



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: June, 2023

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Executive Summary: Air Quality in Our Area

Air Quality in Tonbridge & Malling Borough Council

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^{1,2}.

The mortality burden of air pollution within the UK is equivalent to 29,000 to 43,000 deaths at typical ages³, with a total estimated healthcare cost to the NHS and social care of £157 million in 2017⁴.

The main pollutant of concern is NO₂ around the 6 Air Quality Management Areas (AQMAs) for Tonbridge & Malling Borough Council. This years results are surprisingly similar to that monitored in 2021. Watlingbury AQMAs still remains above the 40 µg/m³ limit with 44.8 µg/m³ at triplicate TN42, 76 & 77 on Tonbridge road opposite the garage and 36.8 µg/m³ close by at TN33 while all other areas are below 35 µg/m³. 7 locations are 30 µg/m³ or above with TN50 on London Road in Larkfield AQMA being the next highest at 33.3 µg/m³.

The Air Quality Action Plan was approved late in 2021 with work towards some of the actions already in planning stages in late 2021 and continued into 2022, these include 28 charging points for electric vehicles charging across 5 council run car parks throughout the borough. Phase 2 will start in 2023 where the number of charge points will increase to 100. Work will continue towards these and other actions in 2023.

¹ Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

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

³ Defra. Air quality appraisal: damage cost guidance, January 2023

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

Tonbridge & Malling Borough Council continues to work with other councils in Kent as part of the Kent and Medway Air Quality Partnership and UK Health Security Agency in working on projects that can be used across Kent not just in our own borough. Tonbridge & Malling Borough Council has supported Canterbury City Council and Tunbridge Wells Borough Council with match funding towards DEFRA Air Quality grants for projects including Pollution Patrol education packs for schools and helping doctors understand the signs and health impacts of air pollution and as well as offering advice to patients on how to reduce exposure to air pollution.

[Read about our air quality initiatives – Tonbridge and Malling Borough Council \(tmbc.gov.uk\)](https://www.tmbc.gov.uk)

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 Plan⁵ sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term PM_{2.5} 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_{2.5} in their areas. The Road to Zero⁶ 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.

Tonbridge & Malling Borough Council focus for 2022 has been on EV charging.

⁵ Defra. Environmental Improvement Plan 2023, January 2023

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

Conclusions and Priorities

All exceedances were within Wateringbury AQMA and none recorded outside AQMAs. Trends are very similar to the previous two years with marginal increases in some areas following the lows of the Covid lockdowns in 2020. This appears to be the new norm of pollution levels due to increased uptake of electric vehicles on the road and with companies continuing to allow employees to work from home, NO₂ levels do not appear to be returning to pre-pandemic levels across most sites.

The M20 runs through the northern half of the borough and has now had two full years of running as a smart motorway with running lanes now including the hard shoulder lane, traffic has moved more freely along the motorway. It can be said that turning the M20 into a 4 lane smart motorway combined with lower traffic levels and more electric vehicles on the road, has improved the air quality in the surrounding AQMA area. With two years of full lane use on the M20 and at least 5 years of monitoring within the AQMA being below 10% of the national limit, this AQMA can now be considered for revocation.

There are no plans at present to update the Air Quality Action Plan as no areas are showing a significant rise in air quality levels or approaching pre-pandemic levels.

The challenge now for Tonbridge & Malling is to find the next incentive for everyone to make in helping towards reducing levels in air pollution that working from home has done for improving air quality by a significant level.

Local Engagement and How to get Involved

With road transport being the main source of air pollution within Tonbridge & Malling, the public can get involved in helping reduce the release of air pollution and thus improving air quality within the Borough by looking at alternative means of travel. The following are possible alternatives to private travel that would contribute to improving air quality within the Borough:

- Use public transport where available – This reduces the number of private vehicles in operation reducing pollutant concentration through the number of vehicles and reducing congestion.
- Walk or cycle if your journey allows – From choosing to walk or cycle

for your journey the number of vehicles is reduced and also there is the added benefit of keeping fit and healthy.

- Car/lift sharing – Where a number of individuals are making similar journeys, such as travelling to work or to school car sharing reduces the number of vehicles on the road and therefore the amount of emissions being released. This can be promoted via travel plans through the workplace and within schools.
- Alternative fuel / more efficient vehicles – Choosing a vehicle that meets the specific needs of the owner, fully electric, hybrid fuel and more fuel-efficient cars are available and all have different levels benefits by reducing the amount of emissions being released.

Further information about air quality including all Tonbridge & Malling monitoring data, details on the main pollutants associated with air quality and an emissions calculator for travel options is included on the Kent Air website - <http://www.kentair.org.uk>

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Health Department of Tonbridge & Malling Borough Council with the support and agreement of the following officers and departments:

Steven Saxbee Environment Officer, Environmental Protection

This ASR has been approved by:

Eleanor Hoyle, Director of Planning, Housing and Environmental Health



This ASR has not been signed off by a Director of Public Health.

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1 Local Air Quality Management

This report provides an overview of air quality in the area administered by Tonbridge & Malling Borough Council 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 Tonbridge & Malling Borough 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 Tonbridge & Malling Borough Council can be found in Table 2.1. The table presents a description of the 6 AQMAs that are currently designated within Tonbridge & Malling Borough Council. Appendix D: Maps of Monitoring Locations and AQMAs provides maps of AQMAs and also the air quality monitoring locations in relation to the AQMAs. The air quality objectives pertinent to the current AQMA designations are as follows:

- NO₂ 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
M20 AQMA 1	May-01	NO2 Annual Mean	An area extending 39m from the centreline along the M20 motorway between the points where it passes below New Hythe Lane, Larkfield to the west and where it crosses Hall Road, Aylesford to the east.	YES	Modelled predicted exceedances	N/A	9	Tonbridge and Malling Borough Council Air Quality Action Plan June 2011	https://www.tmbc.gov.uk/__data/assets/pdf_file/0007/47563/M20_AQMA.pdf
Tonbridge High Street AQMA 3	Jun-05	NO2 Annual Mean	An area incorporating the High Street between Botany and the High Street/Vale Road roundabout, Tonbridge.	NO	53.3	N/A	3	Tonbridge and Malling Borough Council Air Quality Action Plan June 2011	https://www.tmbc.gov.uk/__data/assets/pdf_file/0005/47552/tonbridge.pdf
Wateringbury AQMA 4	Jun-05	NO2 Annual Mean	An area incorporating the Red Hill/Tonbridge Road A26 crossroads in the Parish of Wateringbury.	NO	45.2	44.8	0	Tonbridge and Malling Borough Council Air Quality Action Plan June 2012	https://www.tmbc.gov.uk/__data/assets/pdf_file/0004/47560/Wateringbury_AQMA_official_map2.pdf

Aylesford AQMA 5	Oct - 08 ammended 30/10/2020	NO2 Annual Mean	An area encompassing the A20 London Road with the junction with Hall Road and Mills Road in Aylesford.	NO	48	N/A	3	Tonbridge and Malling Borough Council Air Quality Action Plan June 2013	https://www.tmbc.gov.uk/__data/assets/pdf_file/0004/1070797/Aylesford-Revised-AQMA.pdf
Larkfield AQMA 6	Oct - 08 ammended 30/10/2020	NO2 Annual Mean	An area encompassing the A20 London Road in East Malling, Larkfield and Ditton, including the junction with New Hythe Lane.	NO	39	N/A	3	Tonbridge and Malling Borough Council Air Quality Action Plan June 2014	https://www.tmbc.gov.uk/__data/assets/pdf_file/0010/1070794/Larkfield-Revised-AQMA.pdf
Borough Green AQMA 7	April-2013 Ammended 30/10/2020	NO2 Annual Mean	Parts of Sevenoaks Road A25, Western Road and the High Street in Borough Green.	NO	46	N/A	5 (Years 2018+19 within 10%)	Tonbridge and Malling Borough Council Air Quality Action Plan June 2015	https://www.tmbc.gov.uk/__data/assets/pdf_file/0005/1070798/Borough-Green-Revised-AQMA.pdf

☒ Tonbridge & Malling Borough Council **confirm the information on UK-Air regarding their AQMA(s) is up to date.**

☒ Tonbridge & Malling Borough Council **confirm that all current AQAPs have been submitted to Defra.**

2.2 Progress and Impact of Measures to address Air Quality in Tonbridge & Malling Borough Council

Defra's appraisal of last year's ASR concluded.

The report is well structured, detailed, and provides the information specified in the Guidance. The following comments are designed to help inform future reports.

1. The Council have provided a thorough report which contains the required content.
2. The Council have demonstrated a detailed understanding of the monitoring trends across the Borough and have provided a set of graphs to visually present this information. This approach is commended and encouraged in all future reports, however it would be beneficial to include a more detailed discussion of trends within Section 3.
3. The current AQAP was published in 2021, however this is not reflected in within the ASR. It is advised that this is updated for consistency. – This has now been updated.
4. The Council have applied the national bias adjustment factor to their monitoring results and have provided details of the laboratory and tube preparation method. Although the Council have addressed the comment to include a screen capture of the national bias adjustment factor spreadsheet showing the factor derivation, it is not provided in the report. This should be included in all future reports. - Screen shot now included.
5. The Council have continually reviewed their monitoring network and added an automatic monitor to monitor PM10 in Borough Green alongside six new diffusion tube monitoring locations. The PM10 results were used to estimate 2021 PM2.5 annual mean concentration and the concentration was predicted to be well under the air quality objective of PM2.5. It would be beneficial to provide a discussion and details of any changes to the monitoring network within Section 3.
6. It is encouraged that the Council provides a discussion around which measures will directly influence and address emissions of PM2.5 within the Borough.
7. The majority of measures in Table 2.2 state that the progress to date is that the "Action Plan to be passed by published in Autumn 2021". The AQAP has been published, so this column should be updated to indicate current progress.– now updated.

8. There are a few formatting issues in the report that need to be amended for future reports:
 - i. The tables contain two different table numbers. The report should use the table numbers provided in the template.
 - ii. Table A.6/ Table 9 contains the PM10 results for 2021 which is below the PM10 annual mean objective of 40µg/m³. This result should only be formatted as bold if there is an exceedance of the objective.
 - iii. On Table C.2/Table 13, the 'Annualisation Factor' column should have the derived annualisation factor and not the name of the site.
9. On Table 2.1/Table 2, M20 AQMA needs to include the amended date. Also, 'Level of Exceedance: Current Year' needs to be updated in future reports. This should also detail the reported exceeding concentration at TN42/76/77 in AQMA No.4 Wateringbury.
10. The Council have addressed the comments from last year's appraisal and made effort to update the report accordingly. This is welcomed.
11. There is no discussion around the methodology of completing automatic and non-automatic annualisation. It is encouraged that the Diffusion Tube Data Processing Tool is used to derive the annualisation factor, as well as including justification for why particular monitoring sites were chosen to derive the annualisation factor.
12. Overall, the report is detailed, satisfies the criteria of relevant standards, and is a good source for members of the Public to find out about air quality in their area. The Council should continue their good work and submit an Annual Status Report in 2023.

Tonbridge & Malling Borough 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. 14 measures are included within Table 2.2, with the type of measure and the progress Tonbridge & Malling Borough 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.

More detail on these measures can be found in their respective Action Plans. Key completed measures are:

- Created Anti-idling zone at Tonbridge taxi rank and develop and enforce a borough wide anti-idling campaign.
- Installation of electric charging points within Council car parks throughout the borough.

Tonbridge & Malling Borough Council expects the following measures to be completed over the course of the next reporting year:

- Encourage companies to allow home working at least one day a week, create survey to get a sense of numbers involved and see if companies need any help in enabling staff to work from home.
- Education and encouragement in terms of air quality across the borough: public workshops, leaflet campaigns, advertising, approaching schools on anti-idling and pollution patrol education package, businesses, community centres.

Whilst the measures stated above and in Table 2.2 will help to contribute towards compliance, Tonbridge & Malling Borough Council anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of Wateringbury AQMA.

Tonbridge & Malling Borough Council has looked at reducing its own emissions by purchasing an electric car for its parking enforcement team to use on a daily basis.

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	Establish/Join a Quality Bus Partnership to help upgrade Bus Fleet	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	2021	2023	Local Authority Environmental Health, Local bus companies	N/A	NO	Not Funded	< £10k	Planning	In areas of high bus usage, such as within the Tonbridge High Street AQMA an NO ₂ , in conjunction with other measures a reduction of between 1 – 3µg/m ³ is to be aimed for.	KPI measured via the % of buses meeting a set EURO standard.	After award of BSIP funding to KCC which they are now engaged in developing enhanced partnership structure	Establish or extend neighbouring QBP(s) to help drive up the quality and emissions performance of the local bus fleet. Engage with KCC public transport and neighbouring authorities. Pursue funding opportunities from DfT, Defra and elsewhere as appropriate. To make sure cleaner buses are used on all routes, especially those operating through AQMAs.
2	Review Taxi/Private Hire Vehicle Policy and license fees, implement a strategy to encourage a switch to low emission vehicles	Promoting Low Emission Transport	Taxi Licensing conditions	2021	2030	Local Authority Environmental Health, Local Authority Licencing dept	N/A	NO	Not Funded	< £10k	Implementation	To be confirmed once full fleet information is available – use of the Emissions Factor Toolkit (EFT) to define NO _x emission reductions for changes within the fleet per annum.	KPI measured via the % of taxis and private hire vehicles meeting a set EURO standard.	Plans on going	All vehicles to be petrol hybrid Euro 5 or petrol and diesel euro 6 by 2025. By 2030 all vehicles to be zero or ultra low emissions such as electric or liquid petroleum gas
3	Explore opportunities to reduce emissions from local delivery HGV's/LGV's possibly through the formations of a Freight Quality Partnership	Freight and Delivery Management	Freight Partnerships for city centre deliveries	2021	2022	Local Authority Environmental Health, Local Authority Businesses Dept.	N/A	NO	Not Funded	£10k - 50k	Planning	To be confirmed once fleet information is available – use of the EFT to define NO _x emission reductions for changes within a fleet.	KPI measured via the % vehicles meeting a set EURO standard, and/or by the % of business participation in recognition schemes.	Plans on going	Opportunities for sustainable urban freight deliveries at existing locations and for new developments, can also help promote recognition schemes such as ECO Stars. Through Kent Invicta Chamber of Commerce etc and on media / website

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
4	Develop and implement a borough-wide school transport scheme	Promoting Travel Alternatives	School Travel Plans	2021	2022	KCC & Local Authority Environmental Health	N/A	NO	Not Funded	£10k - 50k	Planning	Measure has the potential to have a medium to high impact upon short term NO2 concentrations close to schools depending on the uptake of the schemes across the borough. On a borough wide scale a lesser impact upon on concentrations would be realised.	KPIs may include the following: % reduction of children travelling to school in cars, % of children cycling or walking to school. Number of schools implementing individual school travel plans.	Plans on going	Walking buses, action to focus on school run drop offs, feasibility of school start time variations. Work closely with KCC in developing these travel plans and feasibility studies.
5	Create Anti-idling zone at Tonbridge taxi rank Develop and enforce a borough wide anti-idling campaign	Traffic Management	Anti-idling enforcement	2021	2022	Local Authority Environmental Health	N/A	NO	Not Funded	< £10k	Implementation	Measure is more an awareness raising tool, however it is also a useful measure to prevent vehicles idling and causing congestion in specific locations, which is a significant cause of emissions.	KPI measured via an annual review of the number of fixed penalty fines and number of complaints received. After an initial year of results the % change in penalty fines and complaints can be quantified.	completed at Tonbridge Taxi rank	Borough-wide anti idling enforcement at taxi ranks, bus stops, and outside schools etc. Social Media posts to encourage behavioural change.

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
6	Pilot a Car Club within the Council for individuals use in local communities	Alternatives to private vehicle use	Car Clubs	2021	2023	Local Authority Environmental Health	N/A	NO	Not Funded	£10k - 50k	Implementation	NOx emission reduction achieved by the Council will be able to be calculated annually.	The introduction of pool cars can result in a reduction of approximately 20% in business mileage. KPI relating to usage at the Council can be measurements of reduction in annual mileage undertaken per team.	Plans on going	Car club campaigns, possibility to include advertising and sponsorship opportunities.
7	Continue to explore traffic improvement options at Watlingbury crossroads, emphasis on looking at capacity and flow	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2021	2024	KCC Highways & Local Authority Environmental Health	N/A	NO	Not Funded	< £10k	Implementation	An improvement to the Watlingbury crossroads would aim to reduce NO2 concentrations by between 1 – 5µg/m3.	KPI to be formulated once option has been developed, to be based around vehicle turning counts and/or queuing statistics.	On going but one report submitted by KCC	May be too costly to implement ideal solution & lack of adequate space
8	Encourage companies to allow home working at least one day a week	Promoting Travel Alternatives	Encourage / Facilitate home-working	2021	2031	Local Authority Environmental Health & Business department	N/A	NO	Not Funded	< £10k	Implementation	Small impact upon NO2 concentrations from measure individually, estimated to be less than 5µg/m3. Based on small uptake	Small impact upon NO2 concentrations from measure individually, estimated to be less than 5µg/m3. Based on small uptake	On going. Many companies continue to allow home working after pandemic.	To promote on website multimedia and targeted adds campaigns to local office based companies using momentum from for home working from Covid restrictions

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9	Explore the process for possible standardising Section 106 agreement funding from development for AQ improvements	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2021	2023	Local Authority Planning & Environmental Health	N/A	NO	Not Funded	< £10k	Implementation	N/A	N/A	Plans on going	Standardising the process for securing S106 agreements for AQ to be linked with planning department to ensure harmonious implementation. Conditions to be more specific in planning decisions regarding green energy, low emission vehicle and EV parking (policy compliant).
10	Installation of electric charging points within Council car parks throughout the borough	Transport Planning and Infrastructure	Other	2021	2024	Local Authority Parking & Environmental Health	N/A	NO	Not Funded	£50k - £100k	Implementation	Small impact upon NO2 concentrations from measure individually, estimated to be less than 1µg/m3 based upon a low to medium uptake.	Small impact upon NO2 concentrations from measure individually, estimated to be less than 1µg/m3 based upon a low to medium uptake.	Phase one completed phase 2 underway	Council car parks, TMBC funded with possible assistance from KCC
11	Installation of green walls and increased vegetation across the borough	Other	Other	2021	2024	Local Authority Environmental Health & street scene	N/A	NO	Not Funded	£10k - 50k	Implementation	N/A	N/A	Plans on going	Investigate areas like Watlingbury where results are close to hourly mean or increasing vegetation can make a difference. To be installed as a physical barrier to increase distances between the road and pedestrians.
12	Raise public awareness through the launch of a Travel Choices Campaign	Public Information	Via the Internet	2021	2022	Local Authority Environmental Health & KCC	N/A	NO	Not Funded	£10k - 50k	Implementation	Small impact upon NO2 concentrations from measure individually, estimated to be less than 1µg/m3.	Small impact upon NO2 concentrations from measure individually, estimated to be less than 1µg/m3.	Plans on going	Possibility of partnership with 'Step Ahead of the Rest' KCC Active travel programme. Social Media advertising. Community projects.
13	Prepare a new Local Cycling and Walking Infrastructure plan (LCWIP)	Transport Planning and Infrastructure	Cycle network	2021	2022	Local Authority Planning & Environmental Health	N/A	NO	Not Funded	< £10k	Implementation	N/A	N/A	Plans on going	Identify if there any specific routes that can be improved upon or require the introduction of new routes.

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13b	Delivery of identified cycling and walking schemes	Transport Planning and Infrastructure	Cycle network	2021	2030	KCC & Local Authority Planning & Environmental Health	N/A	NO	Not Funded	£10k - 50k	Implementation	Small impact upon NO2 concentrations from measure individually, estimated to be less than 1µg/m3 based upon a low to medium uptake	KPIs to include: Usage of rental schemes. Numbers of cycle to work schemes. Implementation of new routes per annum. Obtain figures from use of new cycle hub and Tonbridge station	Plans on going	Following the completion of the LCWIP, the identified cycling and walking routes will be improved / new routes are to be introduced. In addition cycle to work schemes are to be encouraged and supported through local campaigns, events and planning negotiations. Active travel to be promoted in partnership with KCC – Kent Connected. Tie in with 11.
14	Education and encouragement in terms of air quality across the borough: public workshops, leaflet campaigns, advertising, approaching schools, businesses, community centres	Public Information	Via leaflets	2021	2023	Local Authority Environmental Health	N/A	NO	Not Funded	£10k - 50k	Implementation	Small impact upon NO2 concentrations from measure individually, estimated to be less than 1µg/m3.	Usage statistics for public transport and zero emission transport options (walking and cycling) across the borough per annum. Most of the individual parts to this measure can be developed immediately, again it may be beneficial to have a KPI relating to implementation time.	Plans on going.	Available AQ information, current issues, what the council is doing paired with what the public can do as a bottom up approach. Provision of workshops, physical and digital leaflets, drop in sessions, dedicated phone-line etc. Social media visibility is a key element with potential to link to other KES/ELES communications. Community Champions / case studies

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
15	Implement an improved public transport information platform	Public Information	Via the Internet	2021	2023	KCC & Local Authority Environmental Health	N/A	NO	Not Funded	< £10k	Implementation	Small impact upon NO2 concentrations from measure individually, estimated to be less than 1µg/m3.	Usage statistics for public transport across the borough per annum.	Plans on going	To include links to Kent connected pt and options to download it on website. To include the provision of high quality accessible information on sustainable travel, also the promotion of public transport use to incentivise usage. All available information to be linked to 'smarter cities' initiative.

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.

Tonbridge & Malling Borough Council is taking the following measures to address PM_{2.5}: A new PM10 monitor has been installed from which PM_{2.5} can be calculated. New Anti idling signs at Tonbridge Taxi rank will help reduce PM_{2.5} particles and plans are already underway to reduce anti idling around schools across the borough (measure 5). Although not specifically aimed at reducing PM_{2.5} particles many of the measures aimed at reducing NO₂ from traffic will also help to reduce PM_{2.5} particles.

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

This section sets out the monitoring undertaken within 2022 by Tonbridge & Malling Borough 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

Tonbridge & Malling Borough Council undertook automatic (continuous) monitoring at 2 sites during 2022. Table A.1 in Appendix A shows the details of the automatic monitoring sites. The [Kent and Medway Air Quality \(kentair.org.uk\)](https://kentair.org.uk) page presents automatic monitoring results for Tonbridge & Malling Borough Council, with automatic monitoring results also available through the UK-Air website.

Maps showing the location of the monitoring sites are 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

Tonbridge & Malling Borough Council undertook non- automatic (i.e. passive) monitoring of NO₂ at 56 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 (NO₂)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40µg/m³. 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.

Table A.5 in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past five years with the air quality objective of 200µg/m³, not to be exceeded more than 18 times per year.

Tonbridge & Malling Borough Council only has one site that has exceeded the annual mean of 40µg/m³. This triplicate TN42, 76 & 77 is in Watlingbury AQMA with an annual mean of 44.8µg/m³. Site TN33 is a few meters away from the triplicate and is just within 10% of the limit at 36.8µg/m³. In total 14 sites have shown a slight increase compared to 2021. The highest increase has been for site TN118 at Wrotham Heath 3.7µg/m³ up from 2021 but at 24.7µg/m³ its still well below the annual objective. 30 Sites have shown a decrease with the largest decrease being site TN104 located on London Road at mouth of hermitage lane, of 7.2µg/m³ to 22.9µg/m³. The next largest decrease is TN44 in Tonbridge High Street which decreased by 5µg/m³.

There will be no changes to AQMA boundaries and the diffusion tube locations will be assessed at the end of each year to see if sites no longer need to be monitored and if any new sites need to be included in the monitoring.

3.2.2 Particulate Matter (PM₁₀)

Table A.6 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM₁₀ annual mean concentrations for the past five years with the air quality objective of 40µg/m³.

Table A.7 in Appendix A compares the ratified continuous monitored PM₁₀ daily mean concentrations for the past five years with the air quality objective of 50µg/m³, not to be exceeded more than 35 times per year.

With PM₁₀ only having 12 exceedances of 50µg/m³ this is within the permitted number of times allowed (35 times) there will therefore be no changes to AQMA or monitoring network for PM₁₀ at this time. The annual mean PM₁₀ is 25µg/m³. This is within the national limit of 40µg/m³.

3.2.3 Particulate Matter (PM_{2.5})

Table A.8 in Appendix A presents the ratified and adjusted monitored PM_{2.5} annual mean concentrations for the past five years.

Tonbridge & Malling Borough Council does not monitor PM_{2.5} at its monitoring station so following the guidance in TG22 section 7.119 to work out the annual mean PM_{2.5} value from PM₁₀ annual mean, the estimated PM_{2.5} annual mean is worked out using the difference between PM₁₀ and PM_{2.5} from a similar station (in this case Upper Stone street in Maidstone see working below) and then difference in value is also deducted from the annual PM₁₀ value taken at Borough Green station. This is worked out to be 16.66µg/m³ within the objective of 20µg/m³.

Difference in PM₁₀ and PM_{2.5} at Upper Stone Street

$$22.08 \mu\text{g}/\text{m}^3 (\text{PM}_{10}) - 13.75 \mu\text{g}/\text{m}^3 (\text{PM}_{2.5}) = 8.33 \mu\text{g}/\text{m}^3$$

Borough Green site minus Upper Stone Street PM difference

$$25 \mu\text{g}/\text{m}^3 (\text{PM}_{10}) - 8.33 \mu\text{g}/\text{m}^3 = 16.66 \mu\text{g}/\text{m}^3 \text{ PM}_{2.5}.$$

Incidentally, the estimated value from the 2022 background map for PM_{2.5} is 9.66µg/m³ for the 1km grid that the PM₁₀ monitor at Borough Green is in and 15.64µg/m³ for PM₁₀

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)
ZT8	Borough Green	Roadside	560583	157337	NO ₂	YES BOROUGH GREEN	Chemiluminescent	15.93	2.42	1.72
ZT8	Borough Green	Roadside	560583	157337	PM ₁₀	YES BOROUGH GREEN	Beta Attenuation	15.75	2.6	1.69
ZT9	Tonbridge High Street	Urban Centre	558890	146203	NO ₂	YES TONBRIDGE	Chemiluminescent	15	6m	6.2

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)
TN5a	131 Hall Road, Aylesford	Roadside	572611	158545	NO ₂	YES M20	0	26.7	No	2.42
TN7b	202 New Hythe Lane	Roadside	570391	159032	NO ₂	YES M20	0	33.3	No	1.82
TN10	Offham Road, West Malling	Suburban	567617	157635	NO ₂	NO	12.5	1.7	No	2.05
TN18	Wilson Road, Tonbridge	Suburban	560263	148509	NO ₂	NO	6.3	2	No	2.95
TN33	Tonbridge Road, Watlingbury (Red Hill Corner)	Roadside	569201	153486	NO ₂	YES WATERINGBURY	0	1.25	No	2.75
TN35	High Street, Tonbridge (no 35, WH Smith)	Roadside	558948	146277	NO ₂	YES TONBRIDGE	0	3.8	No	2.47
TN43	Tonbridge Road, Watlingbury (Red Hill)	Roadside	569187	153498	NO ₂	YES WATERINGBURY	0	2.6	No	2.55
TN44	High Street, Tonbridge(no 46a)	Roadside	558929	146271	NO ₂	YES	0	3.3	No	2.43
TN47	London Road, Ditton (no 516)	Urban Background	571399	158375	NO ₂	NO	0	23	No	1.84
TN57	London Road, Larkfield (no 743)	Roadside	570467	158328	NO ₂	NO	0	4.82	No	1.74
TN61	70 Hadlow Road, Tonbridge	Roadside	559572	147017	NO ₂	NO	0	6	No	1.85

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)
TN60, TN62, TN63	London Road, Aylesford (no 290)	Roadside	572423	157932	NO ₂	YES AYLESFORD	0	6.5	No	1.64
TN68	7 Hall Road, Aylesford	Roadside	572430	157975	NO ₂	NO	0	6.6	No	1.63
TN70, TN72, TN73	55, Sevenoaks Road, Borough Green	Roadside	560567	157328	NO ₂	YES BOROUGH GREEN	0	2.54	No	1.9
TN74, TN75, TN45	High Street, Tonbridge (no 10)	Roadside	558864	146166	NO ₂	YES TONBRIDGE	0	2.3	No	2.5
TN42, TN76, TN77	Tonbridge Road, Wateringbury (Opposite Garage)	Roadside	569226	153475	NO ₂	YES WATERINGBURY	0	1.3	No	2.39
TN80b	218 Station Road, Aylesford	Roadside	572124	158627	NO ₂	YES M20	0	35.8	No	2.03
TN86	Flat 21 High Street	Roadside	560867	157302	NO ₂	NO	0	2.46	No	2.18
TN93	16 Sevenoaks Road	Roadside	560717	157266	NO ₂	NO	11.31	1.5	No	2.3
TN95	Harrison Road	Suburban	560831	157004	NO ₂	NO	7.8	1.7	No	2.3
TN96	1 Bordyke, Tonbridge	Roadside	559148	146889	NO ₂	NO	0	3.5	No	2.04
TN83, TN98, TN99	424 New Hythe Lane	Roadside	570740	159667	NO ₂	NO	0	4.1	No	2.39
TN100	351 Hermitage Lane	Roadside	572999	156292	NO ₂	NO	0	6.2	No	2.4
TN102	39 Whitepost Wood La	Roadside	572768	157186	NO ₂	NO	2.6	14.5	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) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
TN104	158 London Rd (E of mouth of Hermitage Lane)	Roadside	572976	157726	NO ₂	NO	0	8.2	No	2.15
TN106, TN150, TN151	794 London Rd, Larkfield	Roadside	570193	158327	NO ₂	YES LARKFIELD	0	2.25	No	2.17
TN109	St Augustines, Quarry Hill, Tonbridge	Roadside	558743	145922	NO ₂	NO	0	4	No	2.17
TN110	88 High St, Tonbridge	Roadside	559012	146433	NO ₂	YES TONBRIDGE	0	4.6	No	2.13
TN118	1a Marion Cottages, Maidstone Road, Wrotham Heath	Roadside	563209	157995	NO ₂	NO	0	4.4	No	2
TN119	66 High Street, Aylesford	Kerbside	572924	158986	NO ₂	NO	0	0.66	No	2
TN122	Post office 192-194 Tonbridge road Watringbury	Roadside	569168	153501	NO ₂	YES WATERINGBURY	0	1.37	No	2.1
TN123	11 Rochester Road	Roadside	573130	159010	NO ₂	NO	0	1.8	No	2
TN124	19 The Lindins	Roadside	572152	158544	NO ₂	YES M20	0	10	No	2.1
TN125	35 Pembury Road	Urban Background	558856	145731	NO ₂	NO	0	12.83	No	2
TN127	131 Pembury Road	Roadside	559168	145422	NO ₂	NO	0	4.68	No	1.95
TN128	48 Shipbourne Road	Roadside	559212	147339	NO ₂	NO	0	2.55	No	2
TN130	31 Western Road	Roadside	560790	157351	NO ₂	NO	0	4.45	No	2.1

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)
TN131, TN132, TN133	49 Quarry Hill	Roadside	558616	145696	NO ₂	NO	0	5.35	No	2
TN134	5 Brook Street	Roadside	558515	145617	NO ₂	NO	0	11	No	2
TN135	Medway Wharf Road	Roadside	559056	146445	NO ₂	NO	0	0.65	No	2.42
TN136	205 Holborough Road	Roadside	570430	162502	NO ₂	NO	0	3.27	No	2.42
TN137	Robin Hood Lane M2	Roadside	575090	162364	NO ₂	NO	22	9.1	No	1.82
TN138	16 Common Road	Roadside	574511	162156	NO ₂	NO	0	22	No	2.08
TN139	456 Maidstone Road Chatham	Roadside	574651	162613	NO ₂	NO	9	34	No	2.21
TN140	48 New Road Ditton	Roadside	571165	158230	NO ₂	NO	5	1.55	No	2.48
TN141	Monitor	Roadside	560583	157337	NO ₂	YES BOROUGH GREEN	16	2.4	Yes	1.47
TN142	2 Borough Green Road	Roadside	561119	157864	NO ₂	NO	0	15	No	1.97
TN143	Lamp post outside Wrotham School	Roadside	561151	157867	NO ₂	NO	27	3.5	No	2.38
TN144	40 High Street, East Malling	Roadside	570161	156966	NO ₂	NO	0	2.1	No	2.07
TN145	1 Chapel Street, East Malling	Roadside	570165	156874	NO ₂	NO	0	0.93	No	2.22
TN146	Bell Court London Rd, Larkfield	Roadside	570452	158368	NO ₂	NO	0	12.45	No	2.2
TN147	13 Eaton Place, New Hythe	Roadside	570718	159593	NO ₂	NO	0	5.78	No	1.96
TN148	14 Blackthorne Drive, Larkfield	Roadside	570682	158852	NO ₂	NO	0	38	No	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) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
TN149	163 The Avenue, Aylesford	Roadside	572494	158480	NO ₂	NO	0	28	No	2.04
DF1, DF2, DF3	A20 Hall Road Junct	Roadside	572459	157904	NO ₂	YES AYLESFORD	29	2.5	No	2.33
DF4	Ditton London Rd	Roadside	571139	158427	NO ₂	NO	18	1.9	No	2.28

Notes:

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

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 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
ZT8	560583	157337	Roadside	100	100	N/A	N/A	N/A	22.9	24.2
ZT9	558890	146203	Urban Centre	82.6	37	N/A	N/A	N/A	N/A	22.5
ZT5	558877	146185	Urban Centre	N/A	N/A	47.4*	48	30	N/A	N/A
ZT7	569165	153493	Roadside	N/A	N/A	23.8	24	18	18.3	N/A

☒ 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/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%).

Annualisation has been conducted for ZT9 using data from Bexley, Gravesend and Thurrock automatic monitoring stations as these are in the South East and not exceeding the 40µg/m³ annual objective.

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 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
TN5a	572611	158545	Roadside	100	91.66	29.7	28.5	24.3	22.4	21.5
TN7b	570391	159032	Roadside	100	91.7	33	30.4	24.8	26.1	23
TN10	567617	157635	Suburban	100	100	14.5	15.2	11.4	11	11.3
TN18	560263	148509	Suburban	100	100	12.9	13.2	11.1	10.3	10.3
TN33	569201	153486	Roadside	100	100	51.9	46.4	42.1	39.5	36.8
TN35	558948	146277	Roadside	100	91.7	36.4	35.6	28.3	29.3	25.4
TN43	569187	153498	Roadside	100	100	35.7	33.8	27.4	27.7	26.6
TN44	558929	146271	Roadside	100	83.3	35.2	32.3	26.8	27.1	22.2
TN47	571399	158375	Urban Background	100	100	18	17.9	14.7	14.4	14.1
TN57	570467	158328	Roadside	100	97.2	32.2	30.7	24.9	24.3	22
TN61	559572	147017	Roadside	100	100	21.6	21.2	18.6	18.1	18.3
TN60, TN62, TN63	572423	157932	Roadside	100	94.4	41.7	42.1	32.1	31	30.4
TN68	572430	157975	Roadside	100	91.7	28.3	28.3	21.9	23.4	20.5
TN70, TN72, TN73	560567	157328	Roadside	100	97.2	39.3	38.1	29.8	30.6	30.4
TN74, TN75, TN45	558864	146166	Roadside	100	97.2	39	36.6	28.8	29.7	28.4
TN42, TN76, TN77	569226	153475	Roadside	100	91.6	58.1	54.6	44.8	46.5	44.8
TN80b	572124	158627	Roadside	100	100	30.2	26.6	23	23.3	22.7
TN86	560867	157302	Roadside	100	100	22	20.6	16.6	17.4	17

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 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
TN93	560717	157266	Roadside	100	83.3	34.6	31.7	24.9	22.6	19.6
TN95	560831	157004	Suburban	100	100	13.6	13.4	10.5	12.3	10.1
TN96	559148	146889	Roadside	100	100	30.1	28.9	20.6	23.6	23.1
TN83, TN98, TN99	570740	159667	Roadside	100	100	33.1	32.5	27.4	26.8	27.1
TN100	572999	156292	Roadside	100	100	21.4	21.6	17.5	18.5	20.6
TN102	572768	157186	Roadside	100	100	19	18.8	14.5	15.7	14.8
TN104	572976	157726	Roadside	100	83.3	35.5	34.8	28.9	30.1	22.9
TN106, TN150, TN151	570193	158327	Roadside	100	100	n/a	n/a	n/a	n/a	33.3
TN109	558743	145922	Roadside	100	91.7	33.9	35.1	26.2	26.5	24
TN110	559012	146433	Roadside	100	100	28.4	27.6	22.8	24.6	21.8
TN118	563209	157995	Roadside	100	100	33.8	31.3	25.7	21	23.5
TN119	572924	158986	Kerbside	100	100	30	27.8	21.9	23.6	21
TN122	569168	153501	Roadside	100	91.7	n/a	35.8	27	28.2	24.9
TN123	573130	159010	Roadside	100	100	n/a	n/a	23.4	23.2	23.8
TN124	572152	158544	Roadside	100	100	n/a	n/a	20.2	21.9	20.9
TN125	558856	145731	Urban Background	100	100	n/a	n/a	14	13.9	14.1
TN127	559168	145422	Roadside	100	100	n/a	n/a	15.7	16.6	16.6
TN128	559212	147339	Roadside	100	91.7	n/a	n/a	15	15.7	14.4
TN130	560790	157351	Roadside	100	100	n/a	n/a	16.8	19.1	18
TN131, TN132, TN133	558616	145696	Roadside	100	100	n/a	n/a	n/a	n/a	33.5
TN134	558515	145617	Roadside	100	100	n/a	n/a	16.7	17	18
TN135	559056	146445	Roadside	100	100	n/a	n/a	21.5	20.9	21.2

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 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
TN136	570430	162502	Roadside	100	83.3	n/a	n/a	n/a	n/a	24.7
TN137	575090	162364	Roadside	100	91.7	n/a	n/a	n/a	31.7	20.9
TN138	574511	162156	Roadside	100	100	n/a	n/a	n/a	31.7	19.8
TN139	574651	162613	Roadside	100	91.7	n/a	n/a	n/a	20.4	18.6
TN140	571165	158230	Roadside	100	100	n/a	n/a	n/a	18.2	16.1
TN141	560583	157337	Roadside	100	100	n/a	n/a	n/a	21.5	23.4
TN142	561119	157864	Roadside	100	100	n/a	n/a	n/a	n/a	13.6
TN143	561151	157867	Roadside	100	83.3	n/a	n/a	n/a	n/a	13.8
TN144	570161	156966	Roadside	100	100	n/a	n/a	n/a	n/a	24.9
TN145	570165	156874	Roadside	100	100	n/a	n/a	n/a	n/a	24.9
TN146	570452	158368	Roadside	100	100	n/a	n/a	n/a	n/a	17.9
TN147	570718	159593	Roadside	100	91.7	n/a	n/a	n/a	n/a	23.1
TN148	570682	158852	Roadside	100	91.7	n/a	n/a	n/a	n/a	17
TN149	572494	158480	Roadside	100	100	n/a	n/a	n/a	n/a	18.5
DF1, DF2, DF3	572459	157904	Roadside	100	94.4	40.1	41.1	33.3	30.2	32.8
DF4	571139	158427	Roadside	100	100	32	29.4	22.9	26.2	25.3

☒ 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 NO₂ annual mean objective of $40\mu\text{g}/\text{m}^3$ are shown in **bold**.

NO₂ annual means exceeding $60\mu\text{g}/\text{m}^3$, indicating a potential exceedance of the NO₂ 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%).

Figures 1-6– Trends in Annual Mean NO₂ Concentrations

Figure 1 AQMA 1 NO₂ levels over past 5 yrs. around M20

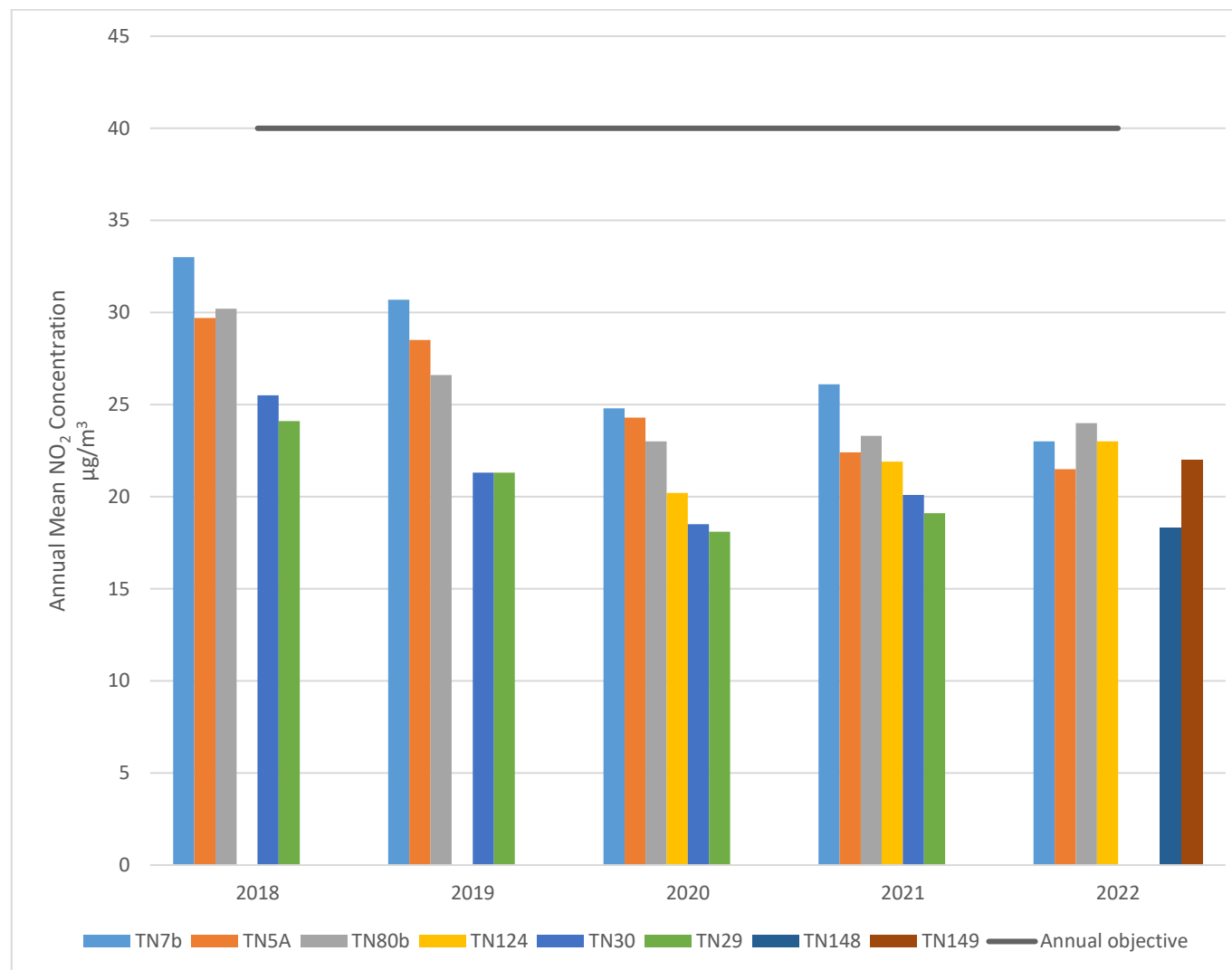


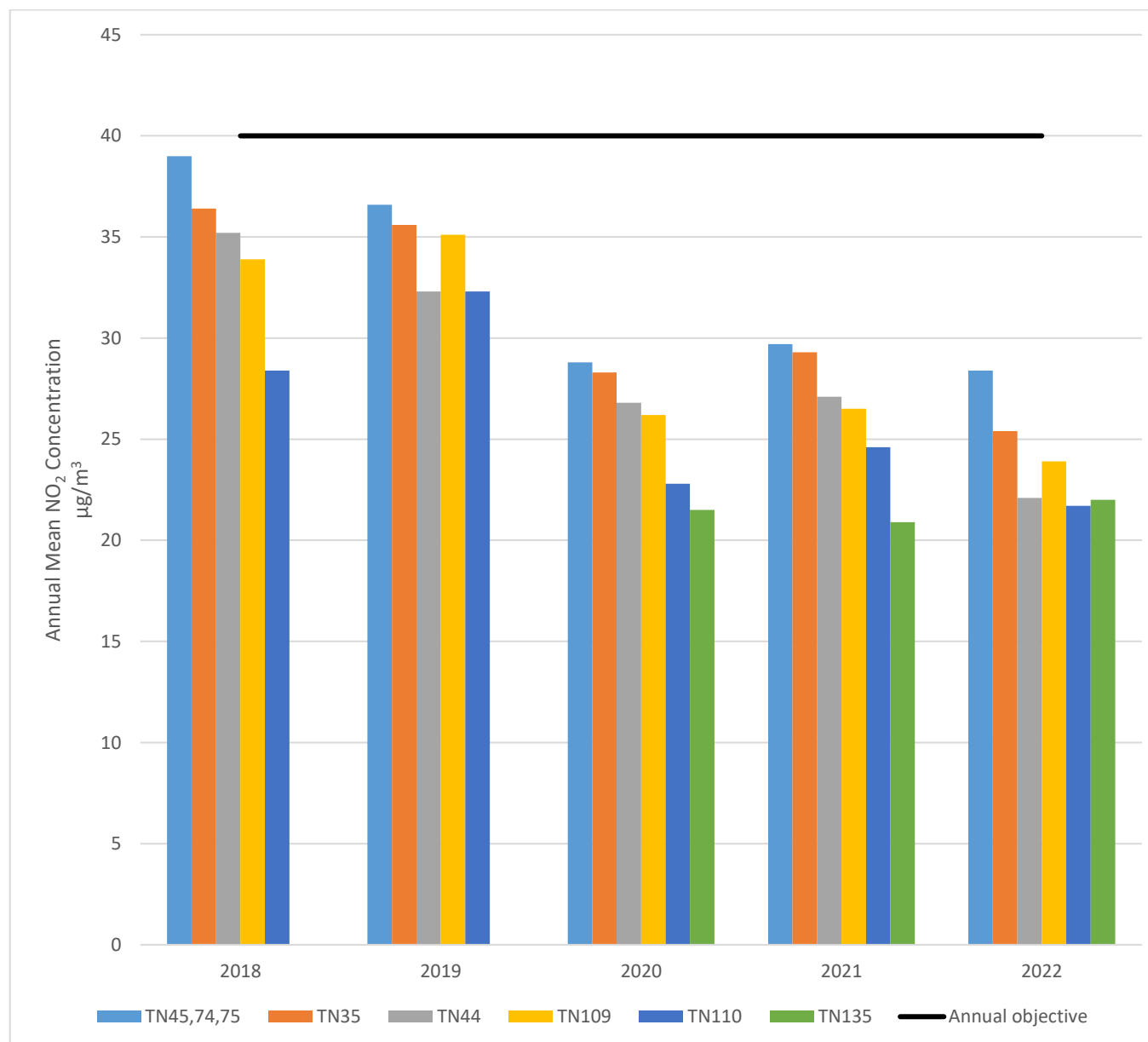
Figure 2 AQMA 3 NO₂ levels over past 5 yrs. in Tonbridge High Street & surrounding locations

Figure 3 AQMA 4 NO₂ levels over past 5 yrs. in Watlingbury & surrounding locations

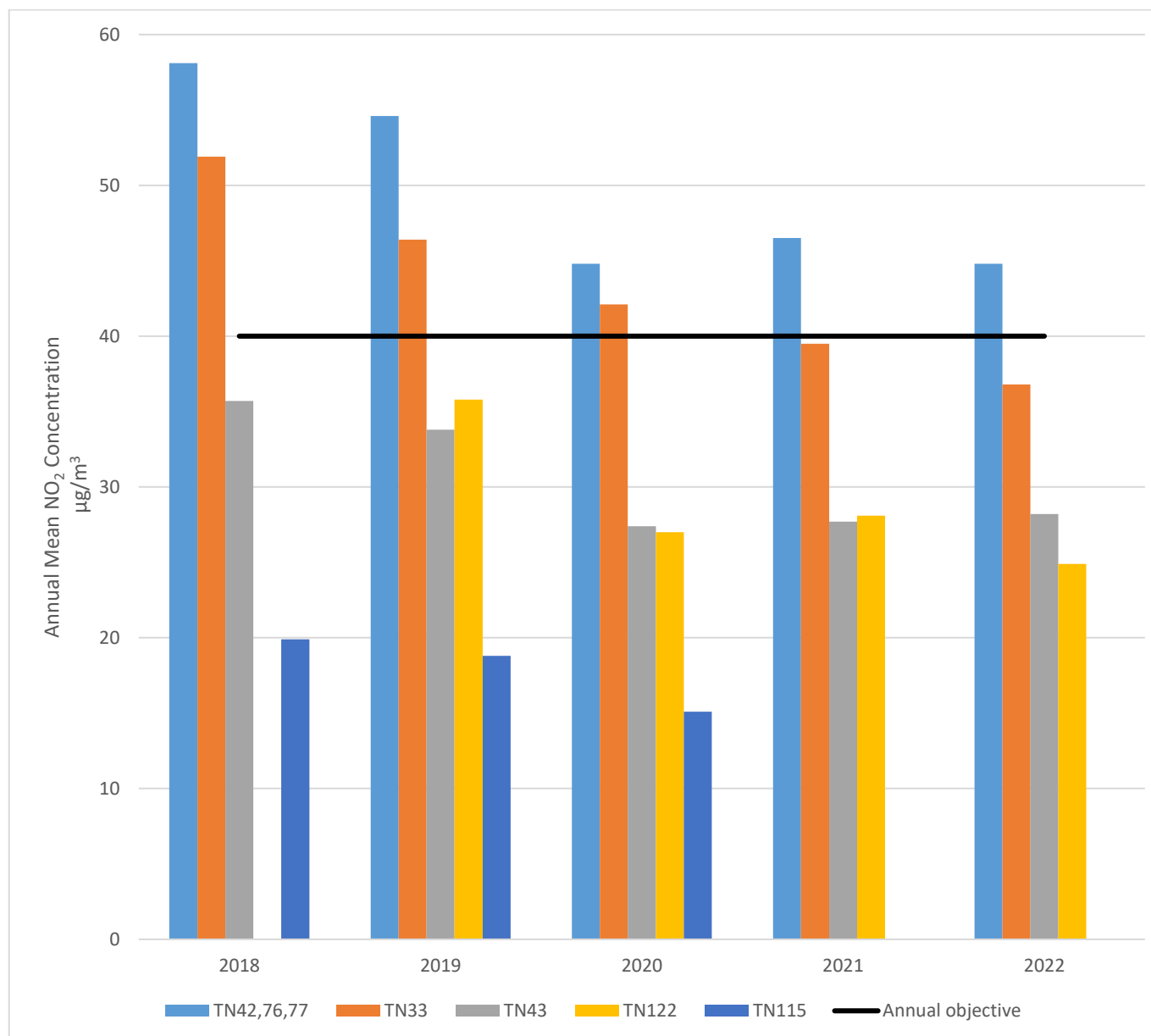


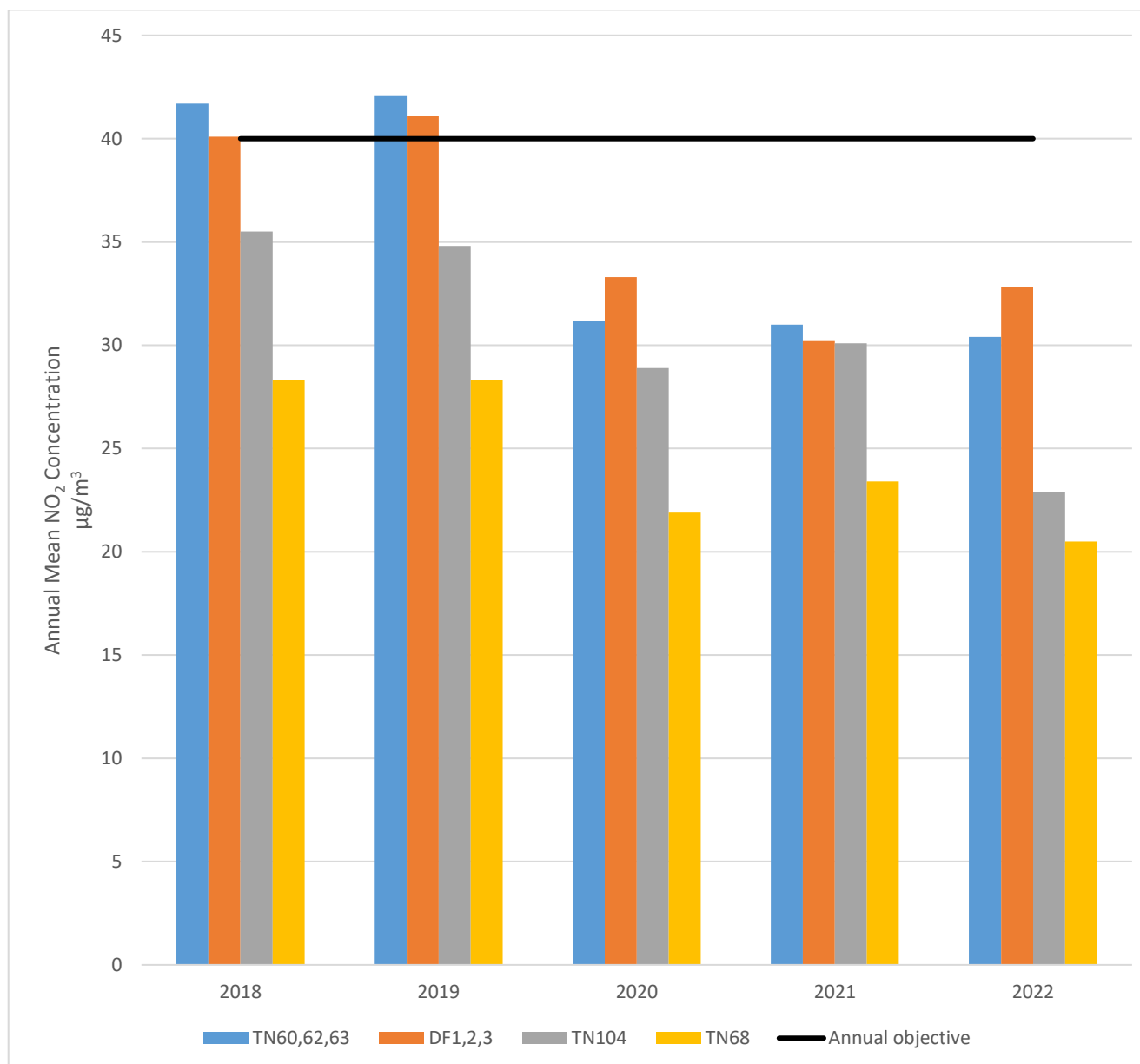
Figure 4 NO₂ levels over past 5yrs. in AQMA 5 Aylesford & surrounding locations

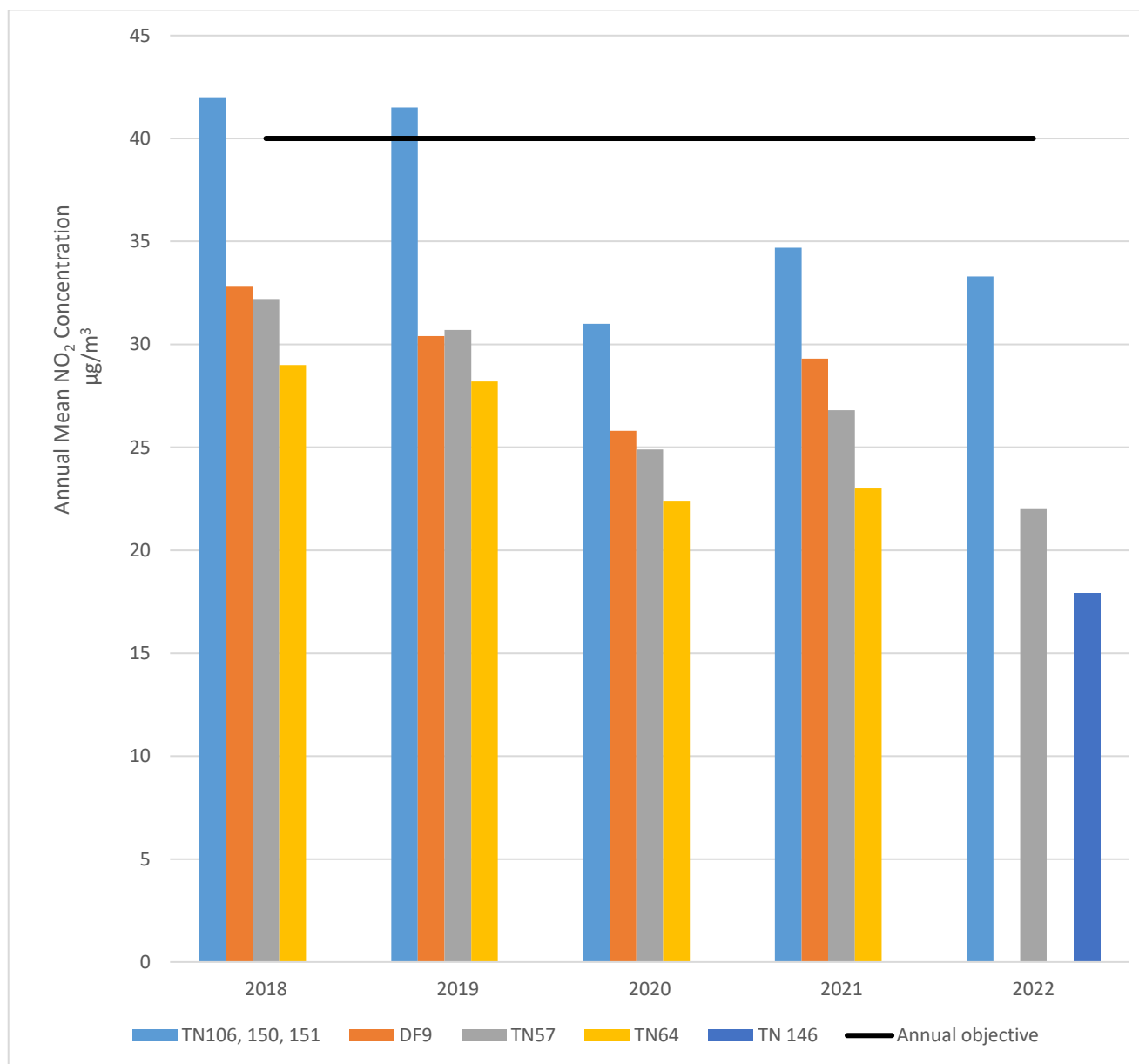
Figure 5 NO₂ levels over past 5yrs. in Larkfield A20 & surrounding locations

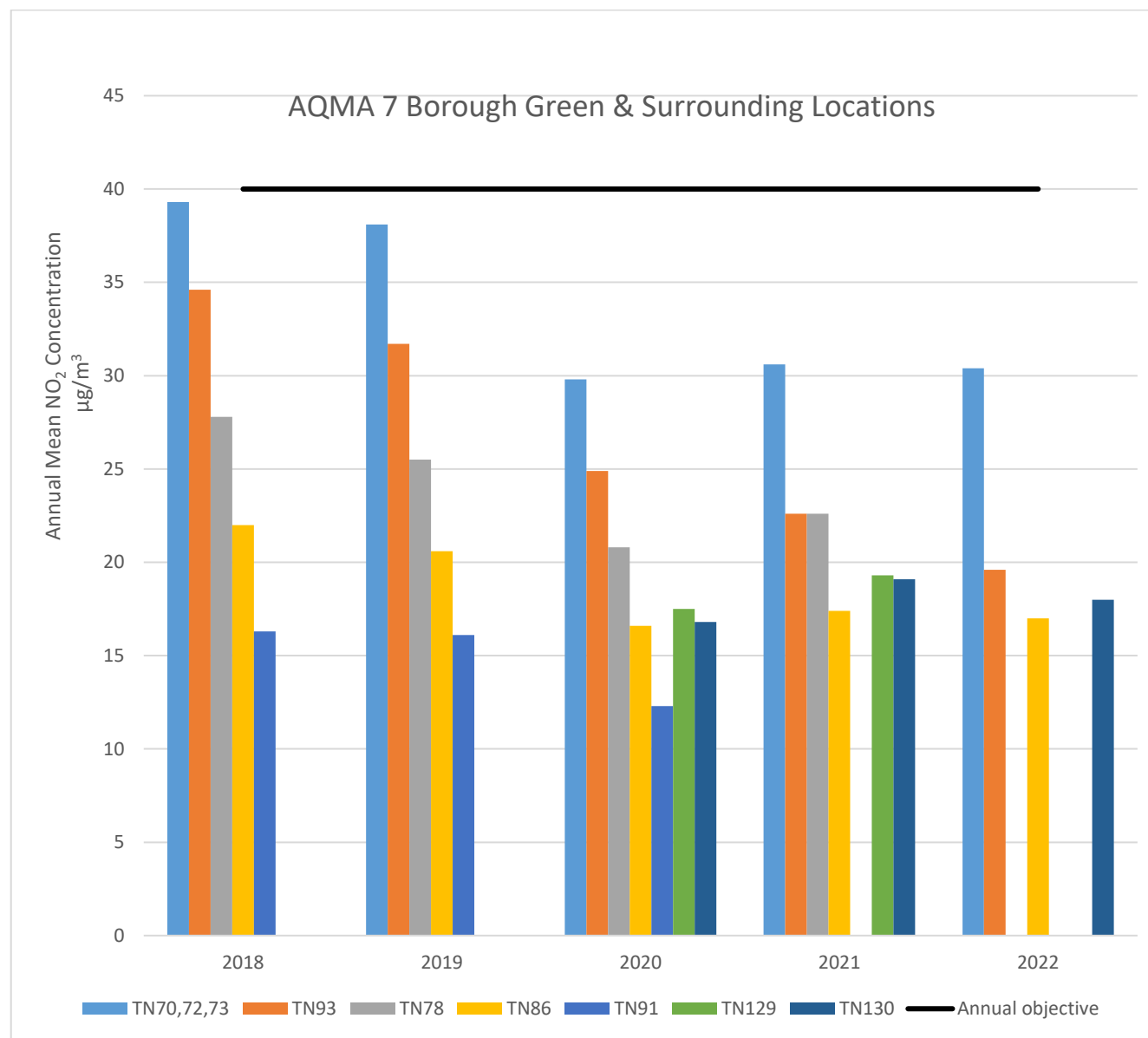
Figure 6 NO₂ levels over past 5 yrs. in AQMA 7 Borough Green & surrounding locations

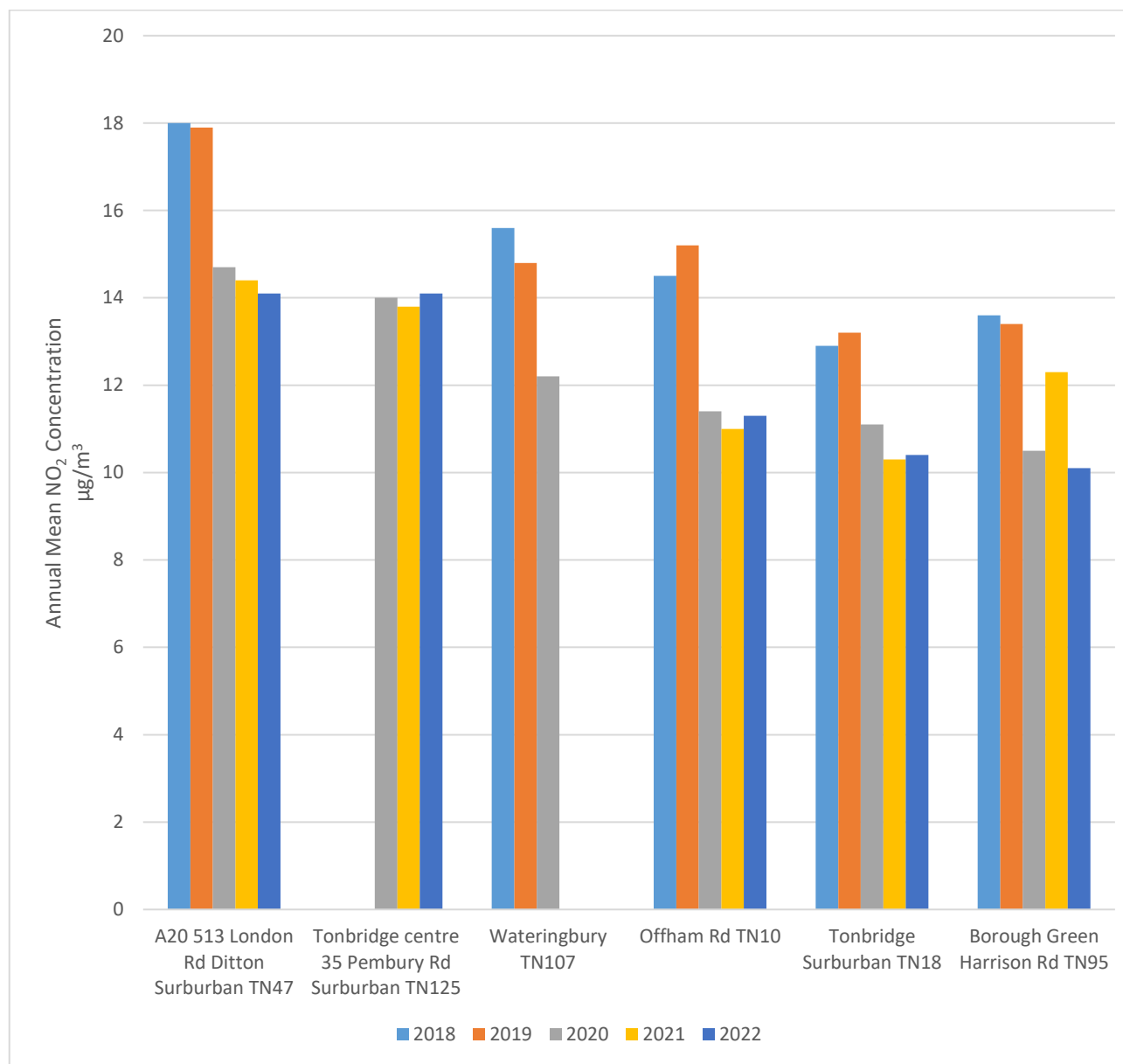
Figure 7 NO₂ levels in past 5yrs for background sites

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 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
ZT8	560583	157337	Roadside	100	97	N/A	N/A	N/A	0	0
ZT9	558890	146203	Urban Centre	82.3	37	N/A	N/A	N/A	N/A	0
ZT5	558877	146185	Urban Centre	N/A	N/A	0 (161)	0 (147)	0 (119)	N/A	N/A
ZT7	569165	153493	Roadside	N/A	N/A	N/A	1 (92)	0	0	N/A

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 PM₁₀ 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⁾	2018	2019	2020	2021	2022
ZT8	560583	157337	Roadside	100	100	N/A	N/A	N/A	24	25

☒ 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/m³.
- Exceedances of the PM₁₀ 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.
- (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 PM₁₀ Monitoring Results, Number of PM₁₀ 24-Hour Means > 50µg/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⁾	2018	2019	2020	2021	2022
ZT8	560583	157337	Roadside	100	100	N/A	N/A	N/A	6	12

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m³ have been recorded.

Exceedances of the PM₁₀ 24-hour mean objective (50µg/m³ 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/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⁾	2018	2019	2020	2021	2022
ZT8	560583	157337	Roadside	100	100	n/a	n/a	n/a	n/a	16.6

 **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/m³.
- 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%).

Appendix B: Full Monthly Diffusion Tube Results for 2022

Table B.1 – NO₂ 2022 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 <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
TN5a	572611	158545	39.7		36.8	27.1	29.1	30.2	27.6	27.3	25.5	32.4	29.1	34.6	28.3	21.5	-	
TN7b	570391	159032	45.7		35.8	28.6	29.2	28.7	28.5	28.2	30.8	32.1	36.0	38.9	30.2	22.9	-	
TN10	567617	157635	22.0	14.2	18.3	14.4	10.5	10.4	12.1	13.2	12.5	13.3	19.6	18.6	14.9	11.3	-	
TN18	560263	148509	24.6	12.3	18.7	11.8	9.0	7.2	8.4	9.8	11.1	12.6	15.8	22.5	13.7	10.4	-	
TN33	569201	153486	47.5	47.5	63.8	51.5	40.2	39.0	49.4	52.9	49.4	44.3	51.0	44.5	48.4	36.8	-	
TN35	558948	146277	44.8	31.7	43.1	33.1	32.4	33.2	35.2	37.9	35.4	36.9		37.5	33.4	25.4	-	
TN43	569187	153498	45.3	34.6	34.5	31.9	34.8	33.0	35.5	35.9	32.0	31.6	33.4	36.8	34.9	26.6	-	
TN44	558929	146271	43.1	35.7		30.9		31.5	31.5	31.2	35.5	33.7	38.7	38.3	29.2	22.2	-	
TN47	571399	158375	32.8	20.1	23.1	15.9	13.7	8.2	14.1	14.6	18.9	17.5	21.7	22.3	18.6	14.1	-	
TN57	570467	158328	55.2	39.4	49.6	41.4	39.2	35.6	42.1	43.4	47.9	43.2	46.2	42.5	43.8	33.1	-	
TN61	559572	147017	34.5	20.8	32.1	23.1	19.6	18.4	21.1	23.6	22.2	24.5	24.5	23.9	24.0	18.3	-	
TN60, TN62, TN63	572423	157932	50.0	37.2	42.6	34.0	38.9	36.3	40.5	36.7	37.9	41.3	43.3	41.9	40.0	30.4	-	
TN68	572430	157975	37.9	28.8	38.0	27.8	27.3	25.3	26.9	28.4	17.7	32.0	34.1		27.0	20.5	-	
TN70, TN72, TN73	560567	157328	44.7	43.9	43.9	37.0	38.2	38.5	37.2	35.4	37.9	39.1	41.7	41.8	39.9	30.4	-	
TN74, TN75, TN45	558864	146166	45.2	39.5	37.4	36.7	34.2	34.6	34.2	34.5	35.4	36.3	40.7	40.0	37.4	28.4	-	
TN42, TN76, TN77	569226	153475	74.0		70.7	57.9	51.1	47.2	60.4	66.9	59.7	54.3	55.8	50.1	58.9	44.7	-	
TN80b	572124	158627	43.6	36.3	29.6	25.6	25.2	22.9	24.2	23.2	26.3	29.5	32.5	39.0	29.8	22.7	-	

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 <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
TN86	560867	157302	33.1	17.8	30.4	23.0	17.6	14.9	17.1	19.4	22.3	18.7	25.0	29.7	22.4	17.0	-	
TN93	560717	157266			35.6	32.2	23.9	22.1	29.0	31.1	35.5	26.5	37.6	35.9	25.8	19.6	-	
TN95	560831	157004	19.4	10.5	18.0	13.0	9.8	8.3	10.3	11.0	12.7	10.5	15.7	20.8	13.3	10.1	-	
TN96	559148	146889	35.6	22.3	41.2	34.5	27.0	23.0	29.6	32.3	31.5	24.9	30.7	32.9	30.5	23.1	-	
TN83, TN98, TN99	570740	159667	35.8	24.8	26.6	21.1	25.8	33.9	22.8	24.1	27.0	24.3	27.3	32.1	27.1	20.6	-	
TN100	572999	156292	30.8	16.8	26.2	21.8	15.0	13.6	15.5	19.0	20.3	15.5	18.8	20.1	19.5	14.8	-	
TN102	572768	157186	47.8		44.7	34.0	38.2	21.3	33.4		34.9	33.2	36.6	37.6	30.1	22.9	-	
TN104	572976	157726	53.4	39.6	50.1	42.1	39.0	36.1	41.8	44.5	45.2	43.1	43.8	43.7	43.5	33.1	-	
TN106, TN150, TN151	570193	158327	58.6	39.6	50.8	42.2	39.9	34.4	42.4	40.7	48.3	44.3	46.9	41.9	44.2	33.6	-	
TN109	558743	145922	53.7	38.9	47.8	40.0	38.6	36.2	42.1	44.9	50.3	42.3	48.0		40.2	30.6	-	
TN110	559012	146433	35.2	26.2	45.6	33.9		29.5	37.0	36.0	35.0	34.2	33.2	31.9	31.5	23.9	-	
TN118	563209	157995	40.4	30.1	29.8	27.6		27.3	28.6	29.5	30.4	30.0	35.0	34.7	28.6	21.7	-	
TN119	572924	158986	41.9	27.8	39.4	31.0	29.2	28.1	33.1	32.4	32.3	27.7	33.1	33.5	32.5	24.7	-	
TN122	569168	153501	41.3	30.0	36.0	27.3	23.9	20.4	24.5	18.2	19.6	28.9	24.4	36.0	27.5	20.9	-	
TN123	573130	159010	49.9	31.6	45.2	36.5	29.3		32.8	33.7	34.8	29.0	36.6	34.4	32.8	24.9	-	
TN124	572152	158544	43.1	32.1	32.5	25.0	27.2	22.3	27.2	32.4	31.9	32.4	32.7	37.0	31.3	23.8	-	
TN125	558856	145731	40.1	22.2	36.4	30.8	21.0	18.4	24.4	29.1	31.6	21.8	25.3	28.4	27.5	20.9	-	
TN127	559168	145422	28.4	15.4	25.3	16.8	14.1	12.4	15.1	15.9	17.8	16.5	22.0	23.5	18.6	14.1	-	
TN128	559212	147339	31.7	16.8	29.1	21.3	17.2	12.9	18.7	19.8	22.8	19.0	24.5	27.9	21.8	16.6	-	
TN129	560790	157222	30.3		25.8	17.5	15.8	12.8	16.8	16.6	19.3	18.0	24.4	29.8	18.9	14.4	-	

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 <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
TN130	560790	157351	33.7	22.7	25.8	19.1	21.8	20.0	20.9	20.5	23.9	23.5	26.1	26.8	23.7	18.0	-	
TN131	558616	145696	36.6	24.1	40.2	32.9	26.5	24.8	29.1	29.9	34.1	29.2	30.9	32.7	30.9	23.4	-	
TN132																		
TN133																		
TN134	558515	145617	30.7	20.4	32.3	21.9	19.3	18.2	20.7	19.6	22.9	22.4	28.2	28.1	23.7	18.0	-	
TN135	559056	146445	37.4	29.5	29.7	20.8	23.8	26.5	24.7	23.0	25.4	27.9	32.2	34.0	27.9	21.2	-	
TN136	570430	162502	52.2	41.2	54.4	41.8			26.4	26.3	26.7	29.5	34.1	38.3	30.9	23.5	-	
TN137	575090	162364	62.8	44.7	34.8	40.2		35.9	40.5	41.2	47.7	39.9	44.8	44.0	39.7	30.2	-	
TN138	574511	162156	35.3	27.9	25.4	20.0	25.3	21.5	22.5	23.6	25.2	25.7	27.9	32.6	26.1	19.8	-	
TN139	574651	162613	39.8		33.6	25.1	20.6	17.7	21.8	25.4	27.6	21.7	28.7	32.1	24.5	18.6	-	
TN140	571165	158230	37.4	23.1	33.4	23.2	18.1	15.4	18.4		24.3		29.1	31.3	21.1	16.1	-	
TN141	560583	157337	41.7	31.0	36.3	29.8	28.5	24.3	27.9	27.3	30.3	28.0	32.5	32.2	30.8	23.4	-	
TN142	561119	157864	24.5	12.7	26.8	17.9	14.1	12.0	14.8	16.3	18.6	15.5	19.6	21.3	17.8	13.6	-	
TN143	561151	157867	31.9	18.0	24.4			15.9	18.9	16.6	19.9	23.5	21.2	27.0	18.1	13.8	-	
TN144	570161	156966	49.5	39.1	40.1	31.8	33.7	36.6	33.5	35.1	40.9	37.4	42.1	42.1	38.5	29.3	-	
TN145	570165	156874	41.7	31.3	39.6	29.9	24.9	28.9	27.0	30.1	27.8	34.4	40.5	36.9	32.8	24.9	-	
TN146	570452	158368	40.2	23.4	29.2	19.2	18.9	13.9	18.0	19.7	22.7	21.3	24.7	31.5	23.6	17.9	-	
TN147	570718	159593	41.6		32.5	20.9	22.7	18.2	22.6	24.0	28.9	26.8	31.7	30.0	25.0	19.0	-	
TN148	570682	158852	33.5	18.7	32.0	27.7		14.9	19.4	26.4	28.5	18.5	23.1	26.1	22.4	17.0	-	
TN149	572494	158480	38.1	21.8	30.8	24.0	18.6	13.9	21.1	24.1	26.0	20.3	25.7	28.3	24.4	18.5	-	
DF1, DF2, DF3	572459	157904	56.9	47.9	51.9	33.4	38.1	37.5	41.3	34.5	38.1	45.2	46.1	39.0	43.8	33.3	-	
DF4	571139	158427	43.5	26.8	45.8	30.5	28.3	27.5	32.7	38.1	37.1	28.7	27.9	33.1	33.3	25.3	-	

- ☒ 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.
- ☒ Tonbridge & Malling Borough Council **confirm that all 2022 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 Tonbridge & Malling Borough Council During 2022

Tonbridge & Malling Borough Council has not identified any new sources relating to air quality within the reporting year of 2022.

Additional Air Quality Works Undertaken by Tonbridge & Malling Borough Council During 2022

Tonbridge & Malling Borough Council was awarded grant funding for 5 sensors to be located outside 5 schools to monitor pollution levels from cars anti-idling on the roads where parents park and wait. These were installed at the end of 2022 and aim is to continue monitoring into first half of 2023. A full report on the anti-idling project with these sensors will be in 2024 ASR.

QA/QC of Diffusion Tube Monitoring

Tonbridge & Malling Borough Council uses Socotec Laboratory which has UKAs accreditation and supplies diffusion tubes with 50% TEA in acetone. It takes part in the AIR-PT intercomparison scheme for comparing spiked Nitrogen Dioxide diffusion tubes, SOCOTEC currently holds the highest rank of a Satisfactory laboratory.

All monitoring was completed in adherence with the 2022 Diffusion Tube Monitoring Calendar.

Diffusion Tube Annualisation

All diffusion tube monitoring locations within Tonbridge & Malling Borough Council recorded data capture of 75% therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

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

Bexley Thurrock and Gravesend sites were chosen because they all were in the southeast and east of London. These sites were not exceeding the national limit for NO₂ and where alongside roads that were estimated to have similar traffic levels to Tonbridge High Street.

Site ID	Annualisation Factor Bexley	Annualisation Factor Thurrock	Annualisation Factor Gravesend A2	Annualisation Factor <Site 4 Name>	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
ZT9	1.06	1.05	1.1		1.07	22	22.5

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/NO₂ continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Tonbridge & Malling Borough Council have applied a national bias adjustment factor of 0.76 to the 2022 monitoring data. A summary of bias adjustment factors used by Tonbridge & Malling Borough 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	03/23	0.76

2021	National	03/22	0.78
2020	National	03/21	0.77
2019	National	03/20	0.75
2018	National	03/19	0.76

Figures A.7- National Diffusion tube bias adjustment factor Spreadsheet

Spreadsheet version number: 03/23

Analysed By	Method	Year	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) ($\mu\text{g}/\text{m}^3$)	Automatic Monitor Mean Conc. (Cm) ($\mu\text{g}/\text{m}^3$)	Bias (B)	Tube Precision (G=Good)	Bias Adjustment Factor (A) (Cm/Dm)
Socotec Didcot	50% TEA in acetone	2022	UB	Torfaen County Borough Council	13	13	10	33.4%	G	0.75
Socotec Didcot	50% TEA in acetone	2022	R	Bridgend Council	12	37	27	40.6%	G	0.71
Socotec Didcot	50% TEA in Acetone	2022	R	Cardiff Council / Shared Regulatory Services	11	42	33	27.3%	G	0.79
Socotec Didcot	50% TEA in Acetone	2022	R	Dacorum Borough Council	12	24	18	30.8%	G	0.76
Socotec Didcot	50% TEA in Acetone	2022	UB	Gravesham Borough Council	11	22	18	19.6%	G	0.84
Socotec Didcot	50% TEA in Acetone	2022	UB	Gravesham Borough Council	11	26	22	17.0%	G	0.85
Socotec Didcot	50% TEA in acetone	2022	R	Kingston Upon Hull City Council	12	30	23	27.9%	G	0.78
Socotec Didcot	50% TEA in acetone	2022	UB	Kingston Upon Hull City Council	12	24	18	35.0%	G	0.74
SOCOTEC Didcot	50% TEA in acetone	2022	UB	City Of York Council	12	16	13	31.6%	G	0.76
SOCOTEC Didcot	50% TEA in acetone	2022	R	City Of York Council	12	25	19	28.7%	G	0.78
SOCOTEC Didcot	50% TEA in acetone	2022	R	City Of York Council	11	23	17	37.2%	G	0.73
SOCOTEC Didcot	50% TEA in acetone	2022	R	City Of York Council	11	37	27	37.6%	G	0.73
SOCOTEC Didcot	50% TEA in acetone	2022	R	East Suffolk Council	11	32	23	38.6%	G	0.72
SOCOTEC Didcot	50% TEA in acetone	2022	R	Ipswich Borough Council	11	42	28	50.4%	G	0.66
SOCOTEC Didcot	50% TEA in acetone	2022	KS	Marylebone Road Intercomparison	12	60	42	40.7%	G	0.71
SOCOTEC Didcot	50% TEA in acetone	2022	R	North East Lincolnshire Council	10	46	31	49.4%	G	0.67
SOCOTEC Didcot	50% TEA in acetone	2022	R	North East Lincolnshire Council	10	28	27	3.7%	G	0.96
SOCOTEC Didcot	50% TEA in acetone	2022	R	Wrexham County Borough Council	12	16	14	15.5%	G	0.87
SOCOTEC Didcot	50% TEA in Acetone	2022	R	Horsham District Council	11	25	22	14.4%	G	0.87
SOCOTEC Didcot	50% TEA in acetone	2022	R	Leeds City Council	12	40	29	37.8%	G	0.73
SOCOTEC Didcot	50% TEA in acetone	2022	KS	Leeds City Council	11	33	23	44.6%	G	0.69
SOCOTEC Didcot	50% TEA in acetone	2022	R	Leeds City Council	12	43	34	26.0%	G	0.79
SOCOTEC Didcot	50% TEA in acetone	2022	R	Leeds City Council	11	41	30	34.2%	G	0.75
SOCOTEC Didcot	50% TEA in acetone	2022	R	Leeds City Council	12	30	22	36.9%	G	0.73
SOCOTEC Didcot	50% TEA in acetone	2022	UC	Leeds City Council	12	30	22	34.1%	G	0.75
SOCOTEC Didcot	50% TEA in Acetone	2022	R	Thanet District Council	12	23	17	29.1%	G	0.77
SOCOTEC Didcot	50% TEA in acetone	2022		Overall Factor (26 studies)				Use		0.76

QA/QC of Automatic Monitoring

The Environment Officer completes the data management and Local Site Operator duties for the automatic monitoring sites within Tonbridge & Malling Borough Council.

Calibrations take place once a month with independent QA/QC audits are conducted annually to AURN standards by Ricardo Energy & Environment. Analysers are routinely serviced at 6 monthly intervals by a competent equipment support unit.

Datasets are ratified following AURN standard QA/QC and ratification processes, within TG(22) guidelines, on a quarterly basis. Data will be processed and scaled using all available manual and automatic calibrations. Data for 2022 are ratified.

Live & historic data is available through <https://kentair.org.uk/data/data-selector>

PM₁₀ and PM_{2.5} Monitoring Adjustment

For further info see TG(22) section 7.168. The unheated BAM PM₁₀ uses the multiply by 0.833 calculation.

Automatic Monitoring Annualisation

Annualisation was done to the site at Tonbridge High Street following the method in the Technical guidance (TG22). For annualisation the sites of Bexley, Gravesend A2 and Thurrock were used for the NO_x analyser for Tonbridge High Street (ZT9). The annual mean for these sites were 17.5 µg/m³, 22.2 µg/m³ and 19.8 µg/m³ respectively and the period mean used from July to December from each site was 16.5 µg/m³, 20.2 µg/m³ and 18.8 µg/m³. This gave a ra correction value of 1.07.

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 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.

No automatic NO₂ monitoring locations within Tonbridge & Malling Borough Council required distance correction during 2022.

Appendix D: Maps of Monitoring Locations and AQMAs

Figures 8-13 – Maps of Non-Automatic Monitoring Sites

Figure 8 Locations of current and old diffusion tubes for AQMA 1 M20

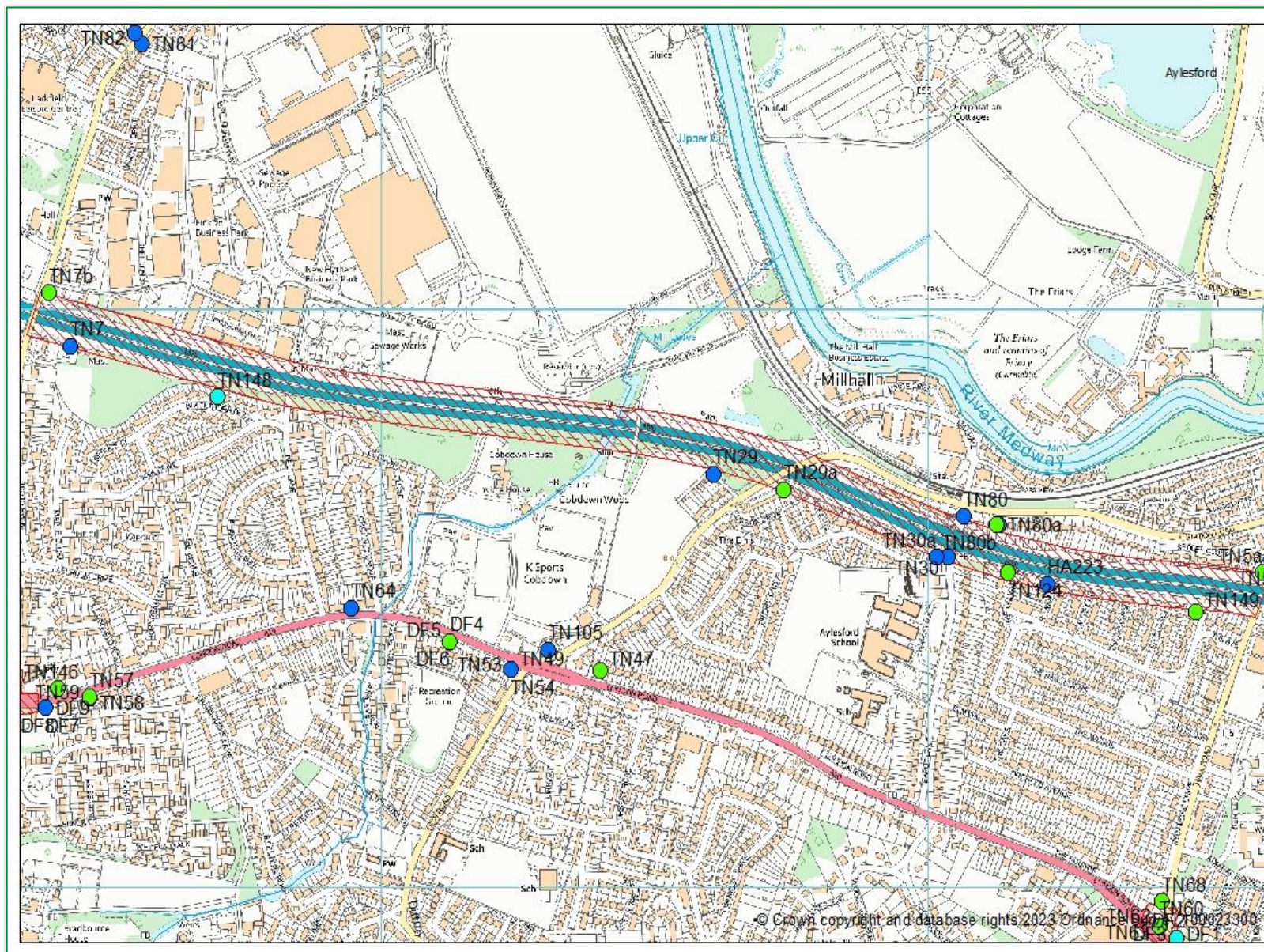


Figure 9 Locations of current and old diffusion tubes for AQMA 3 Tonbridge High Street

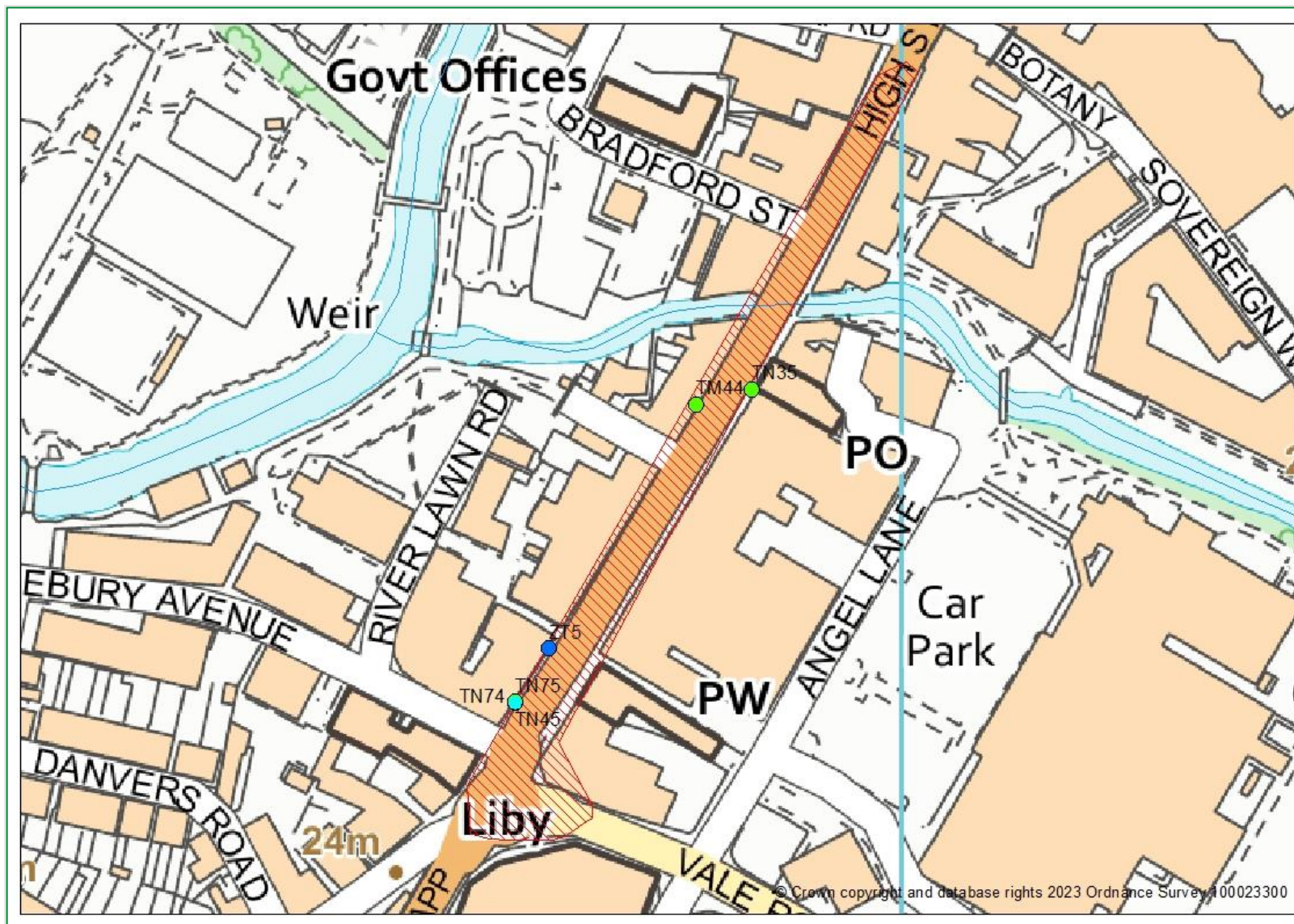


Figure 10 Locations of current and old diffusion tubes for AQMA 4 Wateringbury

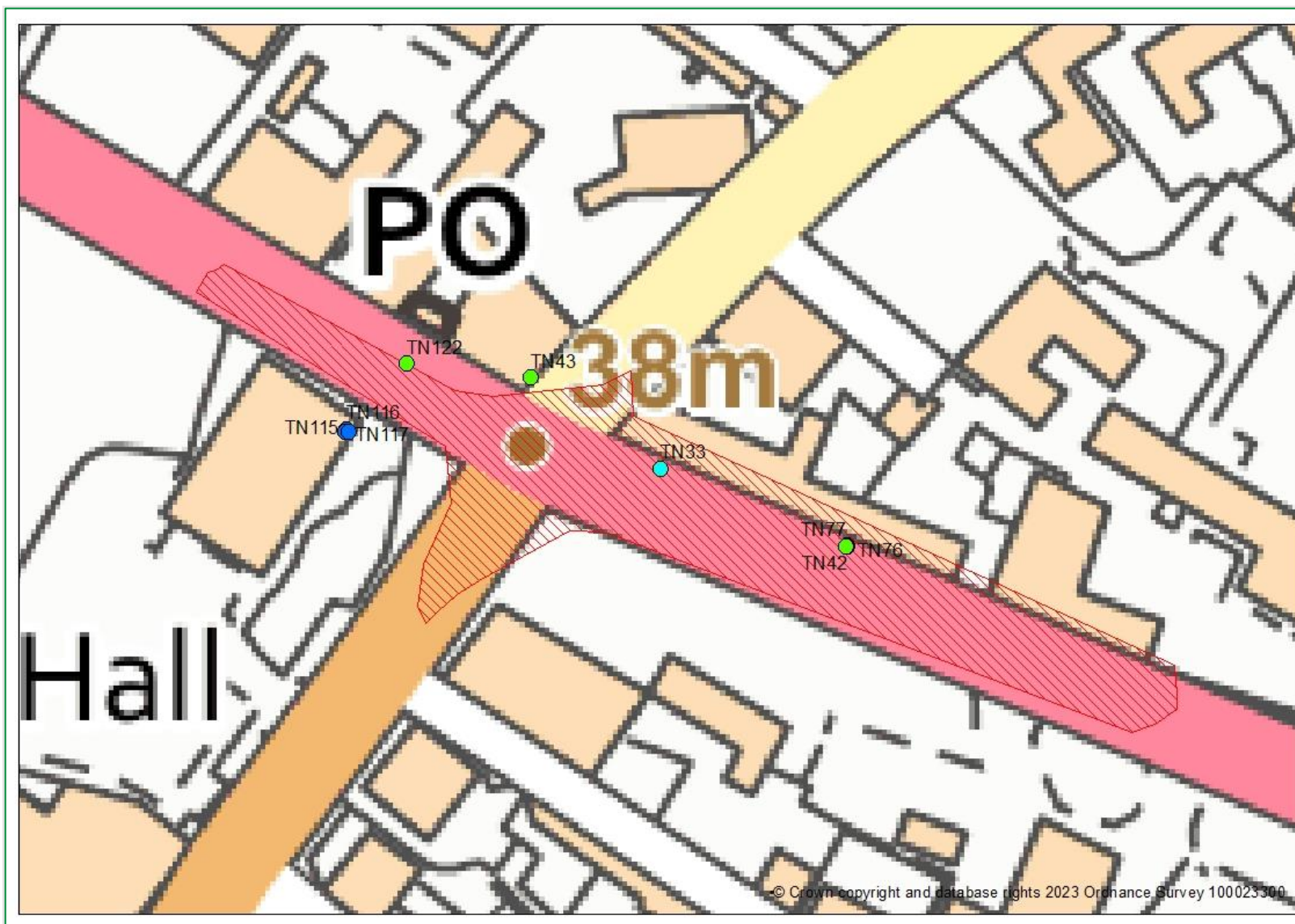


Figure 11 Locations of current and old diffusion tubes for AQMA 5 Aylesford

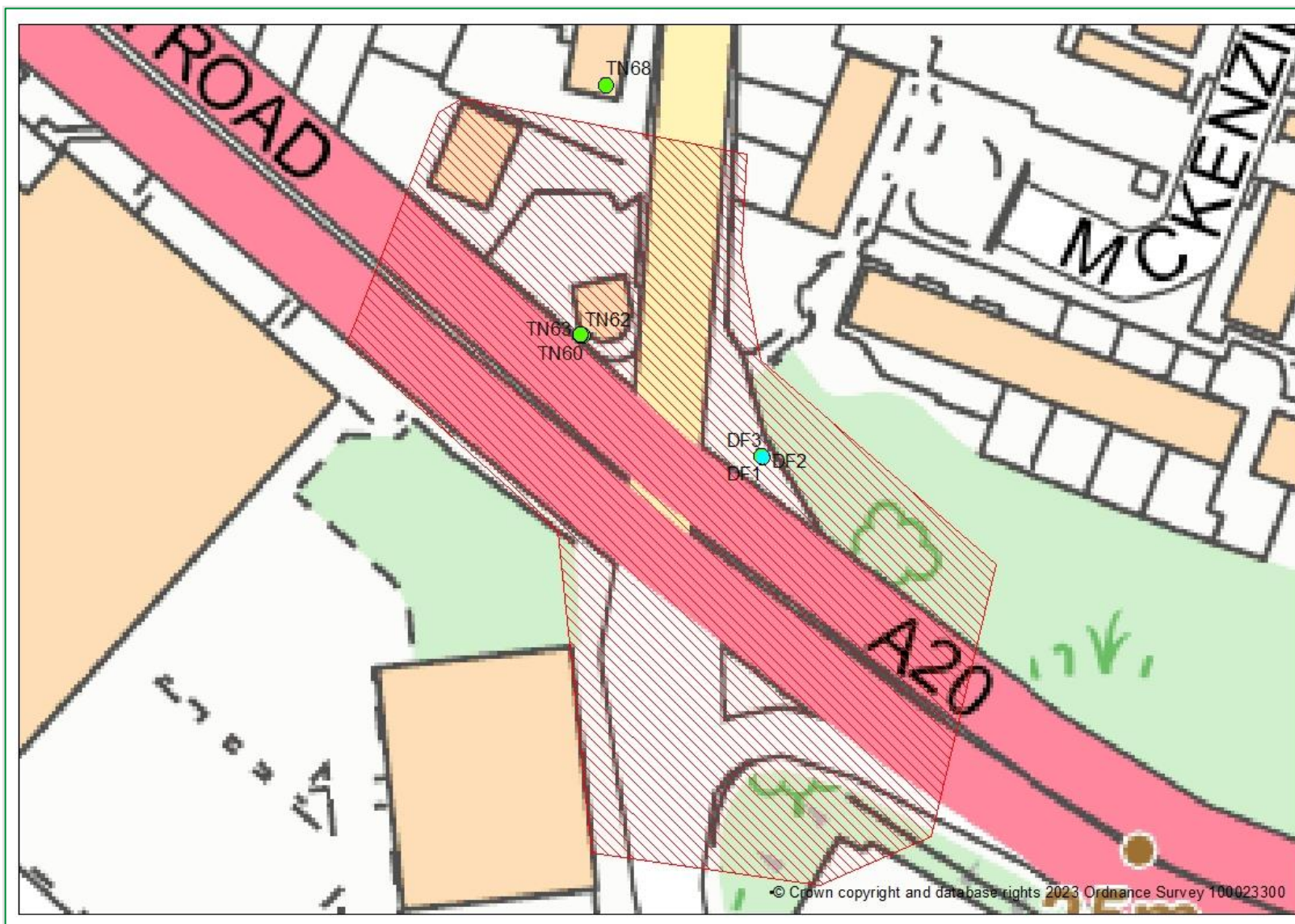


Figure 12 Locations of current and old diffusion tubes for AQMA 6 Larkfield

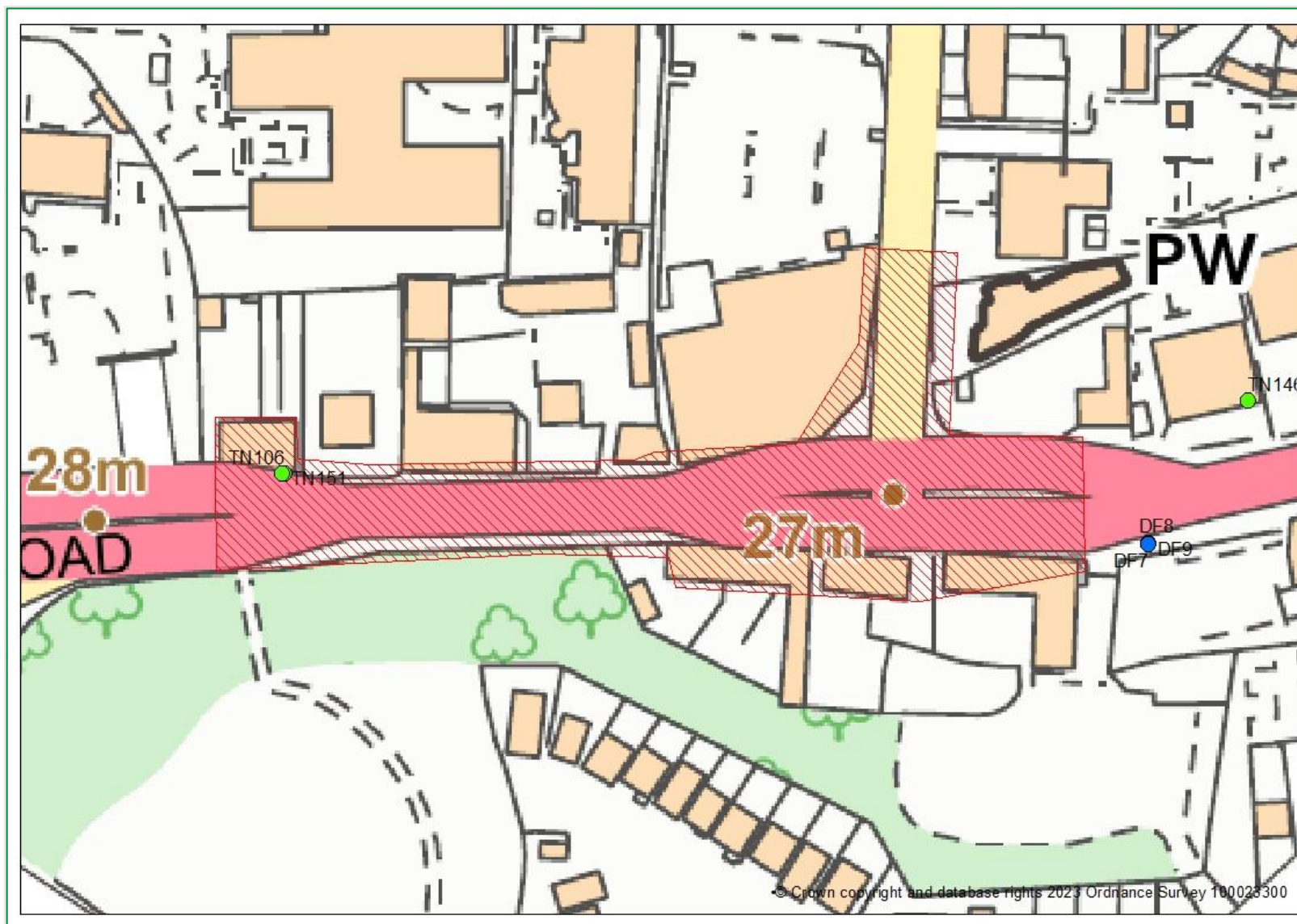
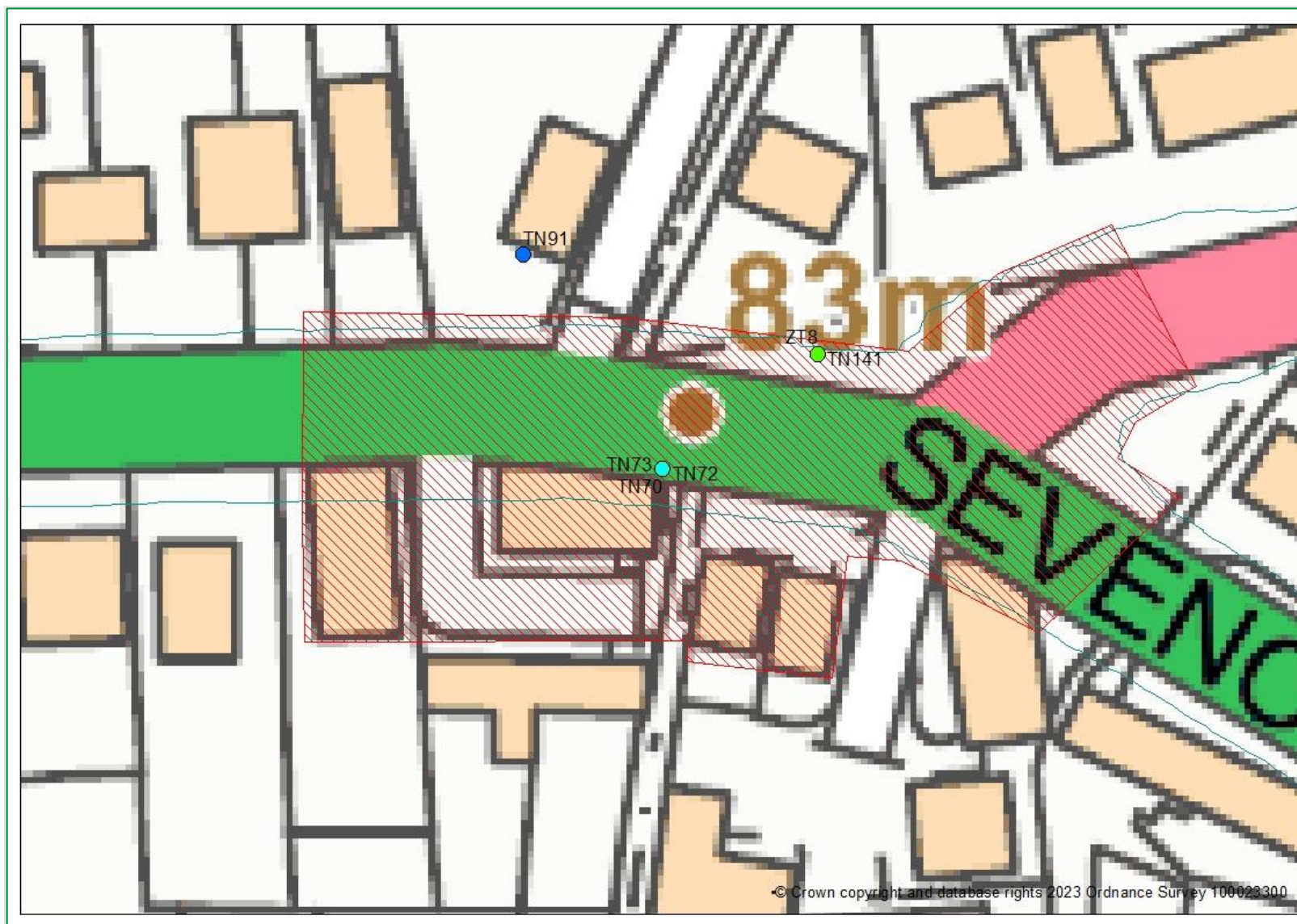


Figure 13 Locations of current and old diffusion tubes for AQMA 7 Borough Green



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England⁷

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

⁷ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

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 ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
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
SO ₂	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.