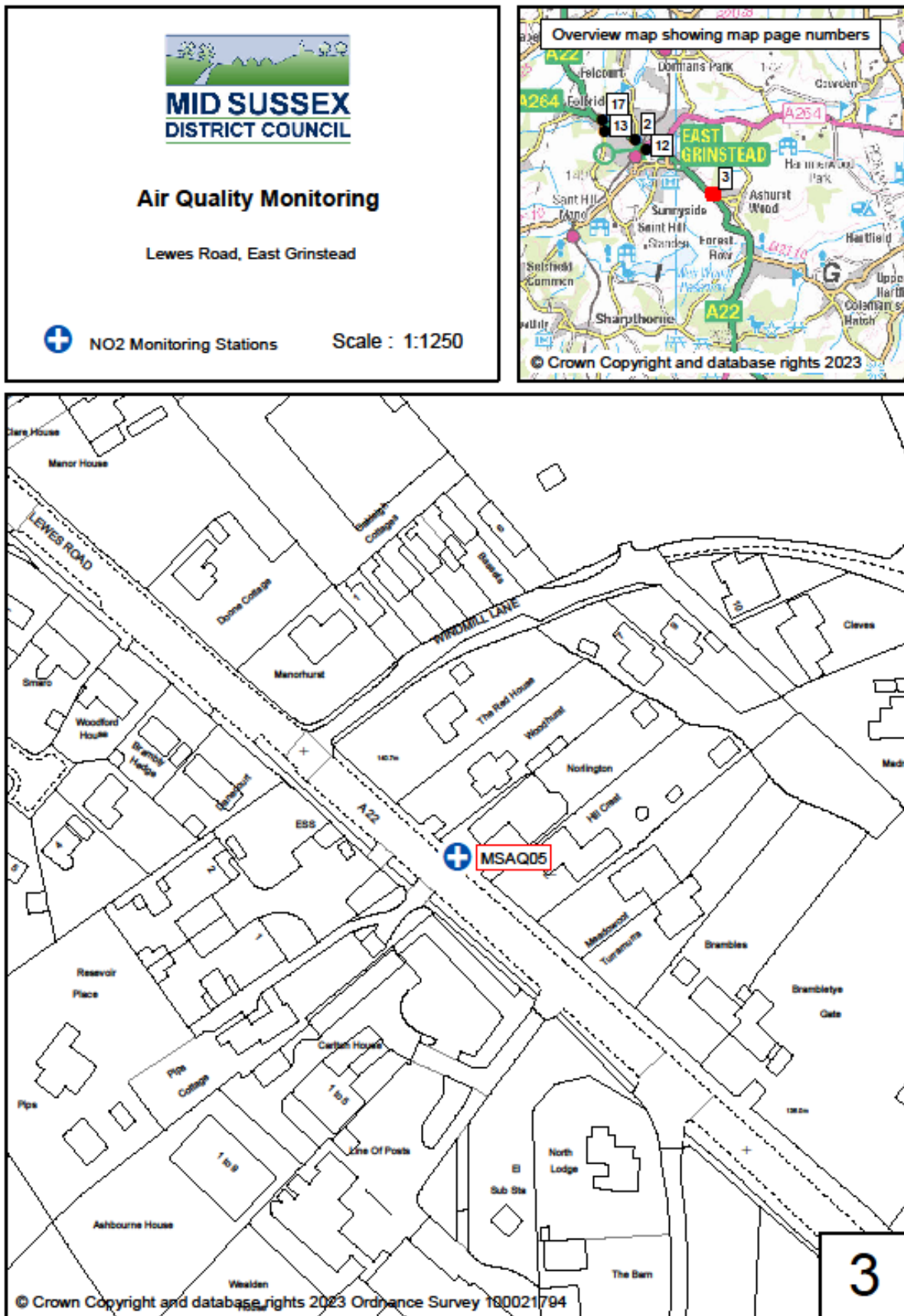
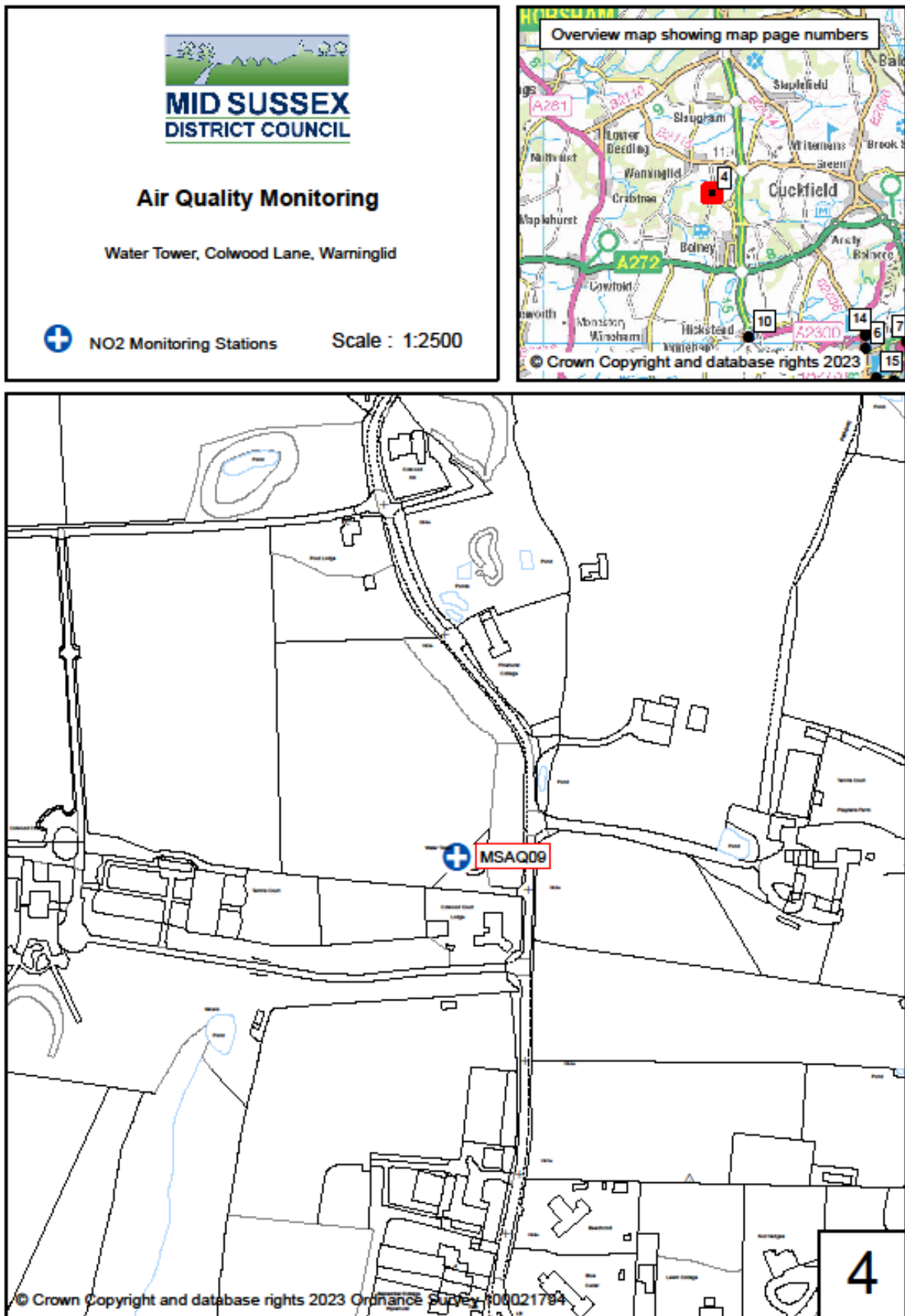


Figure D5 – MSAQ9 Water Tower, Colwood Lane, Warninglid



**Figure D6 – MSAQ10 to MSAQ19 and MSAQ23 and MSAQ24 Stonepound Crossroads, Keymer Road, Hassocks**

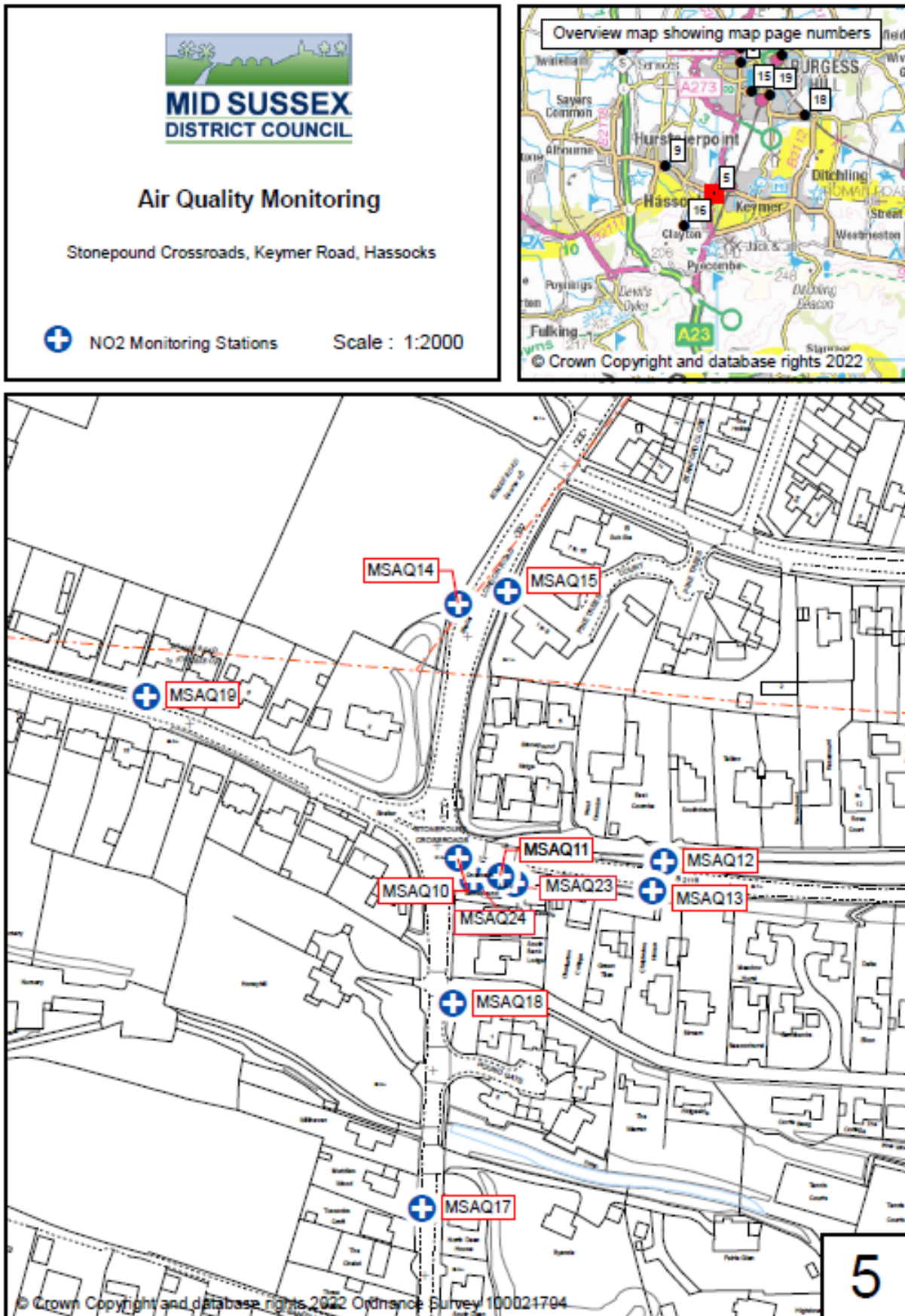


Figure D7 – MSAQ21 86-88 London Road, Burgess Hill

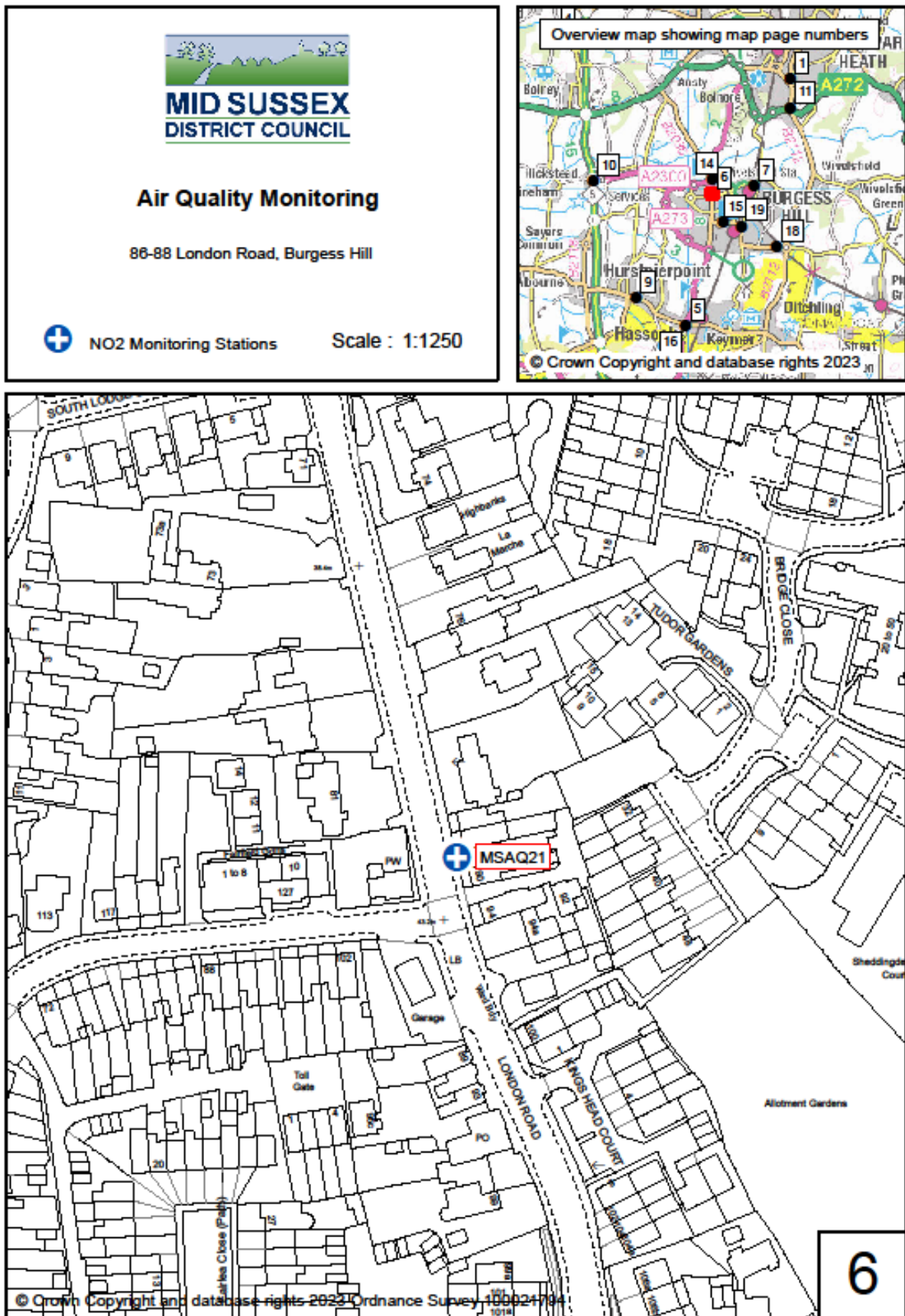


Figure D8 – MSAQ22 Leylands Road, Burgess Hill

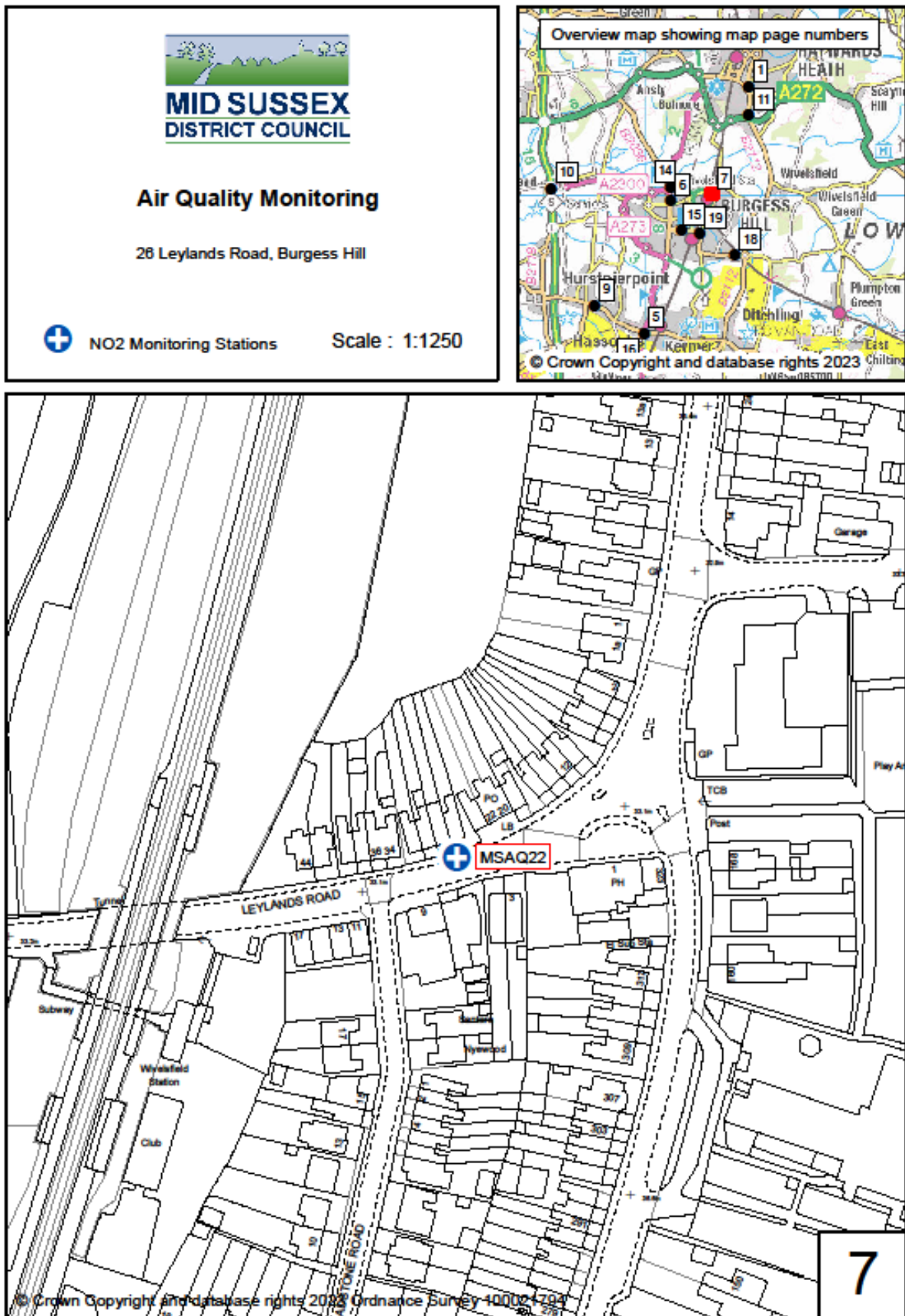




Figure D9 – MSAQ25 Erica Way, Copthorne

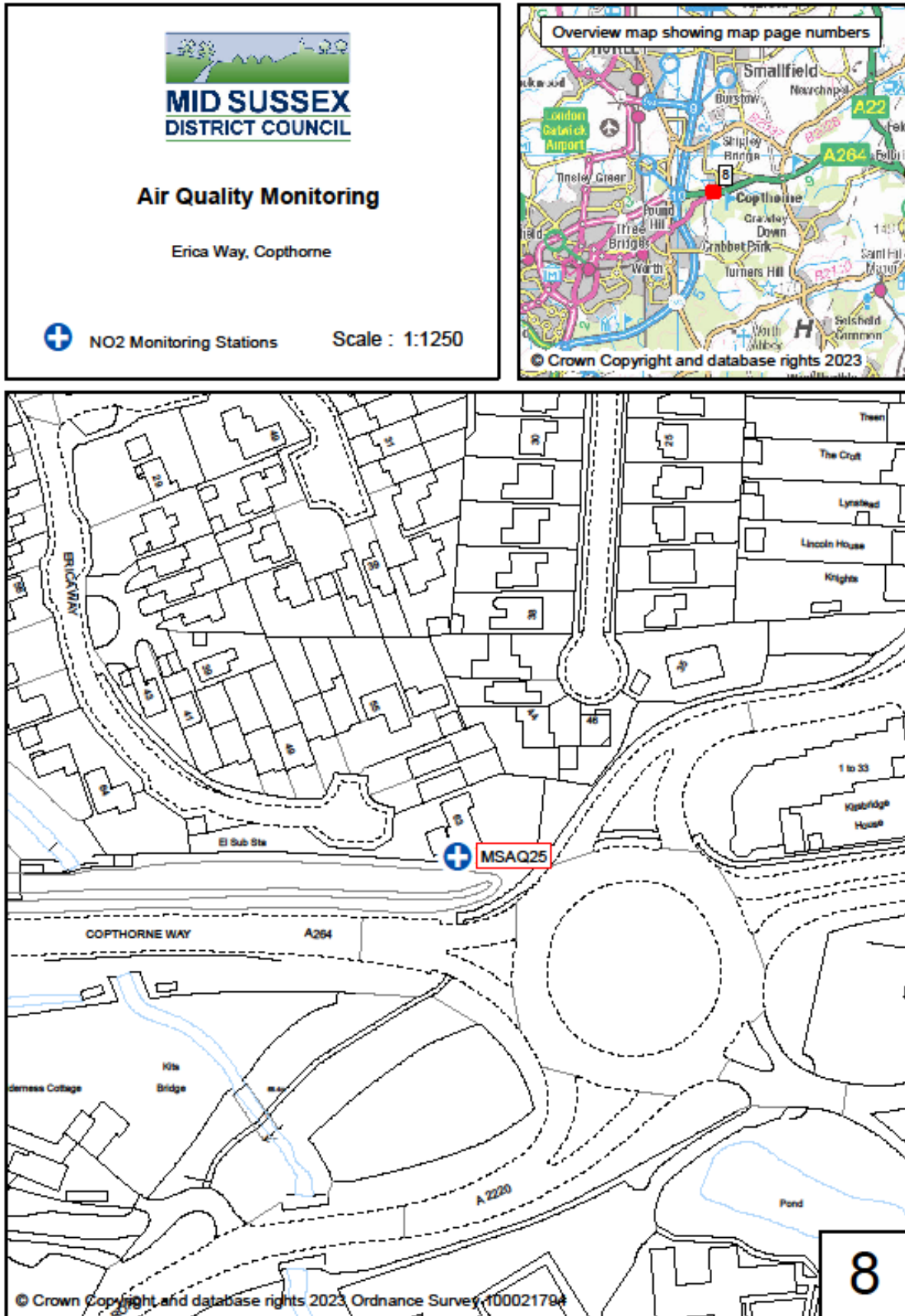


Figure D10 – MSAQ26 Lamp Post 14, High Street, Hurstpierpoint

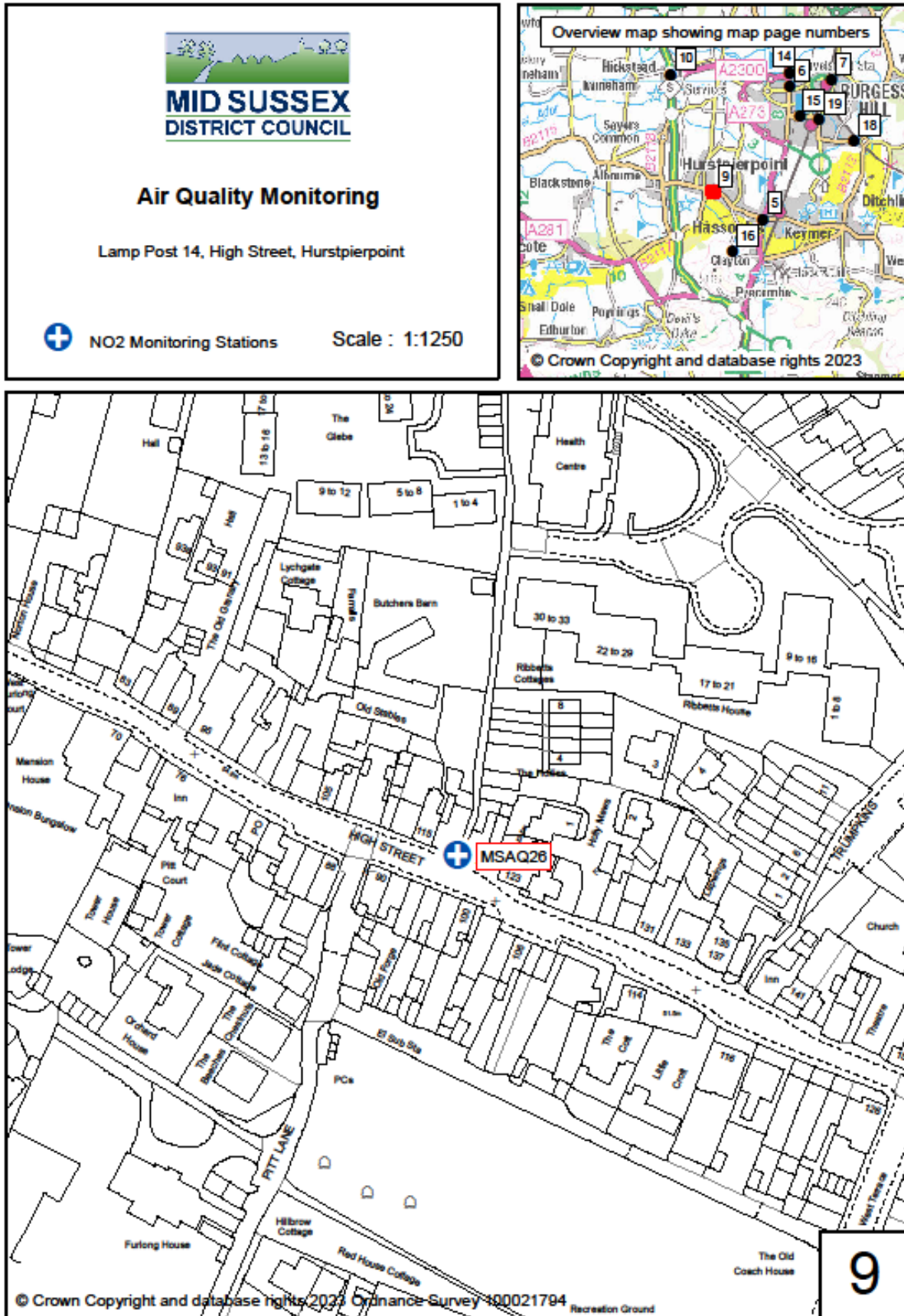


Figure D11 – MSAQ27 Telegraph pole, London Road, Hickstead

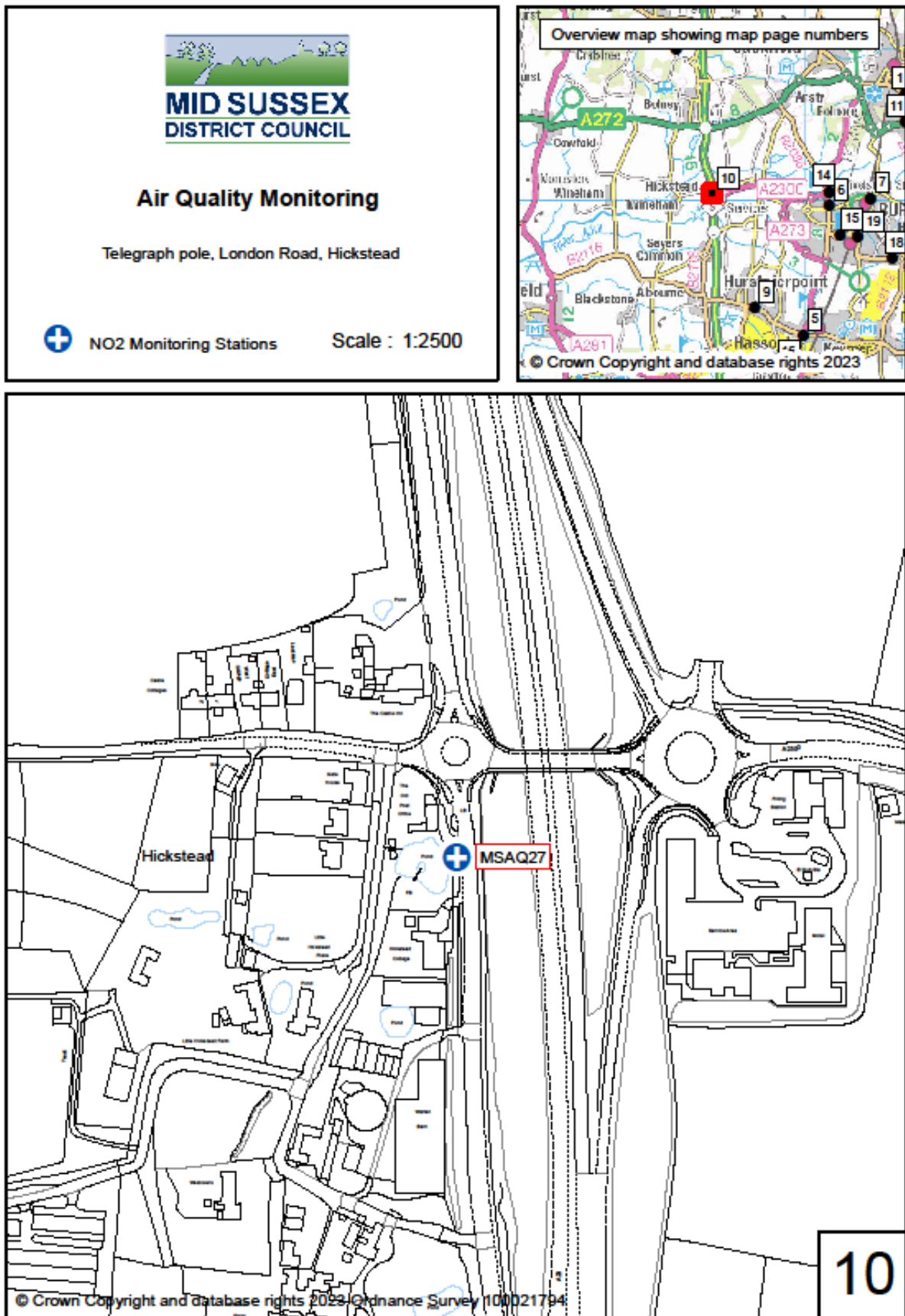
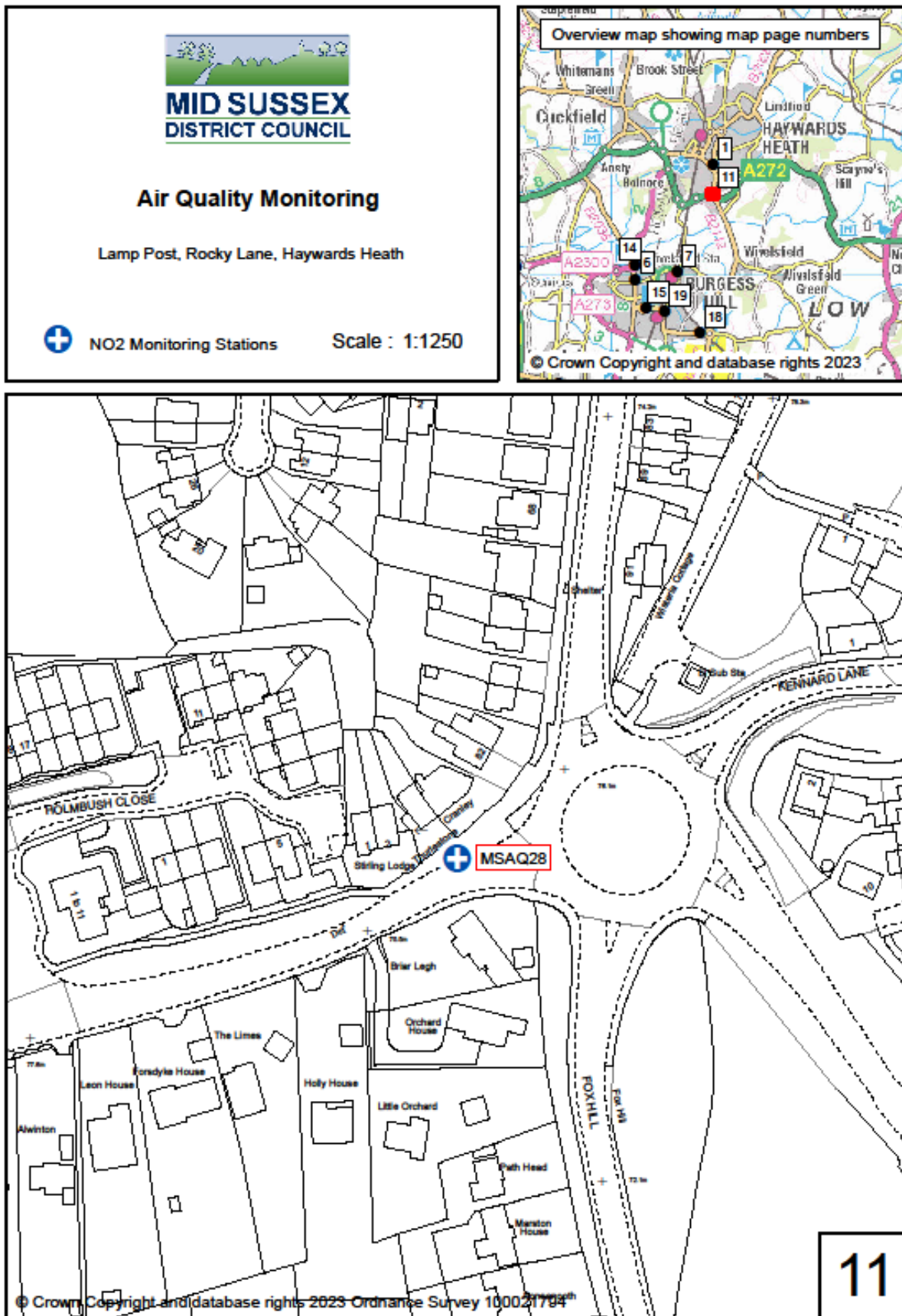


Figure D12 – MSAQ28 Lamp Post, Rocky Lane, Haywards Heath



**Figure D13 – MSAQ29, MSAQ37, MSAQ38, MSAQ39, and MSAQ43 London Road, East Grinstead**

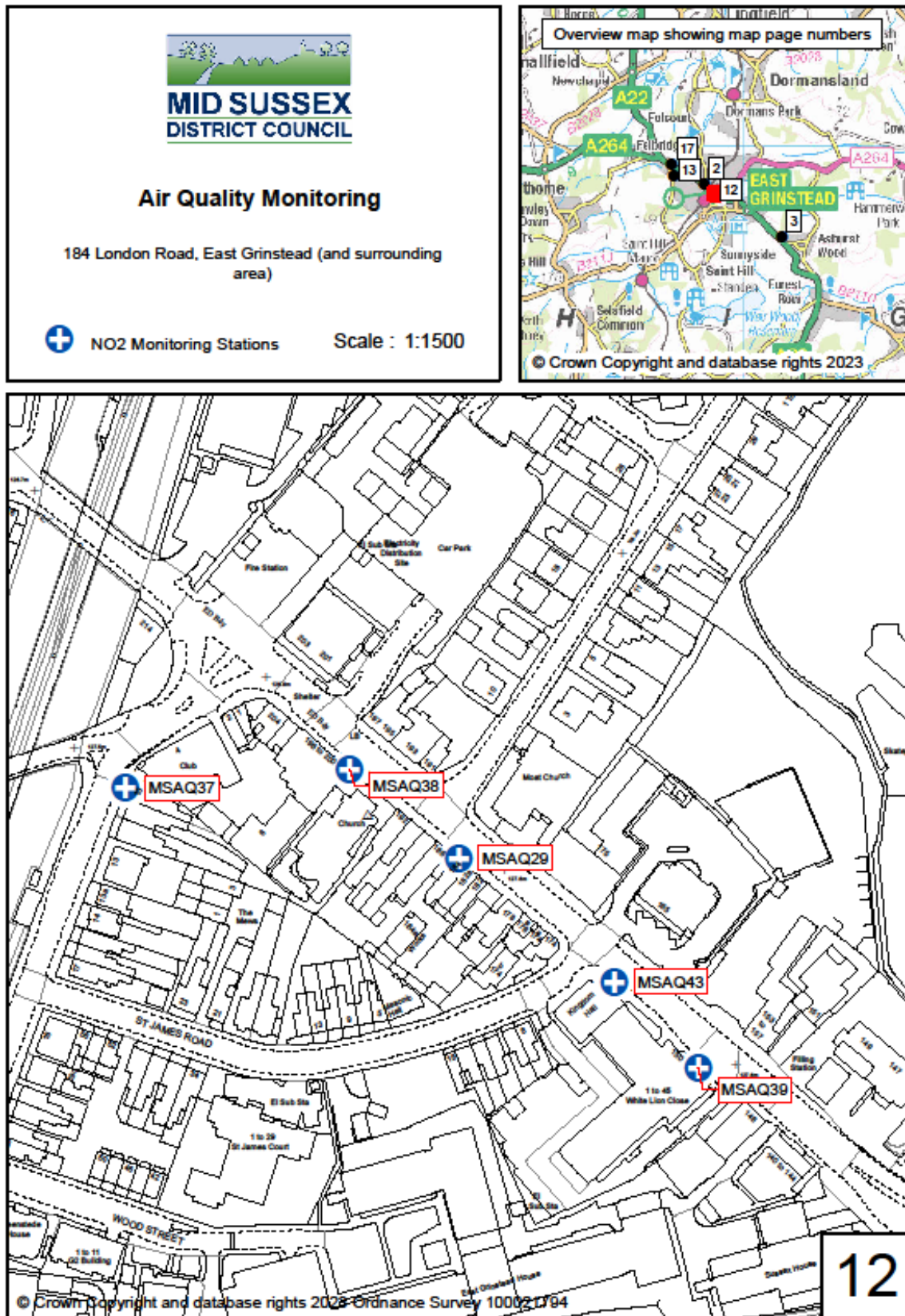


Figure D14 – MSAQ31 Traffic sign outside Imberhorne School, Imberhorne Lane, East Grinstead

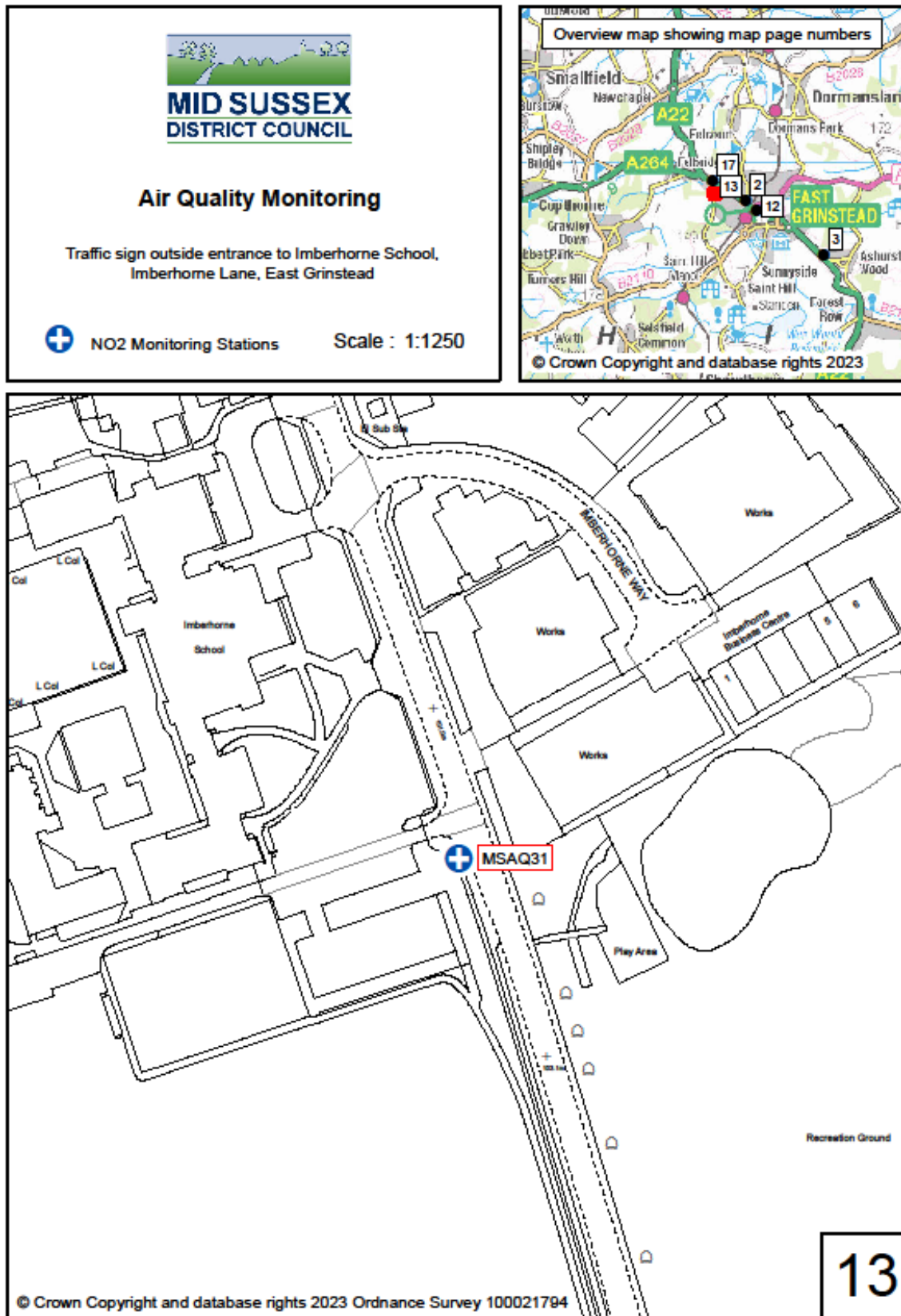


Figure D15 – MSAQ32 Lamp Post, Woodcroft, Burgess Hill

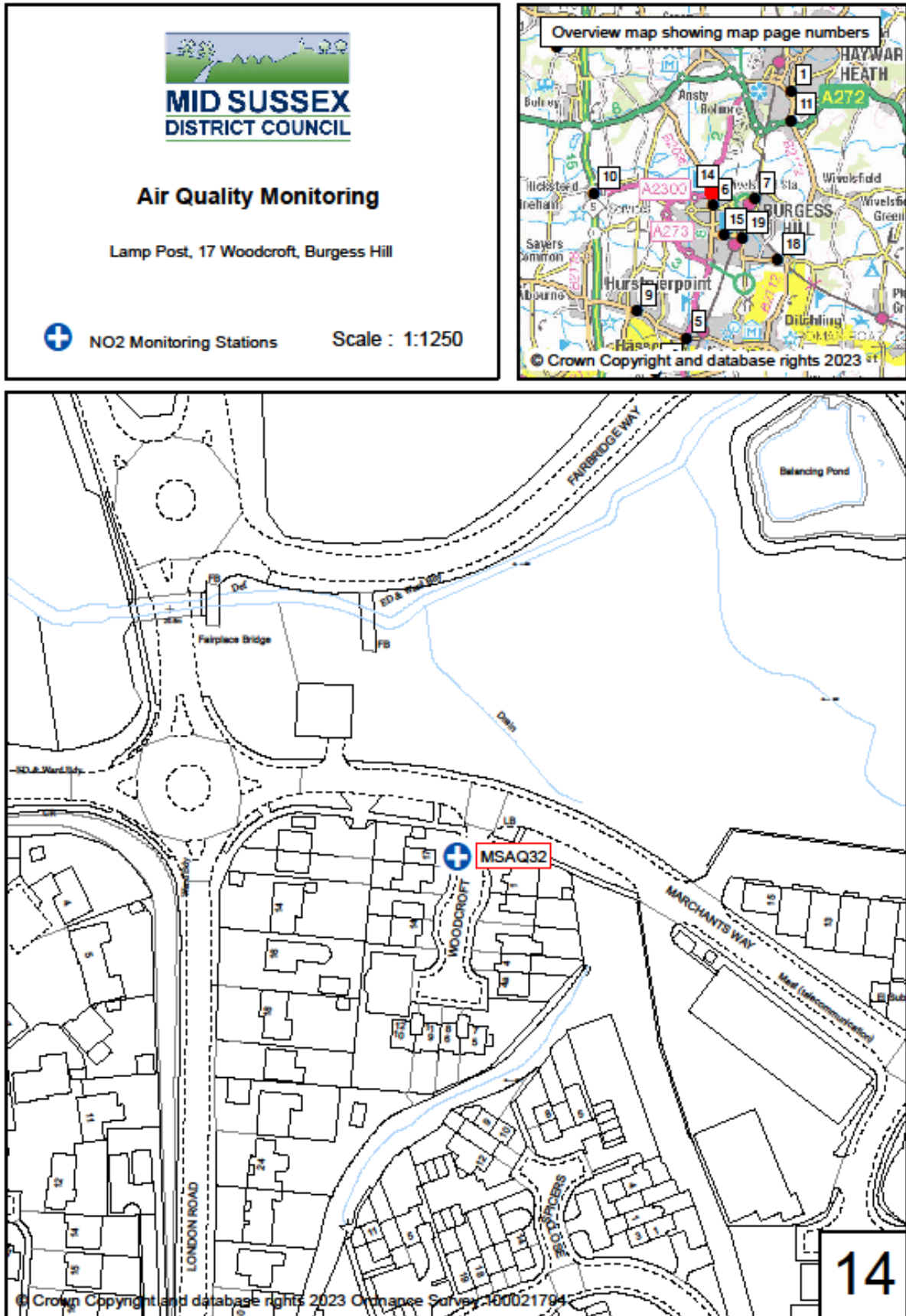


Figure D16 – MSAQ34 Lamp Post, 11 Queen Elizabeth Avenue, Burgess Hill

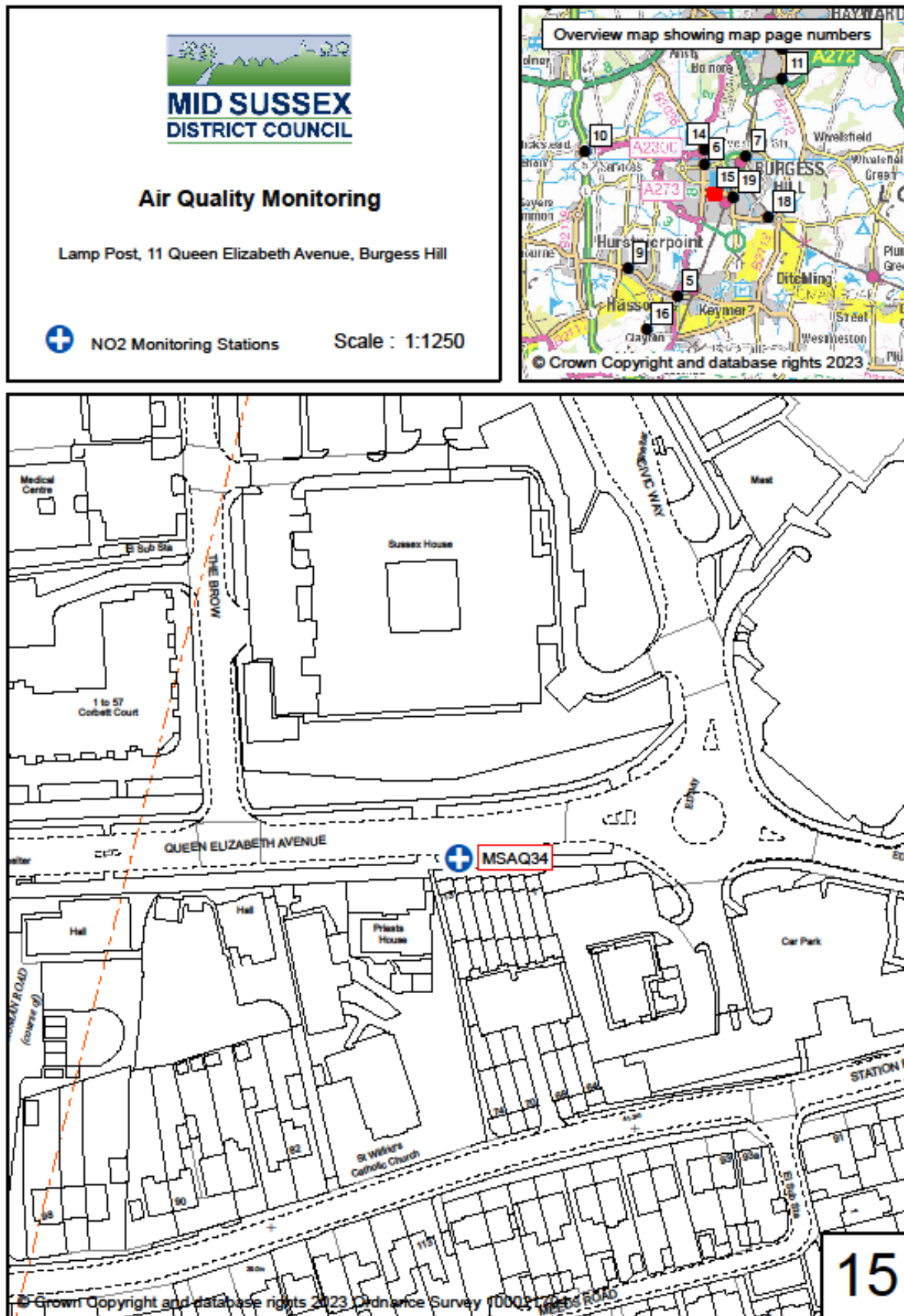




Figure D17 – MSAQ35 New Way Lane, Hurstpierpoint

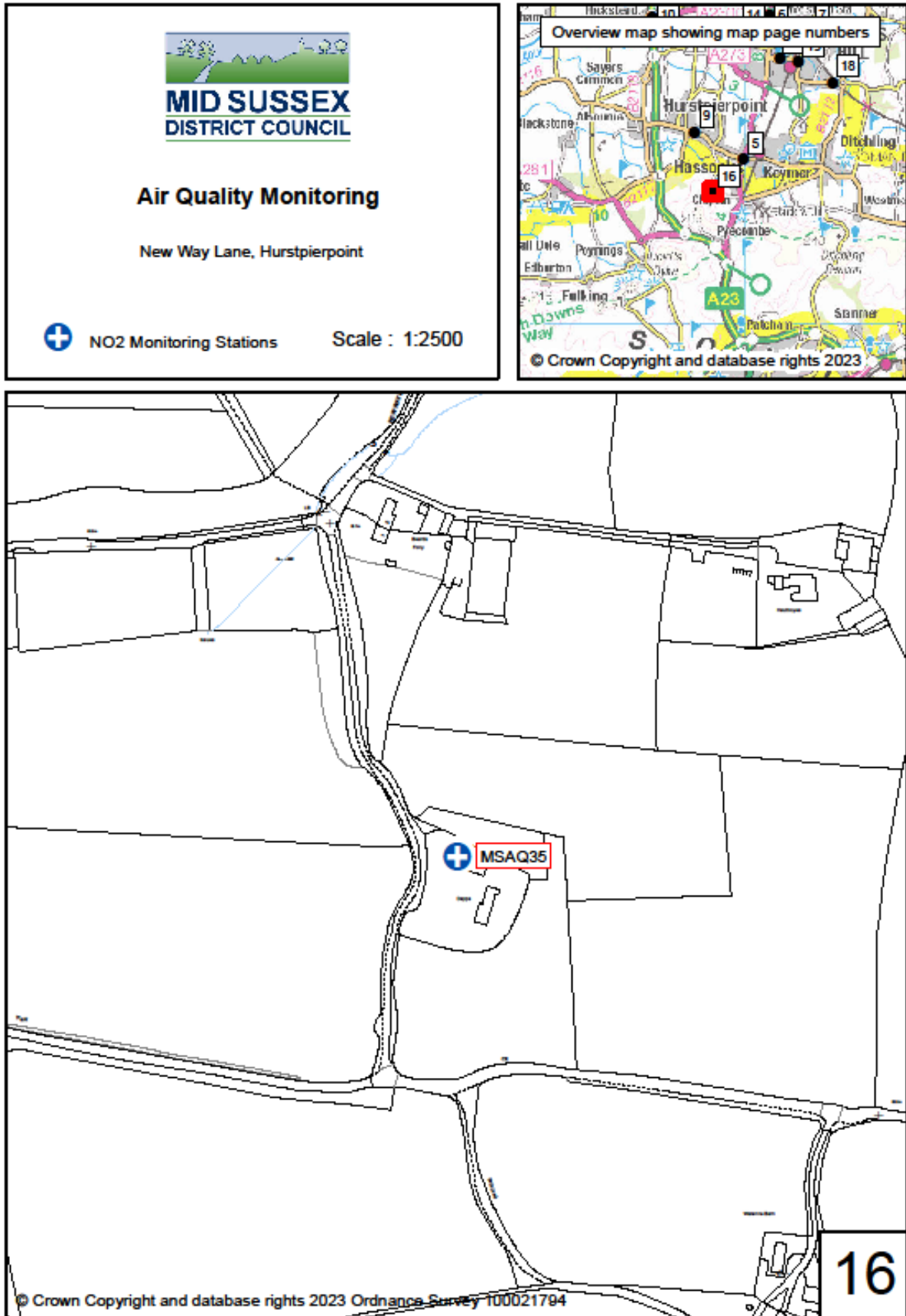


Figure D18 – MSAQ36 Lamp Post outside Bridgeway, London Road, East Grinstead

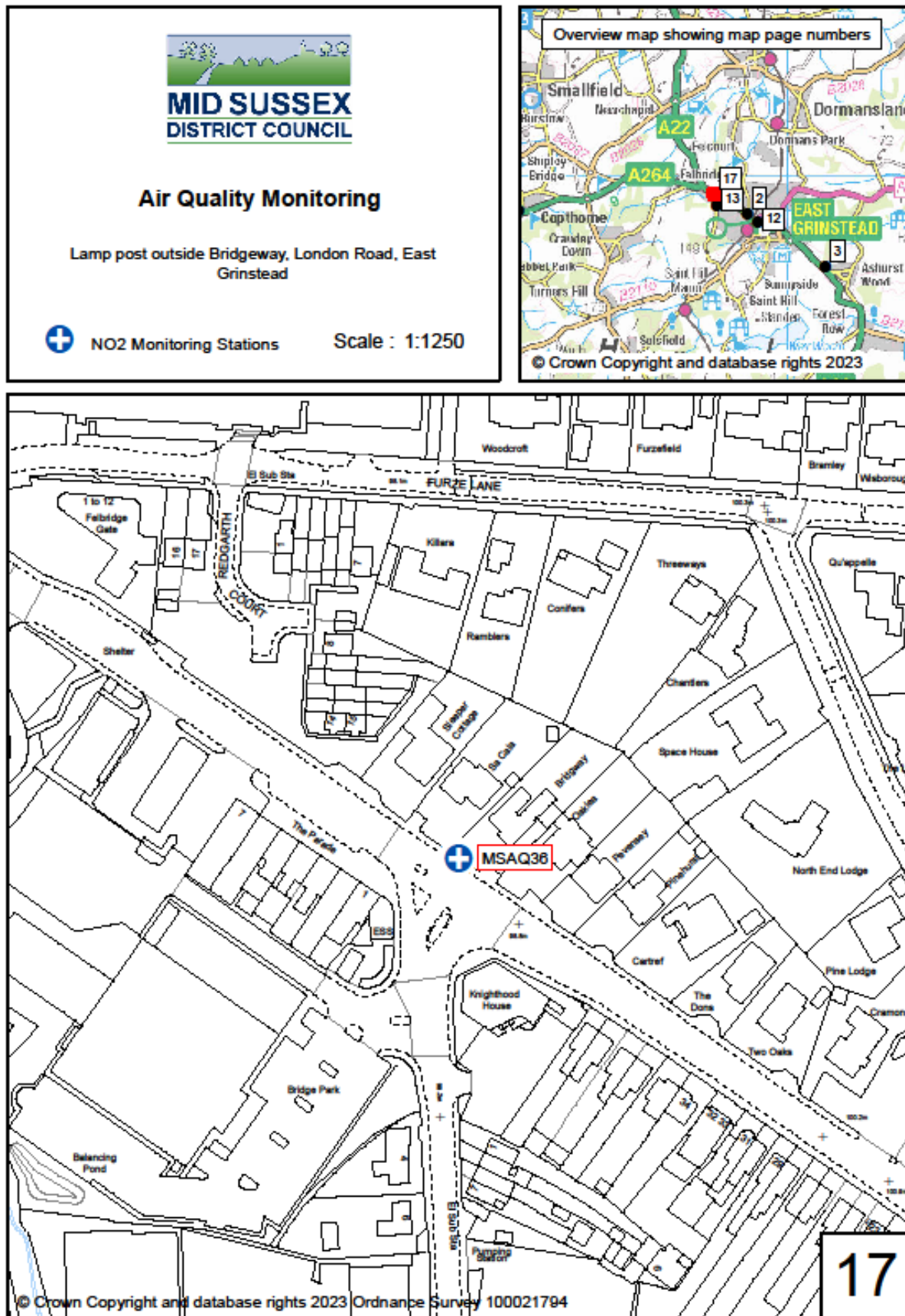


Figure D19 – MSAQ40 Telegraph pole, adjacent Stroudley Drive, Burgess Hill

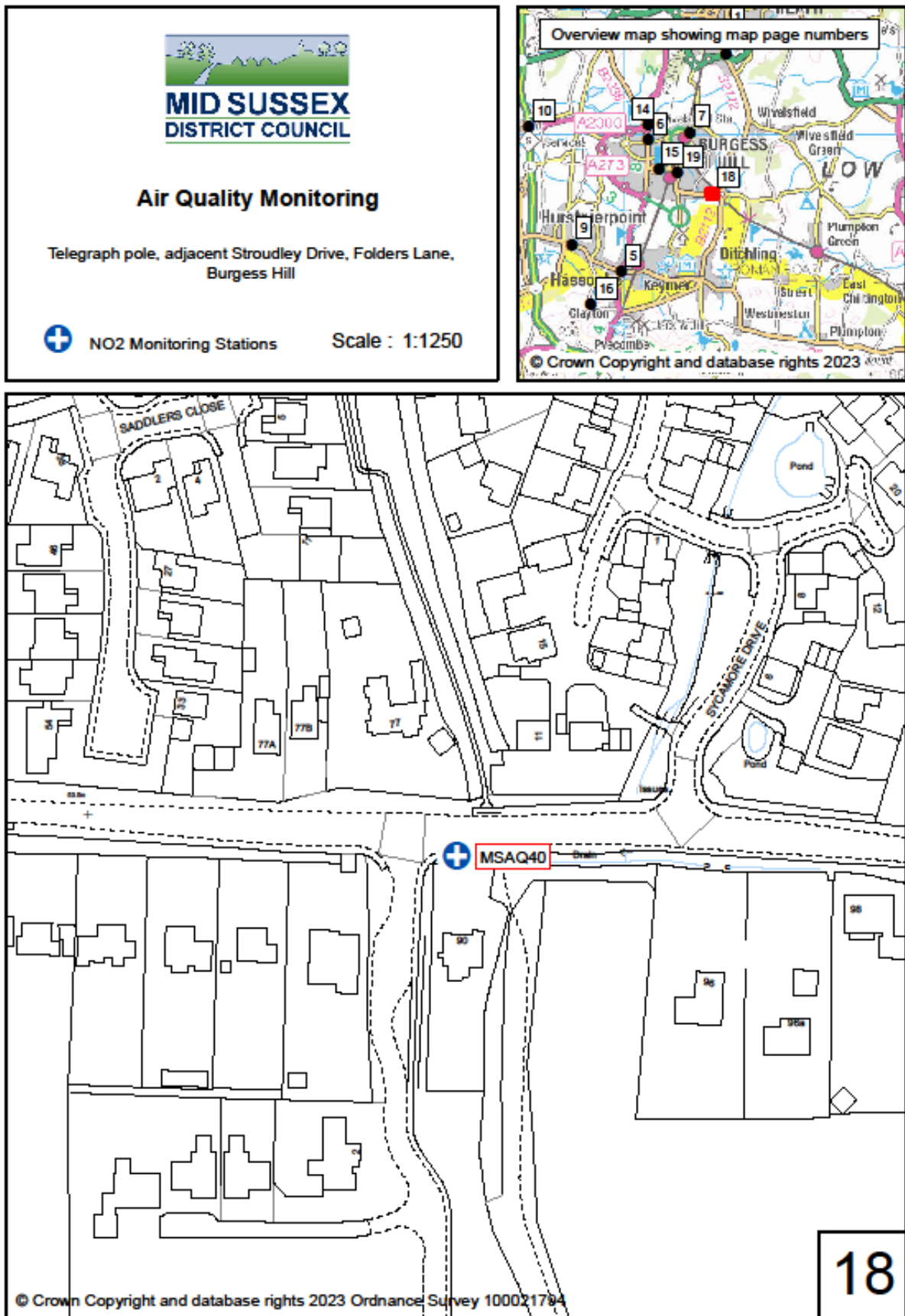


Figure D20 – MSAQ41 Prospect House, Junction Road, Burgess Hill

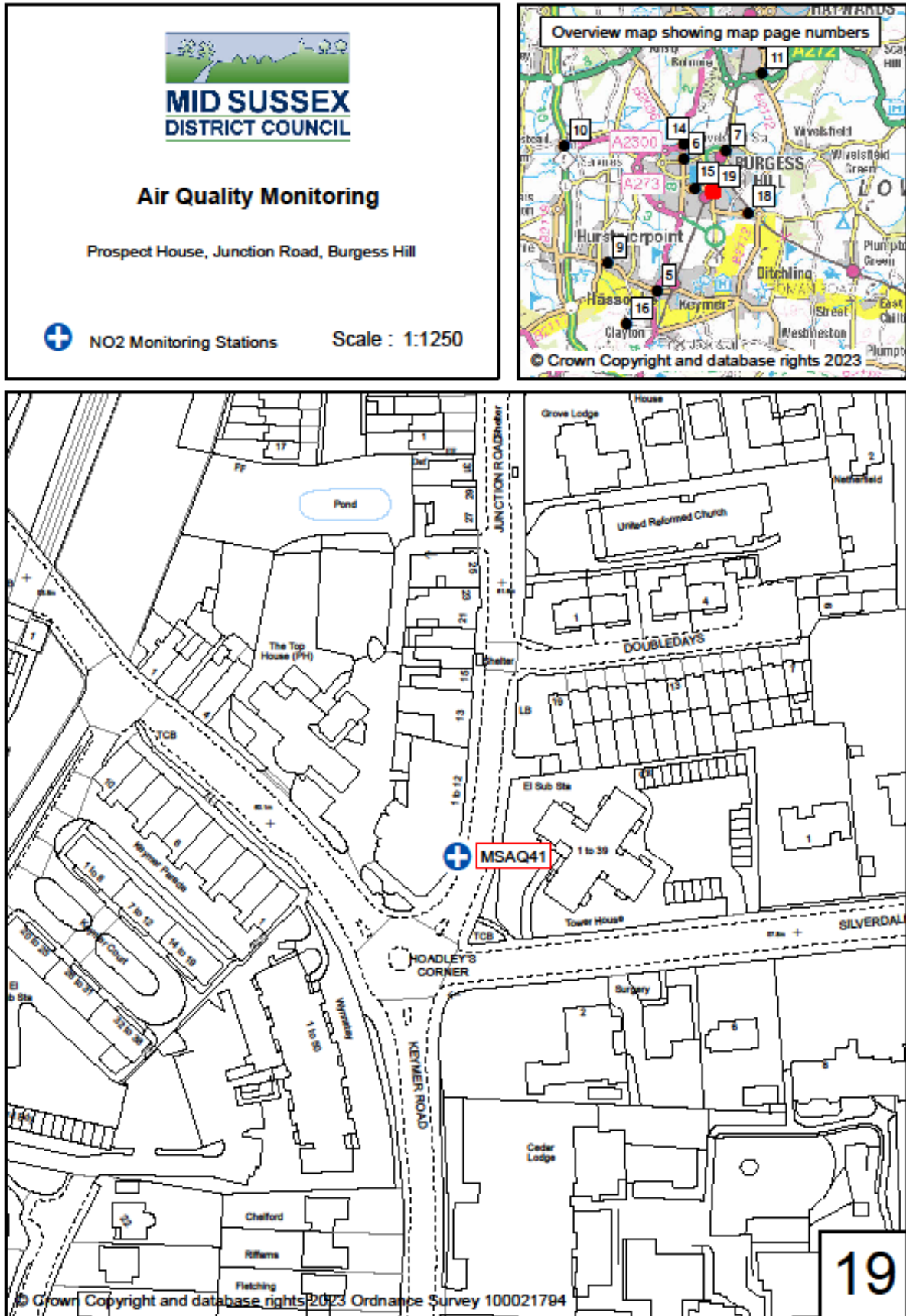


Figure D21 – MSAQ42 Lamp Post adjacent 20 High Street, Ardingly

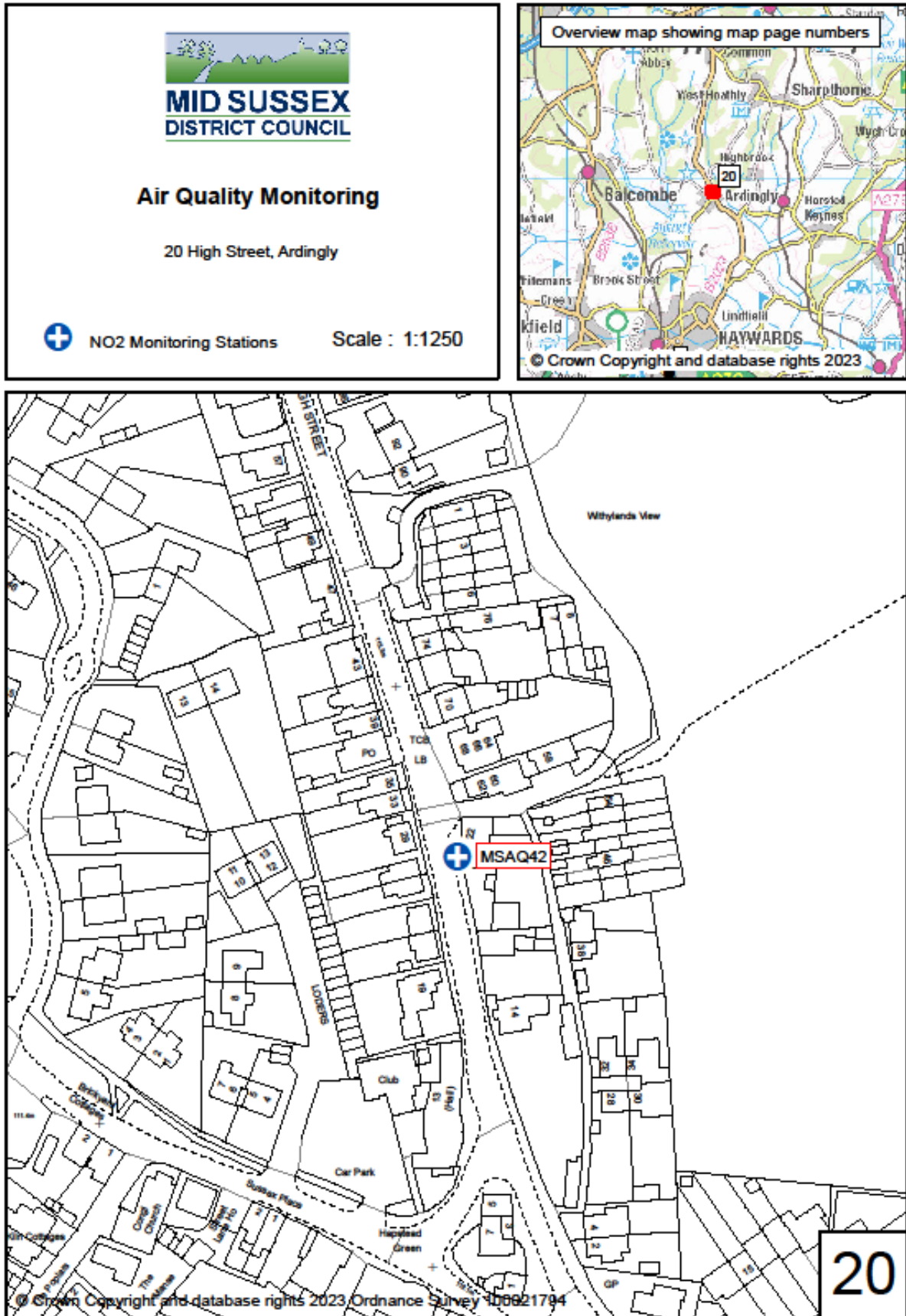
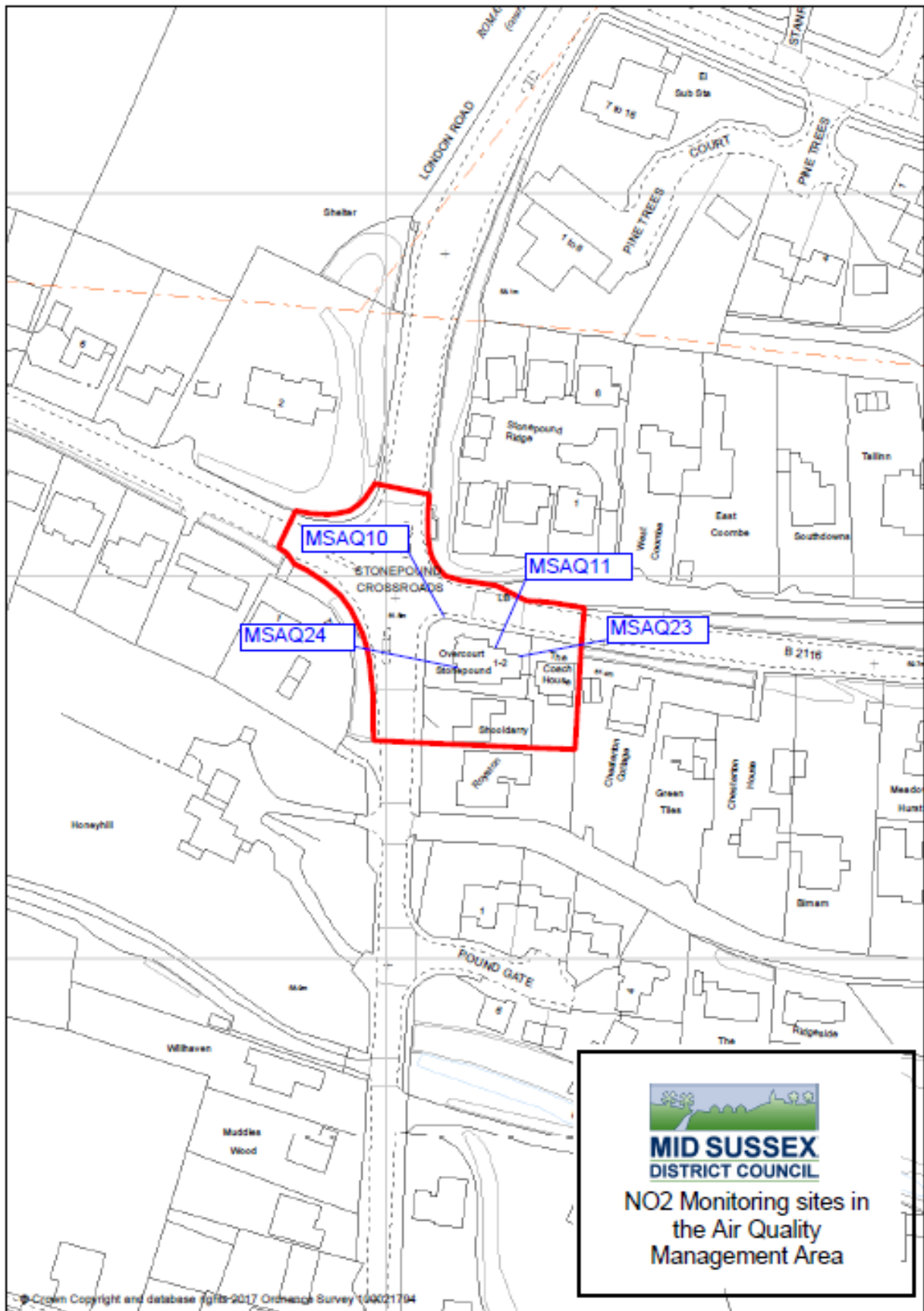


Figure D22 – NO<sub>2</sub> Monitoring sites within AQMA Stonepound Crossroads, Hassocks



## Appendix E: Summary of Air Quality Objectives in England

**Table E.1 – Air Quality Objectives in England<sup>7</sup>**

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as
Nitrogen Dioxide (NO <sub>2</sub> )	200µg/m <sup>3</sup> not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO <sub>2</sub> )	40µg/m <sup>3</sup>	Annual mean
Particulate Matter (PM <sub>10</sub> )	50µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM <sub>10</sub> )	40µg/m <sup>3</sup>	Annual mean
Sulphur Dioxide (SO <sub>2</sub> )	350µg/m <sup>3</sup> , not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO <sub>2</sub> )	125µg/m <sup>3</sup> , not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO <sub>2</sub> )	266µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	15-minute mean

<sup>7</sup> The units are in microgrammes of pollutant per cubic metre of air (µg/m<sup>3</sup>).

## 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
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Nitrogen Oxides
PM <sub>10</sub>	Airborne particulate matter with an aerodynamic diameter of 10µm or less
PM <sub>2.5</sub>	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO <sub>2</sub>	Sulphur Dioxide



## 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.