2024 Air Quality Annual Status Report (ASR)

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

Date: June 2024

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Executive Summary: Air Quality in Our Area

Air Quality in Dorset

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

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

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

Table ES 1 - Description of Key Pollutants

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

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

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

Air quality throughout Dorset Council has been assessed and has been found to be broadly very good, due to the predominantly rural environment. However, in certain locations air quality has been found to be close to, or exceeding the objective level for nitrogen dioxide (NO_2), the main source of pollution being from road traffic. This is due to vehicle emissions and other factors including type and number of vehicles, their speed, congestion and local topographical circumstances. As a result of this, an Air Quality Management Area was declared in Chideock in 2007, and High East Street, Dorchester in 2009. (https://www.dorsetcouncil.gov.uk/environmental-health/documents/air-quality-management-order-2007-chideock.pdf https://www.dorsetcouncil.gov.uk/environmental-health/documents/air-quality-management-order-2009-dorchester.pdf)

In February 2018, Government approved plans to create two new unitary councils in Dorset. On 1st April 2019, the former borough, county and district councils ceased to exist and were replaced by two unitary authorities: BCP Council and Dorset Council. Any reference to previous districts refers to geographical divisions used to facilitate effective and efficient management of air quality monitoring.

Actions to Improve Air Quality

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

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

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

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

The Road to Zero[5] details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal travel and the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

Primary actions taken to improve air quality in Dorset principally revolve around the new Air Quality Action Plan for Chideock and the harmonisation and streamlining of air quality monitoring practices between teams following formation of the new council. National Highways (formerly Highways England), who hold responsibility for actions regarding the A35 trunk road passing through Dorset – the principal source of NO_2 emissions in the AQMA in Chideock – have seen success also with the extension of the 30mph speed limit, the permanent implementation of which is currently underway. Dorset Council continue to work with our colleagues at National Highways, as well as our own Highways Department, Public Health Dorset and elected members and Parish Councils.

Further working is being undertaken as part of a DEFRA-funded project to monitor and quantify emissions from solid-fuel burning appliances. This seeks to quantify PM emissions in locales with higher numbers of solid-fuel burners, and measure the impact of behaviour change initiatives and campaigns. This project is due for completion in summer/autumn 2024. Partners in Public Health and Litter Free Dorset are partnering with Environmental Protection to further extend anti-idling schemes outside schools, and to extend the school-streets programme which closes roads around schools at drop-off and pick-up times.

Conclusions and Priorities

2023 monitoring has demonstrated annual average exceedances at monitoring sites in Dorset once bias adjustment has occurred. These are all within the Chideock AQMA. The overall picture remains fairly mixed: although there are a few sites that have increased, most sites have decreased concentrations on 2022. Sites generally remain below 2019 levels contributing to an overall downward trend. Caution is advised against making significant

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

strategic decision on the basis of 2023 results, however the continuation of the downward trend in air pollution is welcome.

Chideock monitoring sites remain below 2019 concentrations and show a general decrease on 2022 concentrations too. Exceedances of the 40µg/m^3 Air Quality Objective (AQO) have occurred at two sites: W39 – 54.4µg/m^3; and H6 – 57.9µg/m^3. These sites are on the Chideock Hill incline. Both sites provided exceedances in 2022, and when distance corrected, W39 is compliant with the objective (39.7 µg/m^3). All W-numbered Chideock sites, and all but one H site demonstrate a downwards trend in comparison with 2022 concentrations.

Sites within Dorchester AQMA broadly demonstrate consistent levels with 2022. Both monitoring sites rest at least 10% below the AQO. Dorset Council intends to revoke the AQMA in 2024, as the air quality has remained at least 10% below the minimum objective. The above caution regarding strategic decisions is heeded in this case.
Sites within the Bridport East Road area have decreased since 2022 with no sites within 10% of the AQO. Monitoring will continue into 2024.

Sites in Weymouth, including the Boot Hill area largely show improved air quality on 2022, with some sites showing increases in concentrations. One site has increased to within 10% of the AQO – W12 (36.1 µg/m^3), with W5 and W13 also showing increases on 2022. Of these, only W12 has concentrations greater than 2019. Monitoring will continue during 2024 with further provision planned for the Boot Hill area.

Air Quality in both former East Dorset and Purbeck districts remains very good, with no identified AQMAs, areas for concern, exceedances or sites within 10% of the AQO. All but one site shows a slight decrease on 2022 concentrations, however these sites remain at less than, or in proximity to, half of the annual mean. Monitoring continues to take place, with careful consideration given to sites near significant developments and those guided by public and member requests.

No exceedances of the PM$_{10}$ annual mean objective were detected across four sites in Dorset, with all four sites having 24-hour means over 50µg/m^3 but within the permitted 35 times per year threshold. The Blandford monitor has remained out of operation due to power

malfunctions for the majority of the year, meaning its data should not be regarded as accurate (7% annual data collection). Beaminster's annual mean continued to demonstrate a downwards trend, and concentrations in Ferndown returned to levels broadly consistent with a downwards trend since 2019. Sandford remains at levels broadly consistent with the 2022 concentration, indicating that systemic changes may have occurred to increase PM pollution in the area. Further monitoring of the sites will continue.

Annual mean $PM_{2.5}$ levels show a mixed picture across Dorset, with a general downward trend. Beaminster concentrations continue to fall on pandemic levels, although is increased on an anomalously low 2022 result. Blandford's result is not considered accurate due to low data capture (7% annual data collection). Ferndown and Sandford have remained consistent with 2022 concentrations. Overall, the $PM_{2.5}$ outlook in Dorset remains good, with all sites remaining below the future 2040 target of $10\mu g/m^3$. This is advised with caution however. An increase in PM monitoring across Dorset is now underway, although has been delayed beyond the deadline for the 2024 ASR.

We continue to work with other council services including Highways and Planning, the Environment Agency and local businesses by way of the permitting regime to ensure that air quality is continually reviewed. In addition, Public Health Dorset's pan-Dorset $PM_{2.5}$ project continues but will be reviewed in late 2024.

Local Engagement and How to get Involved

Our Local Plan states "Everyone has a role to play in tackling climate change and in adapting to its impacts. Community based initiatives such as local car share schemes, village hall investments, biofuel utilisation, community emergency support and renewable energy part ownership will be supported by the Council. Neighbourhood plans may address the adaptation and mitigation of climate change at the community level as recognition that all neighbourhoods can contribute towards tackling climate change in a way which is appropriate to their local area."

The Dorset Council website https://www.dorsetcouncil.gov.uk/travel/travel.aspx includes measures the public can actively use to improve air quality within the area, these include matters such as interactive cycle maps, adult cycle training and walking routes and trails.

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Protection Department of Dorset Council with the support and agreement of the following officers and departments:

Environmental Protection

Development Control

Building Control

Public Health Dorset

Highways

This ASR has been signed off by:

Graham Duggan – Head of Community and Public Protection

Sam Crowe – Director of Public Health

If you have any comments on this ASR please send them to Ben Frost-Jones at:

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1 Local Air Quality Management

This report provides an overview of air quality in Dorset during 2023. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in order to achieve and maintain the objectives and the dates by which each measure will be carried out. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Dorset 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 Dorset Council can be found in Table 2.1. The table presents a description of the two AQMAs that are currently designated within Dorset. Appendix D: Map(s) 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:

- NO_2 annual mean - 40μg/m^3

We propose to revoke Dorchester AQMA in 2024 (see monitoring and additional section).

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
AQMA Chideock	May 2007, Amended March 2012	NO$_2$ Annual Mean	A35 in Chideock.	YES	45.5	57.9	0	Chideock Air Quality Action Plan, 2022	https://moderngov.dorsetcouncil.gov.uk/documents/s30911/Appendix%20A%20Dorset%20Chideock%20AQAP%202022.pdf
AQMA Dorchester	May 2009	NO$_2$ Annual Mean	High East Street, Dorchester	NO	43	28.2	5*	Dorchester Air Quality Action Plan, 2011	https://www.dorsetcouncil.gov.uk/documents/35024/281348/Air+Quality+Action+Plan+2011+-+Dorchester.pdf/f500d2db-d2d6-d92b-3306-414d0ce517cf

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

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

2.2 Progress and Impact of Measures to address Air Quality in Dorset

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 plan a district-wide review of air quality monitoring in autumn 2023, to redistribute diffusion tube and AQMesh resources. Its great to see that the council is keeping is monitoring network under review.*

2. *The report included detailed discussion of trends in monitoring data, set out by area. The statistics on traffic reduction were a good addition to aid in understanding trends. It would be great to see the tables in this section in the same format as the rest of the report.*

3. *As with the previous years ASR, the local engagement section of the report is brief. It could be improved by including information on how the public can get involved in improving air quality. This would be beneficial for local residents of Dorset Council to use.*

4. *Much of Table 2.2 hasn't been filled in. This table should be completed in future reports. In particular estimated completion date, progress to date and barriers to implementation are important to understand the status and progress of measures.*

5. *There are several instances of pollutant names and units are not appropriately superscripted or subscripted. Whilst this doesn't affect the readability of the report. The council should endeavour to do this correctly in future reports.*

6. *As with the previous years ASR, the priorities and proposed future actions for the coming year are not clearly identified and justified.*

Dorset Council has taken forward a number of direct measures during the current reporting year of 2023 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 27 measures are included within Table 2.2, with the type of measure and the progress Dorset Council have made during the reporting year of 2023 presented. Where there have been, or continue to be,

barriers restricting the implementation of the measure, these are also presented within Table 2.2.

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

- Implementation of a permanent 30mph speed limit on Chideock Hill in partnership with National Highways which is now enforceable
- Increasing our provision of PM monitoring to include urban locations by way of DEFRA-funded project. These monitors will be rolled out for wider monitoring use once the project is concluded
- Information and marketing campaign to improve solid-fuel burning behaviours
- Renewal of Dorset Council pool-car fleet to include new plug-in electric vehicles
- Installation of 10 charging points for use by council staff

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

- Neighbouring local authorities;
- National Highways
- Public Health Dorset
- Local and national transport authorities
- Dorset and Wiltshire Fire and Rescue
- Dorset Police
- South West Ambulance Trust
- NHS

Whilst the measures stated above, below and in Table 2.2 will help to contribute towards compliance, Dorset Council anticipates that further additional measures not yet prescribed may be required in subsequent years to achieve compliance and enable the revocation of Chideock AQMA.

Low Carbon Dorset Programme

The programme is run by the council and the Dorset Area of Outstanding Natural Beauty (AONB). It aims to help improve energy efficiency, increase the use of renewable energy, and aid the development of new low carbon products. Dorset based businesses, public sector and community organisations can access free support and a fund pot of over £2.15m to help improve energy efficiency and develop renewable energy projects. https://www.lowcarbondorset.org.uk/

Climate Strategy and Ecological Action Plan

Dorset Council declared a Climate and Ecological Emergency in 2019 and established an Executive Advisory Panel to strategically guide the Councils response. A draft Climate and Ecological Emergency Strategy was produced in July 2020 which presented 8 key areas for action to ensure that Dorset Council becomes Carbon Neutral by 2040 and the Dorset Council Area by 2050 https://www.dorsetcouncil.gov.uk/climate- -emergency

Measures within the Action Plan will positively affect air quality throughout the Dorset Council area, and include:

- Ensure access to sustainable transport is considered in planning applications

- Investigate potential for small scale park & ride hubs with electric vehicle charging point availability

- Encourage decarbonisation of road transport through development of public EV charging network & promotion of ultra low emissions vehicles

- Expand cycle training and independent travel training programmes, and

- Explore introduction of a bike share scheme in larger settlements

Dorset Council Local Plan

Currently, Dorset Council is working on the new Local Plan to shape society, economy and the environment over a 15 year period. Consultation on it commenced early 2021, in readiness for its adoption in 2027.

The plan will:

- Protect and enhance Dorset's natural environment and biodiversity
- Deliver suitable housing to Dorset's needs
- Work to provide residents with a good quality of life with high quality and well designed developments
- Provide cycle ways and access to the countryside

Information can be found via https://www.dorsetcouncil.gov.uk/w/the-local-development-scheme-for-dorset-council-march-2024#introduction

Planning Applications

The Environmental Protection Team review all referred and validated planning applications for their air quality impact. Relevant guidance is followed when reviewing these applications, i.e. Land-Use Planning and Development Control: Planning for Air Quality, January 2017 (EPUK and IAQM). Where there is a potential adverse impact, or the development introduces new sensitive receptors within an AQMA, an air quality impact assessment is required. Where this identifies a significant adverse impact on air quality or human health then mitigation measures are required.

Local Transport Plan 3 2011 – 2026

The Local Transport Plan 3 (LTP3) is a statutory document which sets out a strategy for the management, maintenance and development of the County's transport system. It sets out a way forward to deliver transport needs through short, medium and long term transport solutions and how transport can improve safety and health, support the local economy, protect the environment and reduce carbon emissions and pollution. The LTP3

came into effect in April 2011 and has been produced for the whole of Bournemouth, Poole and Dorset. It covers the period from 2011 to 2026 and is based on a longer term strategy (2011 – 2026) and shorter term implementation plan(s) (3 years). Further information can be found at https://www.dorsetcouncil.gov.uk/roads-highways-maintenance/transport-planning/local-transport-plan/local-transport-plan-3.aspx

A new travel plan covering from 2026 onwards is in the creation phase, and environmental health are consultees to feed into the process moving forwards. Initial discussions demonstrate a keenness from both officers and elected members to ensure air quality and its improvement is at the forefront of discussions.

Travel choice

This is a County-wide initiative to raise awareness about the impacts of travel behaviour and to encourage people to make informed decisions about journeys they make. For example information is provided on interactive cycle maps, adult cycle training and walking routes and trails. This initiative also promotes Car Share Dorset, an online tool to encourage and facilitate car sharing by matching journeys, run jointly by Dorset Council and Bournemouth, Chrischurch and Poole (BCP) Council. More information can be found https://www.dorsetcouncil.gov.uk/travel/travel.aspx and https://liftshare.com/uk/community/dorset

Industrial Installations

Certain industrial processes and activities which have the potential to cause pollution are required to have an Environmental Permit to operate. The Environmental Permitting (England and Wales) Regulations 2016 were made under the Pollution Prevention and Control Act 1999 and prescribe those processes and activities which require a permit. These processes are split into three categories: Part A (1), Part A(2) and Part B and are regulated by the Environment Agency and local authorities.

A list of Permitted Processes in the Dorset Council area is available from

https://www.dorsetcouncil.gov.uk/business-consumers-licences/licences-and-permits/environmental-permits/public-register-of-environmental-permits-in-west-dorset

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Dorset Highways asset management plan (HAMP)	Transport Planning and Infrastructure	Public transport improvements- interchanges stations and services	2018	2022	DC	Capital	NO	Funded		Completed			HAMP	
2	Low Carbon Travel Strategy	Promoting Low Emission Transport	Other	2011	2026	DC/BCP	Capital	NO	Funded		Ongoing				2026
3	Promote and, as appropriate, implement road network improvements as identified through the Local Transport Plan and other related processes e.g. links to/from South West/Bristol/M4 e.g. A350/C13, road & rail links to/from Port of Poole and Weymouth/Portland Port, links to/from Bournemouth Airport.	Freight and Delivery Management	Route Management Plans/ Strategic routing strategy for HGV's	2017	2019	DC/BCP, DLEP, FQP, FTA, RHA, NH	Capital	NO	Funded		Completed				Superseded by new HAMP
4	Sustainable Energy across the Common Space (SEACS)	Promoting Low Emission Plant	Other measure for low emission fuels for stationary and mobile sources	2011	2021	Devon County Council Wiltshire Council 2 Local Uthority Partners from Brittany	INTERREG IV	NO	Funded		Completed			Completed	Brexit
5	Dorset Solar Farm Community Benefits	Other	Other	2014	2016	Community Energy Team	Capital	NO	Funded		Completed				
6	Expand EV Charging Points & other ultra-low emission fuel alternatives	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	ongoing		DC	Capital	NO	Funded		Ongoing, but significant progress			10 points installed at County Hall, Dorchester	
7	Improve cycle infrastructure	Promoting Travel Alternatives	Promotion of cycling	2020		DC / BCP	Transforming Cities Fund	NO	Funded		Implementation			Multiple new cycle routes and lanes in key commuting corridors	
8	Highways Maintenance	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management,	2019			Capital	NO	Funded		Implementation				

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
			Selective vehicle priority, bus priority, high vehicle occupancy lane												
9	Lobby Govt for rail improvements	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2019		DC	Capital	NO	Funded		Implementation				
10	Respond to government calls and submit high quality grant applications	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2019		DC	Capital	NO	Funded		Implementation				
11	Redirect investment from strategic road schemes to low carbon transport	Promoting Low Emission Transport	Other	2019		DC with STB & LEP	Capital	NO	Funded		Implementation				
12	Reinforce low carbon transport policies through statutory planning documents including refreshed LTP and new Draft Local Plan	Promoting Low Emission Transport	Other	2019		DC	Capital	NO	Funded		Implementation				
13	Ensure access to sustainable transport is considered in planning applications	Alternatives to private vehicle use	Other	2019		DC	Capital	NO	Funded		Implementation				
14	Investigate potential for small scale park & ride hubs with electric vehicle charging point availability	Alternatives to private vehicle use	Bus based Park & Ride	2019		DC	Capital	NO	Funded		Planning				
15	Encourage decarbonisation of road transport through development of public EV charging network & promotion of ultra low emissions vehicles, and including on-going management	Freight and Delivery Management	Delivery and Service plans	2019	2024	DC	Capital	NO	Funded		Implementation				
16	Encourage use of ultra low emission public transport vehicles (including taxis) – particularly smaller buses	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2019	2024	DC	Capital	NO	Funded		Implementation				
17	Working closely with Dorset Business Travel Network and Digital Dorset to promote the use of ICT to individuals and businesses to avoid travel / encourage working from home	Promoting Travel Alternatives	Encourage / Facilitate home-working	2019	2021	DC / Dorset Business Travel Network / Digital Dorset	Capital	NO	Funded		Completed			Majority of council staff able to or currently are working from home. Full adoption of flexible approach	2021

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
18	Review & amend procurement procedures to prioritise carbon reduction for Transport Purchases & Leasing	Freight and Delivery Management	Freight Partnerships for city centre deliveries	2019		DC	Capital	NO	Funded		Planning				Further review expected 2022
19	To green the Council fleet	Vehicle Fleet Efficiency	Fleet efficiency and recognition schemes	2019	2025/26	DC	Capital	NO	Funded		Implementation				2025/26
20	Reduce the need for staff to travel to and for work through remote working and the use of digital	Promoting Travel Alternatives	Workplace Travel Planning	2019	2021	DC	Capital	NO	Funded		Completed				2021
21	Promote behaviour change away from single occupancy private vehicle use	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2019		DC	Capital	NO	Not Funded		Implementation				Succesful bid to the transforming cities fund, currently in implementation phase
22	DC procurement of alternative refuelling infrastructure to promote LEVs, EV recharging, tax emission incentives and taxi licensing conditions	Vehicle Fleet Efficiency	Other	2019	2026	DC	Capital	NO	Funded		Ongoing with significant progress	NO_x, PM_{10} and $PM_{2.5}$			
23	Continue collaborative work with NH to investigate and, where appropriate, direct measures to improve Chideock AQ inc. permanence of 30mph speed limit	Public Information	Other	2018	2022	DC/NH	Capital	NO	Funded		Complete	NO_x, PM_{10} and $PM_{2.5}$		Reviewed DRAFT AQAP	
24	Control domestic emissions and promoting of cleaner solid fuel consumption	Promoting Low Emission Plant	Other Policy	2022	2025	DC	Capital	YES	Funded		Implementation	PM_{10} and $PM_{2.5}$			
25	Network Rail Dorset Connectivity Project	Transport Planning and Infrastructure	Other	2021		DC/NR/ BCP/DfT	Capital	NO	Not Funded		Planning				
26	Bus Service Improvement Plan	Transport Planning and Infrastructure	Bus route improvements	2021		DC/Bus service providers/ DfT	Capital	NO	Not Funded		Planning				
27	DEFRA-funded solid-fuel burning project	Public information	Other	2021	2024	DC	Capital	YES	Funded		Implementation	PM_{10} and $PM_{2.5}$	Report upon completion	Undergoing monitoring and phase II planning	

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy[6], local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter (PM$_{2.5}$)). There is clear evidence that PM$_{2.5}$ (particulate matter smaller 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Dorset Council has continued supporting the Public Health Dorset's PM$_{2.5}$ Project by maintaining the 4 AQMesh Pods within the network, (there are 2 more AQMesh Pods, which sit within Bournemouth, Christchurch and Poole Council). Dorset Council will be continuing to utilise these monitors moving forwards. The project is focussed on understanding population exposure to background levels of air pollution. The study area includes both rural and urban sites to provide broad geographical coverage and include vulnerable populations.

Monitoring locations can be found in Appendix D.

Defra's most recent background modelling for the entire Dorset Council area provide annual means of a minimum of 2.4µg/m^3 and maximum of 14.8µg/m^3 for 2019.

Dorset Council is currently undertaking a focussed project into the effects of solid-fuel burning stoves to measure the impact of these installations upon the levels of PM$_{2.5}$. This project aims to identify areas of high numbers of solid-fuel installations and cluster them into three monitoring locations, and exclude other sources of PM to identify a predicted level of locally-generated PM$_{2.5}$. This is to be conducted in conjunction with existing monitoring. Behaviour surveys (pre/post monitoring) and a communications campaign are proposed to measure the effect upon levels too, promoting correct installation maintenance, fuel selection and burning practices. Further information from the study will allow for better addressing of local PM sources in Dorset. The project is currently in the

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

monitoring phase, with a communications campaign planned for late summer and early autumn 2023. Monitoring is ongoing to March 2024 for a full year's monitoring, with results and completion expected summer/autumn 2024.

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

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Dorset Council did not undertake automatic (continuous) monitoring during 2023. Table A.1 in Appendix A shows the details of the automatic monitoring sites formerly in operation since 2018.

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

Dorset Council undertook non- automatic (i.e. passive) monitoring of NO_2 at fifty-four sites during 2023. 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 NO_2 annual mean concentrations for the past five years with the air quality objective of $40\mu g/m^3$. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2023 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

Error! Reference source not found. in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of $200\mu g/m^3$, not to be exceeded more than 18 times per year.

General trends show an overall decrease in pollutant levels on 2022. This is widespread across Dorset Council, indicating that systemic approaches are having a positive impact on the levels of nitrogen dioxide pollution, with local measures causing further improvements in their respective areas. In many areas, concentrations are broadly consistent with 2021 concentrations, although this is by no means universal and variances are seen dependent on the nature of the locality (e.g. rural areas are more likely to be consistent with 2021, suburban and urban less likely).

Two exceedances of the annual air quality objective (AQO) were observed, both of which fell inside the Chideock AQMA:

Site	2019	2020	2021	2022	2023
W32	17.2	10.4	12.1	13.8	12.4
W33	19.0	10.4	11.0	14.4	11.3
W34	36.4	20.2	22.1	29.8	25.0
W36	38.7	21.8	23.2	32.7	28.6
W37	**52.5**	30.0	32.2	**42.1**	35.7
W38	23.8	13.7	15.2	19.5	15.7
W39	**80.2**	**45.1**	**47.6**	**64.5**	**54.4**
H1			16.9	20.7	16.8
H2			21.9	28.1	23.1

H3			22.3	28.1	23.3
H4			27.3	34.0	28.0
H5			29.2	39.3	31.0
H6			39.9	**57.2**	**57.9**
H7			35.9	**47.2**	39.3
H8			27.2	36.0	32.0

Figure 1: Annual mean concentrations of NO$_2$ within Chideock AQMA

Despite these exceedances, all sites bar one in Chideock show a downwards trend on 2022, and 2019 for the W- numbered sites. The temporary 30mph speed limit on Chideock Hill has been made permanent.

The new Air Quality Action Plan for Chideock AQMA has been approved by Defra and DC's cabinet and is now in force. The Plan outlines the actions that Dorset Council will deliver between 2022 and 2027 in order the reduce concentrations of pollution and exposure to pollution, therefore positively impacting on the health and quality of life of residents and visitors to Chideock and the wider Dorset Council area. Further monitoring as previously carried out by Highways England (now National Highways) has brought into the local authority – tubes H1 – H8 – and will assist in measuring the impact of the new AQAP. Monitoring at sites will continue into 2024, with a further potential for redistribution of AQMesh assets to Chideock to monitor other pollutants.

There are no other areas of Dorset Council that exceed the annual objective for nitrogen dioxide.

Results for 2023 in Dorchester show the annual mean for NO$_2$ was met at all monitoring locations both within and outside of the AQMA. No site have concentrations within 10% of the annual mean objective of 40µg/m^3.

Concentrations are still increased on 2020 and 2021 levels which indicated an element of consistency, but remain below 2022 and 2019 concentrations. Revocation of the AQMA is proposed. Monitoring will continue during 2024 for W17 and W18 regardless.

Location	2019	2020	2021	2022	2023
High East Street 2 (W17)	24.8	17.2	17.3	24.0	23.8
High East Street 1 (W18)	**36.4**	23.6	21.3	32.1	28.2
High West Street (W25)	27.0	18.8	18.5	27.7	20.9

Figure 2: Annual Mean concentration of NO_2 within Dorchester AQMA

There has never been an AQMA declared in Bridport. Following a Detailed Assessment of nitrogen dioxide in Bridport in 2011, the then West Dorset District Council Members resolved not to declare an AQMA but continue monitoring to check future levels of NO_2 here. Annual mean concentrations of NO_2 generally remain below levels and have further decreased since 2022. It is noted that W27 is now not within 10% of the AQO continuing a wider downward trend noted in 2023's report. The monitoring within Bridport area will continue for 2024.

Location	2019	2020	2021	2022	2023
49 East Road (W27)	**37.6**	25.2	24.9	36.6	35.2
45 East Road (W28)	**39.8**	26.3	26.5	35.1	27.2
East Road Rbt Sign (W29)	23.8	16	18.1	21.8	18.5

Figure 3: Annual Mean concentration of NO_2 in Bridport

The Boot Hill area of Weymouth has previously been an area with cause for concern with several NO_2 monitoring tubes. The number of tubes monitoring in this location was reduced by three (two of these were co-location tubes made redundant by the retiring of the automatic monitor), however several remain. Concentrations in 2023 have provided a general decrease, with W5 the sole increased concentration mean. W3 and W9 are also in exceedance of 2019 concentrations, however it is further noted that both tubes were higher in 2022. W3 and W10 were within 10% of AQO in 2022, but both are below this

threshold in 2023. Passive monitoring as a minimum is set to continue into 2024, and options for a new automatic analyser on site are being explored with a potential collaboration with our traffic management team to integrate air quality monitoring into traffic signal control.

Location	2019	2020	2021	2022	2023
Rodwell Road (W3)	31.0	25.9	24.6	37.7	31.1
Co-location I (W5)	35.9	24	22.8	30.9	31.8
Portmore Gardens (W6)	33.2	22.9	21.0	31.1	26.7
Rodwell Inn (W9)	27.3	24.2	23.2	34.8	29.2
16 Rodwell Road (W10)	32.8	26.3	19.0	37.3	31.9

Figure 4: Annual Mean concentration of NO$_2$ within Boot Hill area of Weymouth

No exceedances of the AQO annual mean were detected in the other sites in former Weymouth and Portland Borough Council area tubes, however a high annual mean in W12 of 36.1 sits within 10% of the AQO. This is noted and likely due to localised conditions, however monitoring will continue into 2024.

There were no exceedances of the annual NO$_2$ air quality objective in the former Purbeck District Council area. Most sites in Purbeck sit around half of the AQO, and no clear trend is observable over sites. It is noteworthy, however, that three sites exhibit pollution levels close to those observed during COVID-19 restrictions in 2020. Monitoring will continue into 2024.

There were no exceedances of the annual air quality objective in former East Dorset. Again, most sites sit around half of the AQO. All sites indicated a decrease on 2022 concentrations, with monitoring continuing into 2024.

Both sites in North Dorset remain at low concentrations, with W42 indicating a further decrease from 2022, and W40 a small increase. Monitoring will continue into 2024

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

Table A.5 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM$_{10}$ annual mean concentrations for the past five years with the air quality objective of 40µg/m^3.

Table A.6 in Appendix A compares the ratified continuous monitored PM$_{10}$ daily mean concentrations for the past five years with the air quality objective of 50µg/m^3, not to be exceeded more than 35 times per year.

Using our AQMesh Pods in partnership with Public Health Dorset, PM$_{10}$ has been measured at four school-based sites across Dorset: Blandford Forum, Beaminster, Ferndown and Sandford. None of the sites have annual means exceeding the objective, and whilst all sites demonstrate daily means above 50µg/m^3, none have exceeded this greater than 35 times in 2023.

The analyser at Blandford has had a power-related issue, meaning it has been inoperational for most of the year. The results provided are not annualised due to the low data capture (7%) therefore they are not considered reliable or representative of the annual PM$_{10}$ concentrations.

The levels of PM$_{10}$ generally is mixed: Beaminster and Ferndown both show a continuing downward trend compared to 2019, with Beaminster showing an increase on 2022. Sandford appears to have remained consistent with 2022, indicating an increasing trend developing. It is pertinent to note that the units were refurbished and recalibrated in late 2022 meaning the data may be different due to improved accuracy. The lack of data from 2021 has been resolved – Sandford has been annualised using data from the AURN network sites in Bournemouth, Charlton Mackrell and Southampton.

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

Table A.7 in Appendix A presents the ratified and adjusted monitored PM$_{2.5}$ annual mean concentrations for the past five years.

Using our AQMesh Pods in partnership with Public Health Dorset, PM$_{2.5}$ has been measured at four school-based sites across Dorset: Blandford Forum, Beaminster, Ferndown and Sandford.

The analyser at Blandford has had a power-related issue, meaning it has been inoperational for most of the year. The results provided are not annualised due to the low data capture (7%) therefore they are not considered reliable or representative of the annual PM$_{2.5}$ concentrations.

PM$_{2.5}$ remains low in Dorset, with the monitoring sites demonstrating concentrations below 10µg/m^3. However, as with PM$_{10}$, this provides a mixed picture with one site demonstrating increased concentrations (Beaminster) and two with concentrations (Ferndown and Sandford) broadly consistent with 2022. Again, refurbishment and recalibrations are cited as potential explanations for the variability in the data.

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)

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)
P3	Swanage, Gilbert Road	Urban Background	402790	078950	NO_2		7.0	1.0		2.3
P4	Swanage, Kings Rd.	Roadside	402860	078830	NO_2		14.0	1.0		2.1
P5	Upton, Blandford Road North	Roadside	397910	093425	NO_2		19.0	2.0		2.2
P9	Sandford, Sandford Road	Roadside	393223	089947	NO_2		20.0	1.0		2.3
P10	Wareham, Wogret Road	Roadside	391790	087190	NO_2		13.0	1.0		2.3
E1	Horton Road, Ashley Heath	Roadside	413298	104528	NO_2		0.0	4.0		3.0
E2	Ham Lane (19 Glissons, Longham)	Roadside	406362	098711	NO_2		0.0	1.0		3.0
E3	Leigh Road (byetheway) Wimborne	Roadside	402880	099961	NO_2		0.0	2.0		3.0
E4	45 Davids Lane, Ashley Heath	Urban Background	413425	104429	NO_2		7.0	0.5		3.0
E5	2 Julians Road, Wimborne	Roadside	400677	099998	NO_2		0.0	1.0		3.0
E6	392 Ringwood Road, Ferndown	Roadside	407785	100135	NO_2		4.0	1.3		3.0

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)
E8	7/9 Wimborne Road, Wimborne	Roadside	401003	100736	NO₂		0.0	1.5		3.0
E9	A31 24 Ringwood Road, Ashley Heath	Roadside	412782	104118	NO₂		26.0	1.3		3.0
E10	235 Christchurch Road, West Parley	Roadside	408384	097986	NO₂		8.0	1.0		3.0
E11	opp. 233 Christchurch Road, West Parley	Roadside	408468	098002	NO₂		4.0	1.0		3.0
E12	28a West Street, Wimborne	Roadside	400833	100042	NO₂		0.0	1.2		3.0
E13	7 West Borough, Wimborne	Roadside	400901	100149	NO₂		0.0	3.6		3.0
W1	St Georges Est, Portland	Urban Background	368779	071706	NO₂		0.0	2.0		2.5
W2	King St, Weymouth	Roadside	368003	079527	NO₂		0.0	2.0		2.5
W3	Rodwell Rd, Weymouth	Roadside	367542	078548	NO₂		2.5	2.5		2.5
W5	Co-location i	Roadside	367540	078471	NO₂		0.0	3.5		3.0
W6	Portmore Gardens, Weymouth	Roadside	367528	078554	NO₂		0.0	2.0		3.0

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)
W46	Portland Port	Roadside	368888	074356	NO_2		0.0	0.5		3.0
W47	Castletown	Roadside	368847	074356	NO_2		0.0	0.5		3.0
W9	Rodwell Inn, Weymouth	Roadside	367550	078485	NO_2		0.0	2.0		3.0
W10	16 Rodwell Road, Weymouth	Roadside	367533	078531	NO_2		0.0	2.0		3.0
W12	Upwey St, Weymouth	Roadside	367879	078567	NO_2		0.0	1.5		3.0
W13	Dominoes, Weymouth	Roadside	367995	079528	NO_2		0.0	2.5		3.0
W14	Fortuneswell, Portland	Roadside	368540	073593	NO_2		0.9	1.5		2.5
W15	Stratton House, Dorchester	Roadside	369121	090739	NO_2		0.0	2.0		2.5
W17	High East St (Majestic Wines)	Roadside	369484	090759	NO_2	Dorchester AQMA	0.0	2.0		2.5
W18	High East St (Church House)	Roadside	369387	090742	NO_2	Dorchester AQMA	0.0	2.0		2.5
W24	Borough Gardens, Dorchester	Urban Background	368982	090453	NO_2		5.0	2.0		2.5
W25	High West St (Homechester Hse)	Roadside	368982	090706	NO_2		0.0	3.0		2.5

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)
W27	49 East Rd (Lampost 12) Bridport	Roadside	347557	093023	NO_2		0.0	2.0		2.5
W28	45 East Rd (Lampost 10) Bridport	Roadside	347612	093050	NO_2		0.0	2.0		2.0
W29	East Rd (Rdbt sign) Bridport	Roadside	347277	092867	NO_2		0.0	4.0		2.5
W32	Hope Cottage, Chideock	Roadside	342364	092814	NO_2	Chideock AQMA	0.0	1.5		2.0
W33	Greenhill, Chideock	Roadside	342151	092869	NO_2	Chideock AQMA	0.0	1.5		2.5
W34	Duck St, Chideock	Roadside	342190	092840	NO_2	Chideock AQMA	0.0	1.0		2.0
W36	Village Hall, Chideock	Roadside	342015	092887	NO_2	Chideock AQMA	0.0	2.0		2.5
W37	Whitecroft, Chideock	Roadside	341946	092908	NO_2	Chideock AQMA	0.0	1.0		2.0
W38	Warren House, Chideock	Roadside	342025	092894	NO_2	Chideock AQMA	0.0	1.5		2.0
W39	Chideock Hill Cottage, Chideock	Roadside	341629	093139	NO_2	Chideock AQMA	3.5	1.0		2.5
W40	Lawrence Cotts, Gillingham	Roadside	381302	126181	NO_2		4.1	1.5		2.5

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)
W42	The Barbers, Sturminster Newton	Kerbside	378606	114009	NO_2		0.0	1.3		2.5
H1	Duck St Sign	Roadside	342164	092841	NO_2	Chideock AQMA	0.0	3.0		2.0
H2	Bay Tree House	Roadside	342143	092845	NO_2	Chideock AQMA	0.0	1.5		2.0
H3	Willens Cottage	Roadside	342084	092856	NO_2	Chideock AQMA	0.0	1.5		2.5
H4	Village Hall	Roadside	342004	092890	NO_2	Chideock AQMA	0.0	1.5		2.5
H5	Southside Cottage	Roadside	341933	092913	NO_2	Chideock AQMA	0.0	3.0		2.5
H6	Langdon	Roadside	341881	092934	NO_2	Chideock AQMA	0.0	1.5		2.0
H7	Yew Tree House	Roadside	341819	092953	NO_2	Chideock AQMA	1.5	6.0		1.5
H8	The Clock	Roadside	342129	092847	NO_2	Chideock AQMA	0.0	1.5		2.0

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 NO₂ Monitoring Results: Automatic Monitoring (μg/m³)

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

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

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

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

Notes:

The annual mean concentrations are presented as μg/m³.

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

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

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

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

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

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

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
P3	402790	078950	Urban Background	100	84.6	11.0	8.5	9.0	10.5	11.5
P4	402860	078830	Roadside	100	84.6	10.0	9.2	10.3	11.8	9.7
P5	397910	093425	Roadside	100	67.3	15.0	16.3	17.4	22.1	18.2
P9	393223	089947	Roadside	100	76.9	12.0	13.4	14.0	15.7	13.2
P10	391790	087190	Roadside	100	76.9	9.0	8.2	8.9	10.7	7.4
E1	413298	104528	Roadside	100	92.3	20.4	14.7	14.5	19.4	16.5
E2	406362	098711	Roadside	100	92.3		14.8	14.6	18.6	14.5
E3	402880	099961	Roadside	100	92.3		12.1	11.6	12.0	10.2
E4	413425	104429	Urban Background	100	92.3	11.0	11.6	11.3	12.9	11.3
E5	400677	099998	Roadside	100	92.3		17.8	18.9	24.7	20.4
E6	407785	100135	Roadside	100	92.3	21.0	19.1	18.4	22.3	21.0
E8	401003	100736	Roadside	100	92.3		10.4	11.4	13.1	12.3
E9	412782	104118	Roadside	100	92.3	16.0	23.8	21.0	25.7	22.7

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
E10	408384	097986	Roadside	100	92.3	16.0	20.2	20.0	23.4	19.7
E11	408468	098002	Roadside	100	75.0	20.0	18.8	17.2	20.6	16.7
E12	400833	100042	Roadside	100	73.1	17.3	12.6	11.6	15.4	13.6
E13	400901	100149	Roadside	100	92.3	19.4	14.0	13.3	16.1	15.4
W1	368779	071706	Urban Background	100	76.9	7.4	6.6	6.6	8.2	5.9
W2	368003	079527	Roadside	100	76.9	28.4	19.7	17.9	27.7	24.0
W3	367542	078548	Roadside	100	76.9	31.0	25.9	24.6	37.7	31.1
W5	367540	078471	Roadside	100	69.2	35.9	24.0	22.8	30.9	31.8
W6	367528	078554	Roadside	100	76.9	33.2	22.9	21.0	31.1	26.7
W46	368888	074356	Roadside	100	76.9			10.4	13.0	11.1
W47	368847	074356	Roadside	100	76.9			9.5	13.5	11.1
W9	367550	078485	Roadside	100	76.9	27.3	24.2	23.2	34.8	29.2
W10	367533	078531	Roadside	100	76.9	32.8	26.3	19.0	37.3	31.9

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
W12	367879	078567	Roadside	100	67.3	35.1	21.9	20.1	28.6	36.1
W13	367995	079528	Roadside	100	67.3	39.1	22.1	20.8	30.5	30.6
W14	368540	073593	Roadside	100	76.9	33.0	24.0	21.2	31.2	25.6
W15	369121	090739	Roadside	100	50.0	33.0	21.5	22.2	30.7	25.9
W17	369484	090759	Roadside	100	67.3	24.8	17.2	17.3	24.0	23.8
W18	369387	090742	Roadside	100	76.9	36.4	23.6	21.3	32.1	28.2
W24	368982	090453	Urban Background	100	76.9	10.1	7.4	7.8	9.5	7.5
W25	368982	090706	Roadside	100	76.9	27.0	18.8	18.5	27.7	20.9
W27	347557	093023	Roadside	100	76.9	37.6	25.2	24.9	36.6	35.2
W28	347612	093050	Roadside	100	76.9	39.8	26.3	26.5	35.1	27.2
W29	347277	092867	Roadside	100	76.9	17.0	16.0	18.1	21.8	18.5
W32	342364	092814	Roadside	100	76.9	17.2	10.4	12.1	13.8	12.4
W33	342151	092869	Roadside	100	76.9	19.0	10.4	11.0	14.4	11.3

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
W34	342190	092840	Roadside	100	76.9	36.4	20.2	22.1	29.8	25.0
W36	342015	092887	Roadside	100	76.9	38.7	21.8	23.2	32.7	28.6
W37	341946	092908	Roadside	100	76.9	**52.5**	30.0	32.2	**42.1**	35.7
W38	342025	092894	Roadside	100	76.9	23.8	13.7	15.2	19.5	15.7
W39	341629	093139	Roadside	100	76.9	**<u>80.2</u>**	**45.1**	**47.6**	**<u>64.5</u>**	**54.4**
W40	381302	126181	Roadside	100	67.3	27.0	22.8	23.0	25.7	27.1
W42	378606	114009	Kerbside	100	76.9	31.4	19.7	20.1	28.1	23.6
H1	342164	092841	Roadside	100	76.9			16.9	20.7	16.8
H2	342143	092845	Roadside	100	76.9			21.9	28.1	23.1
H3	342084	092856	Roadside	100	76.9			22.3	28.1	23.3
H4	342004	092890	Roadside	100	76.9			27.3	34.0	28.0
H5	341933	092913	Roadside	100	76.9			29.2	39.3	31.0
H6	341881	092934	Roadside	100	69.2			39.9	**57.2**	**57.9**

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
H7	341819	092953	Roadside	100	76.9			35.9	**47.2**	39.3
H8	342129	092847	Roadside	100	76.9			27.2	36.0	32.0

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

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

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

Notes:

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

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

NO_2 annual means exceeding $60\mu g/m^3$, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **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 NO₂ Concentrations
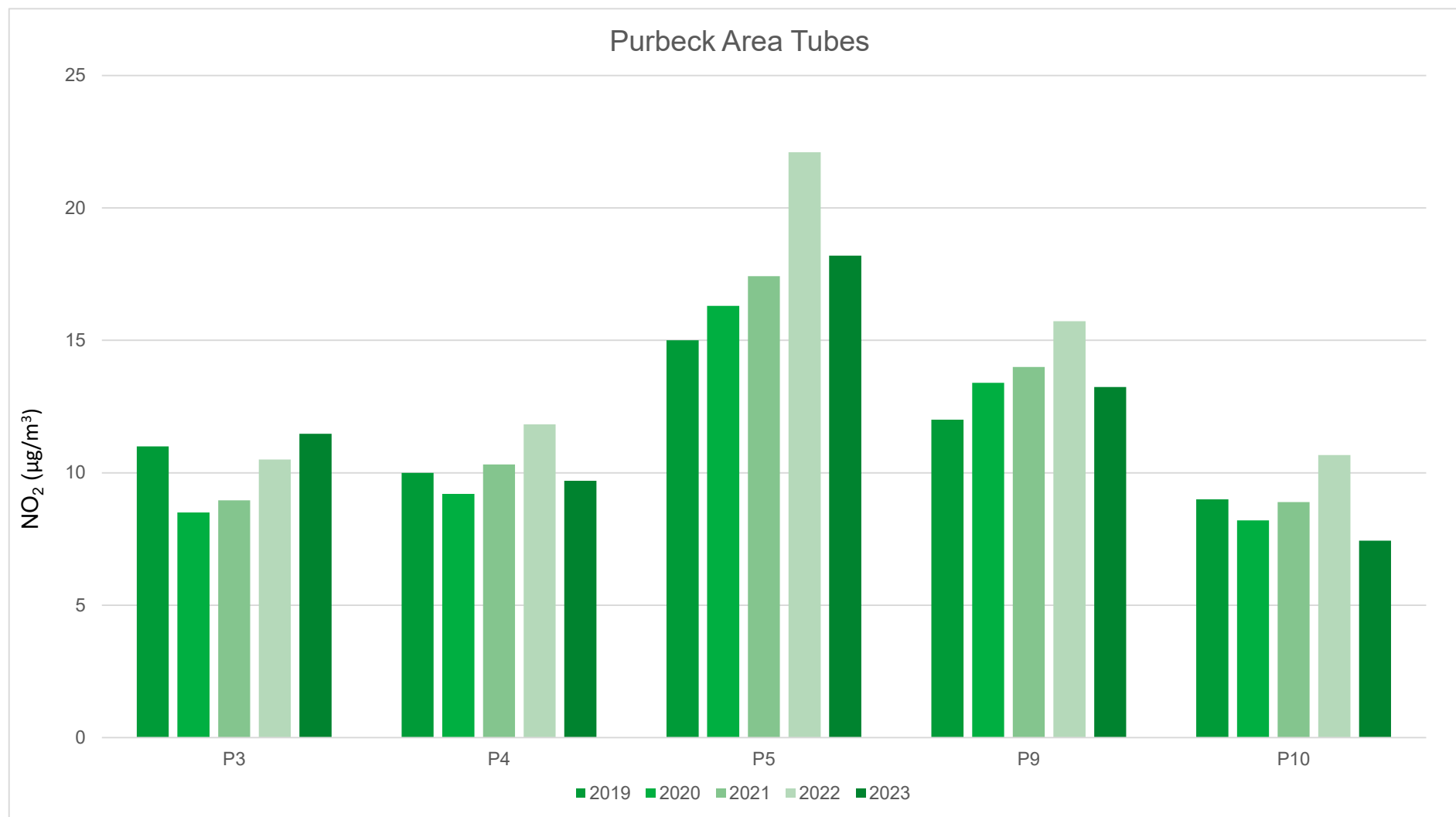
Figure A.1.1 – Annual mean NO₂ concentrations for Purbeck area diffusion tubes
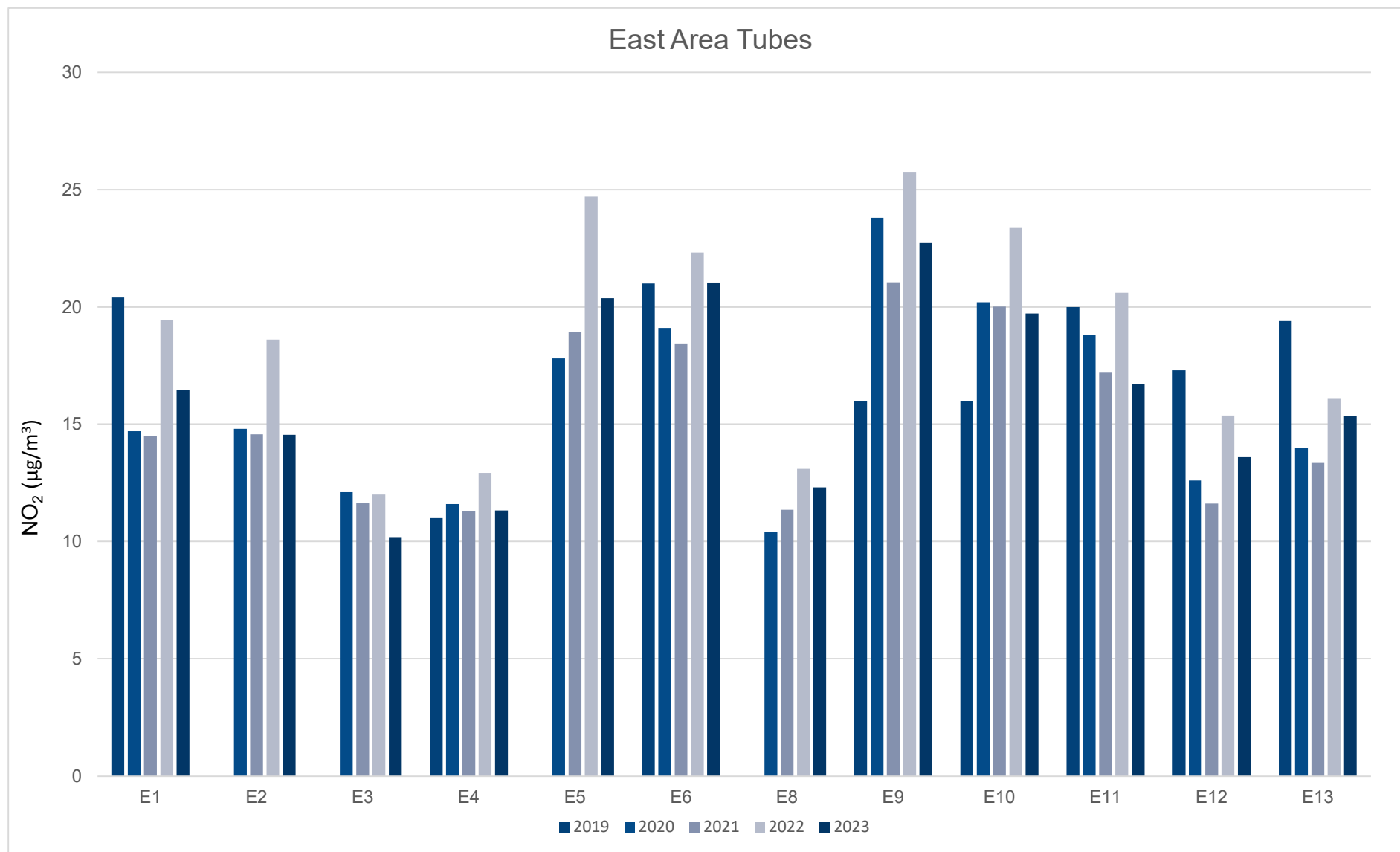
East Area Tubes

Figure A.1.2 – Annual mean NO₂ concentrations for East Dorset area diffusion tubes
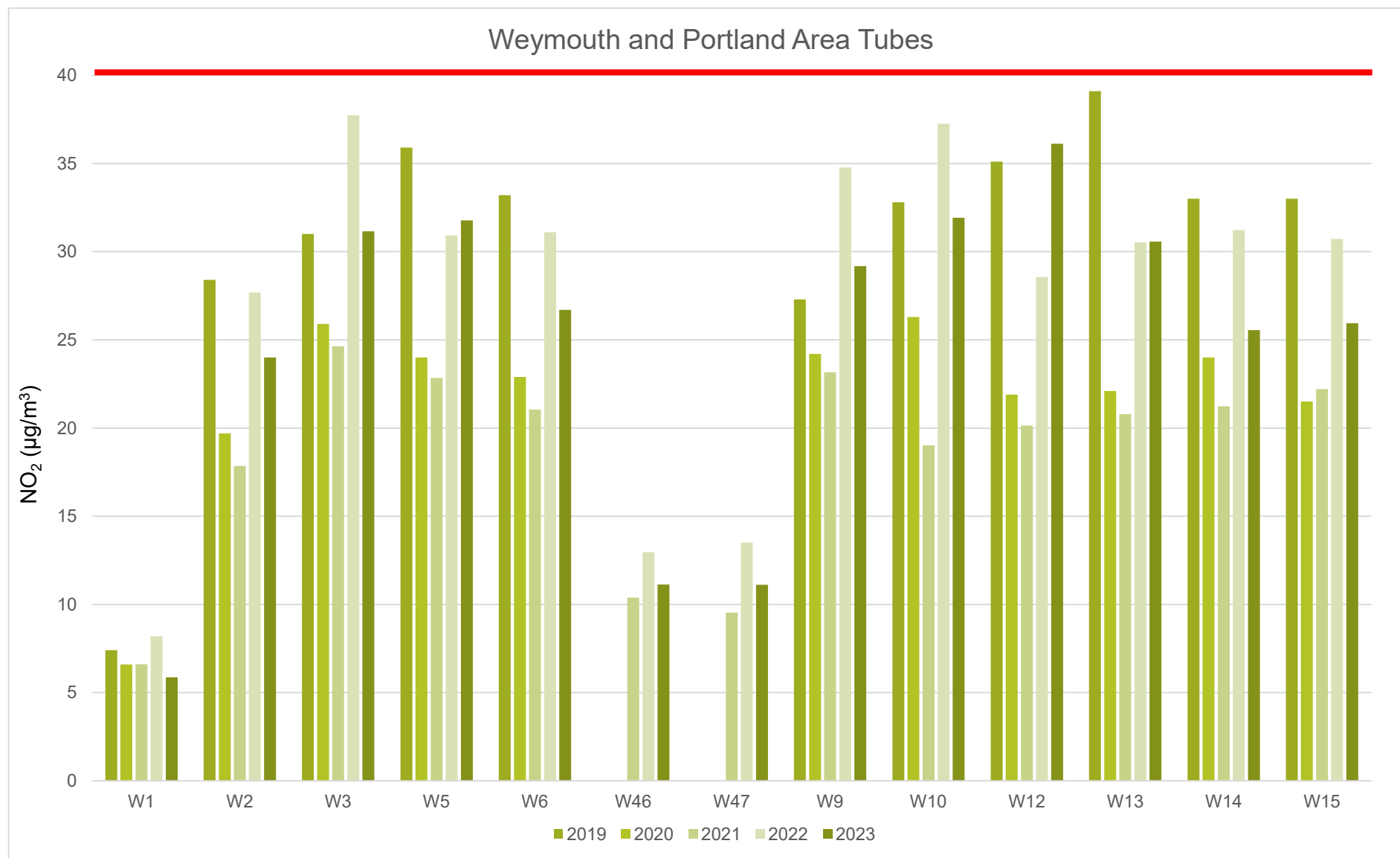
Figure A.1.3 – Annual mean NO₂ concentrations for Weymouth and Portland area diffusion tubes
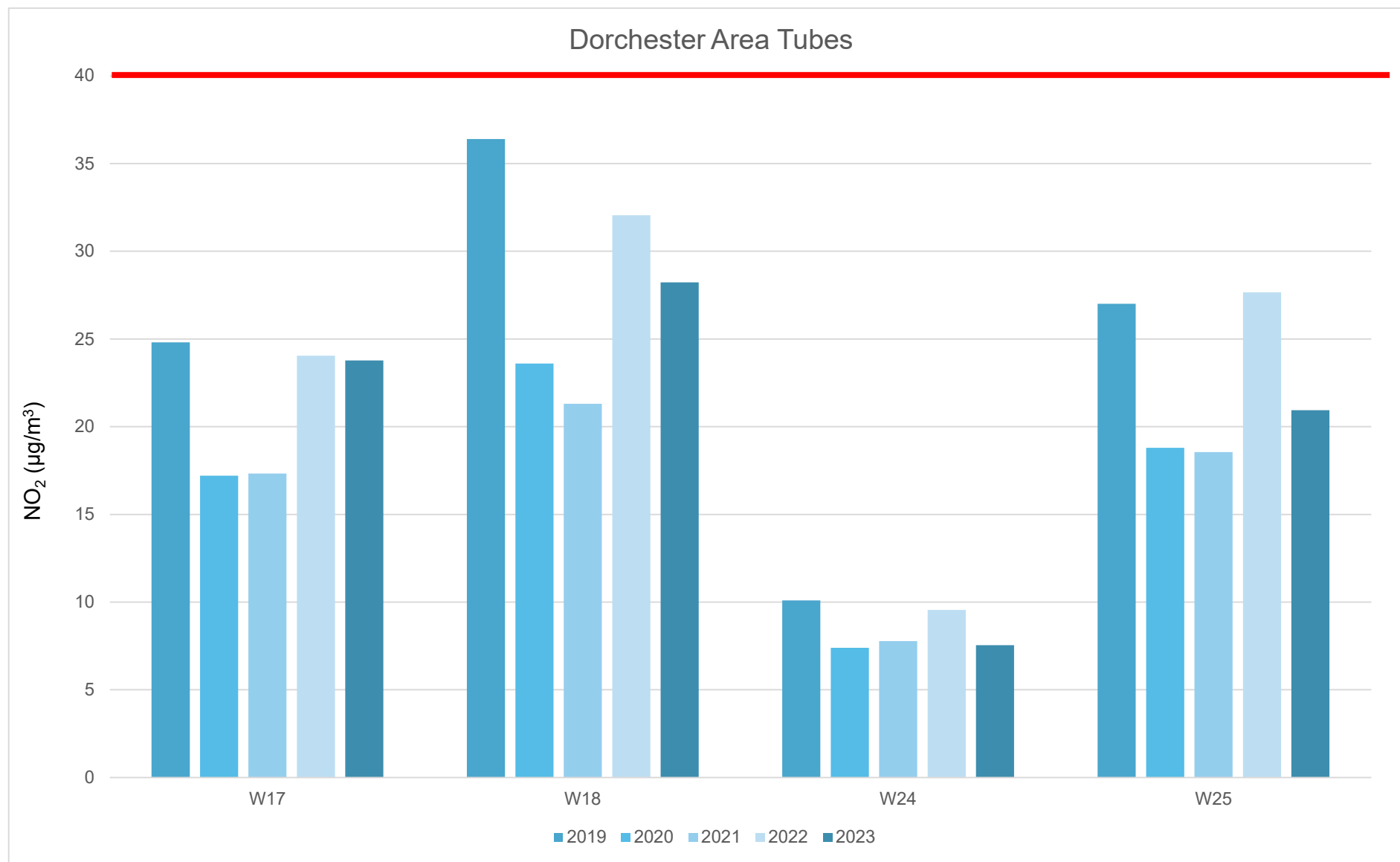
Figure A.1.4 – Annual mean NO₂ concentrations for Dorchester area diffusion tubes
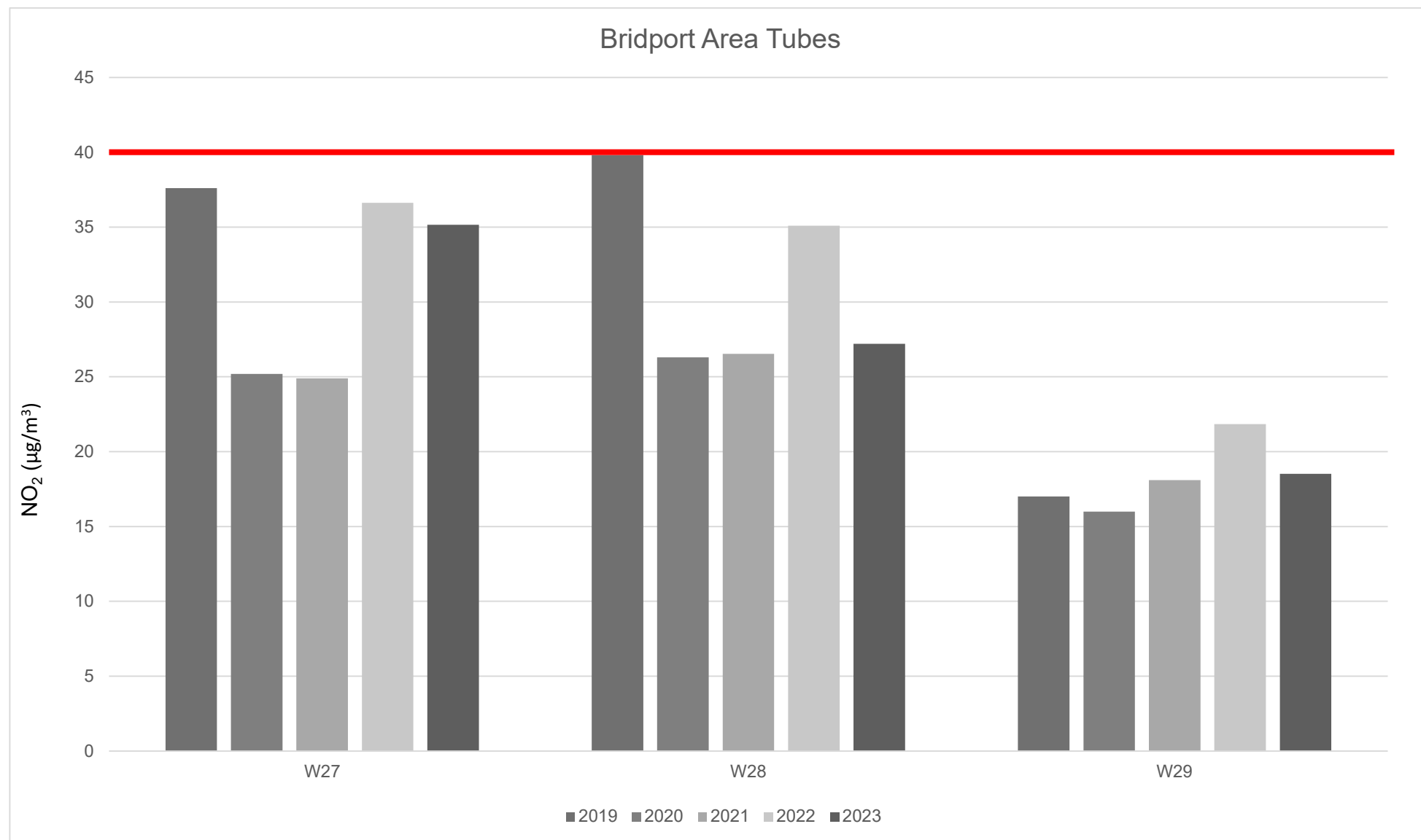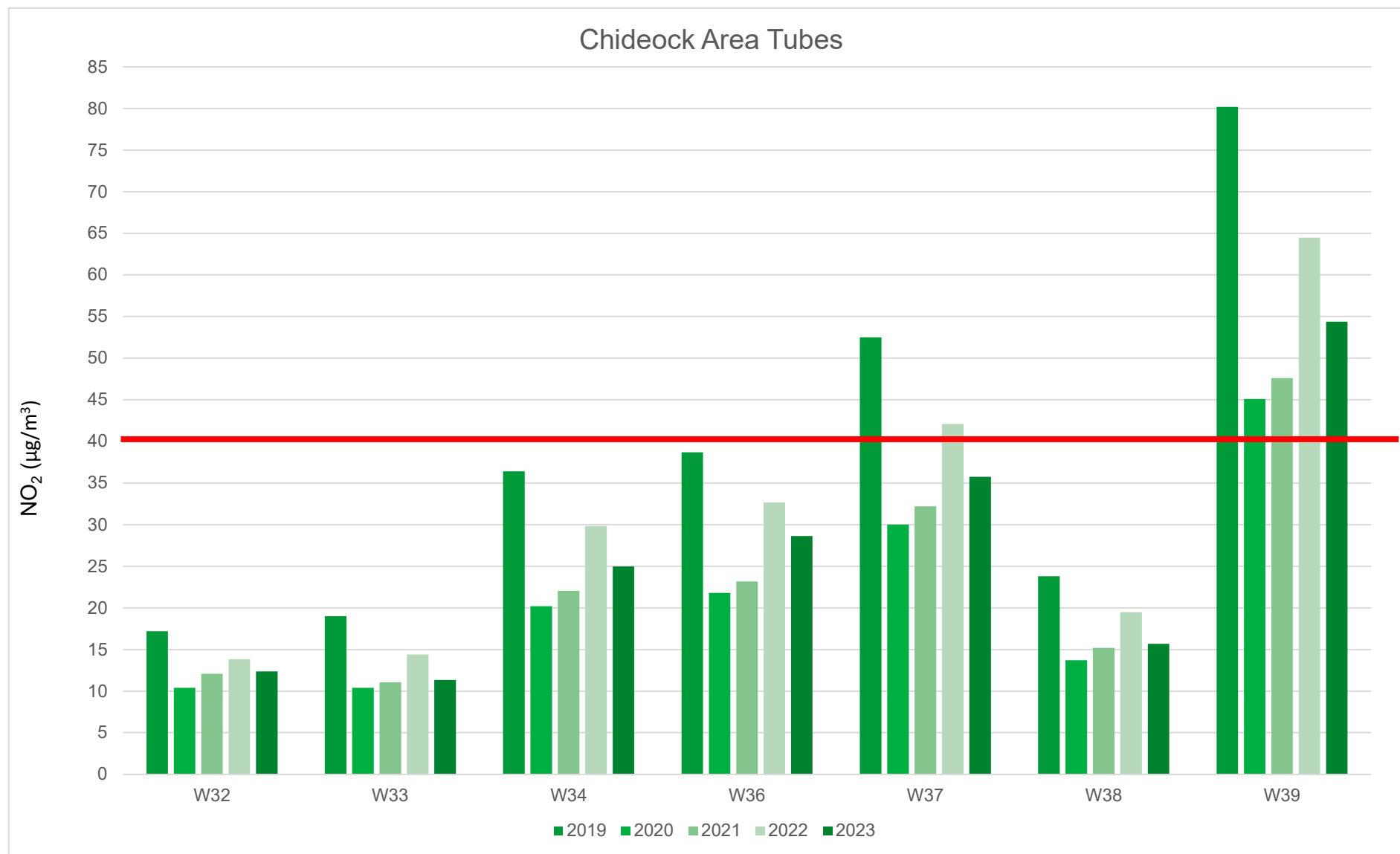
Figure A.1.5 – Annual mean NO₂ concentrations for Bridport area diffusion tubes

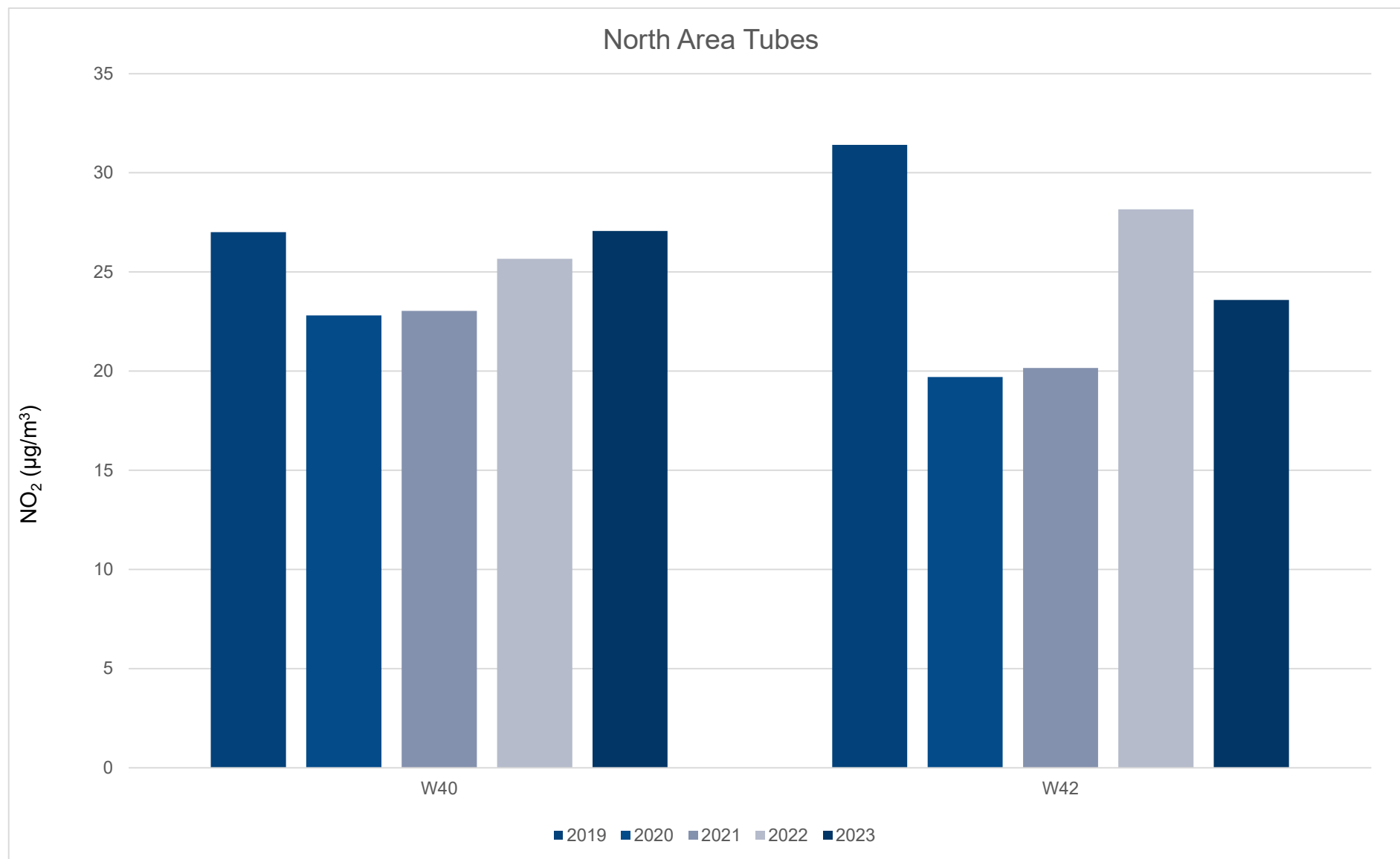Figure A.1.6 – Annual mean NO₂ concentrations for Chideock area diffusion tubes

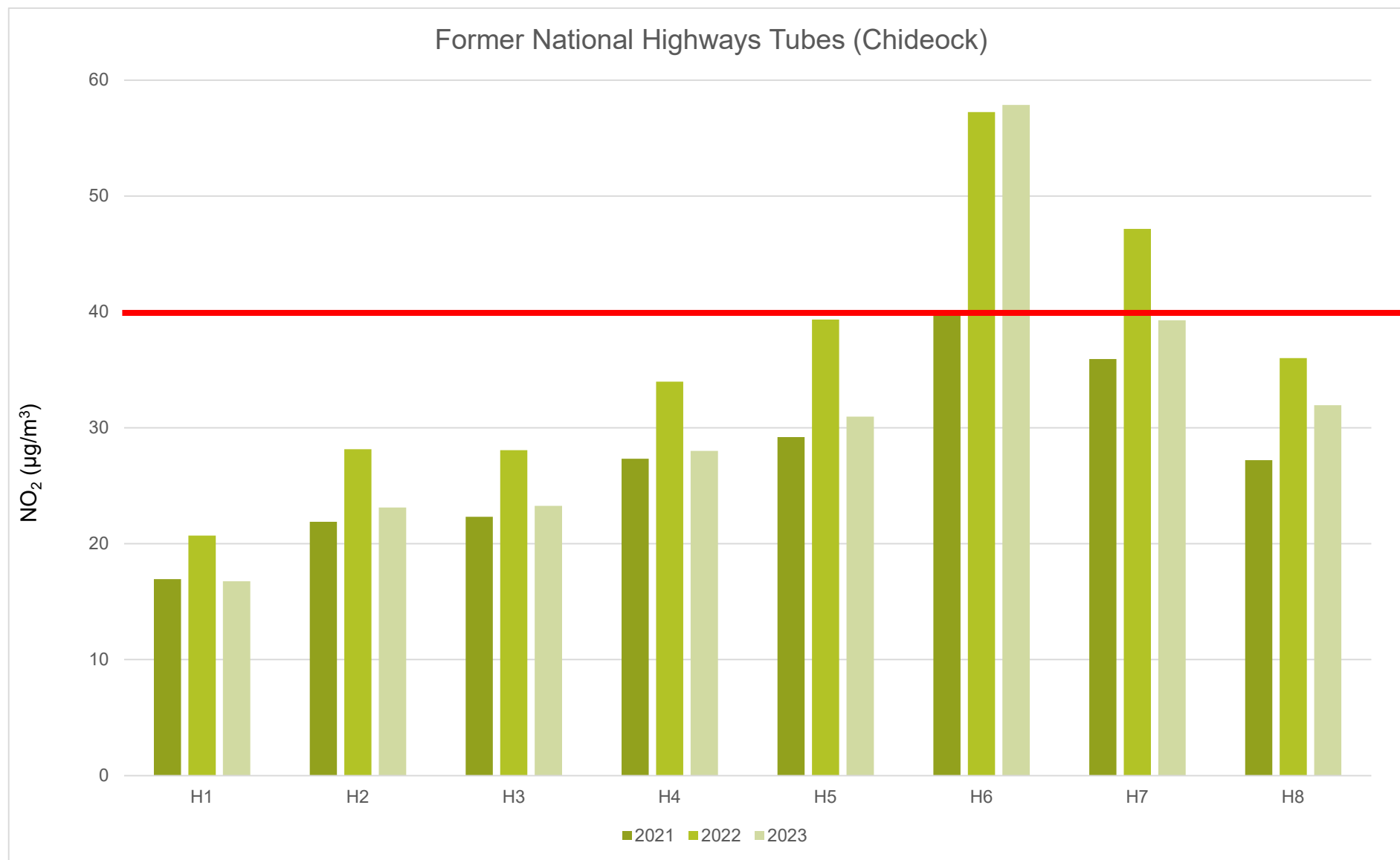*Figure A.1.7 – Annual mean NO₂ concentrations for North Dorset area diffusion tubes*

Figure A.1.8 – Annual mean NO₂ concentrations for former National Highways diffusion tubes in Chideock

Table A.5 – 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 2023 (%) [2]	2019	2020	2021	2022	2023
Beaminster	347967	101967	Rural	100	100	26.8	21.77	18.07	8.62	13.6
Blandford	387965	106833	Rural	100	7.1	21.4	17.51	18.11	10.78	28.5
Ferndown	408440	99391	Suburban	97.5	97.5	12.52	8.7	8.64	14.76	10.3
Sandford	393245	90156	Suburban	100	38.1	8.74	6.89	6.83	15.8	15.72

☒ **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%).
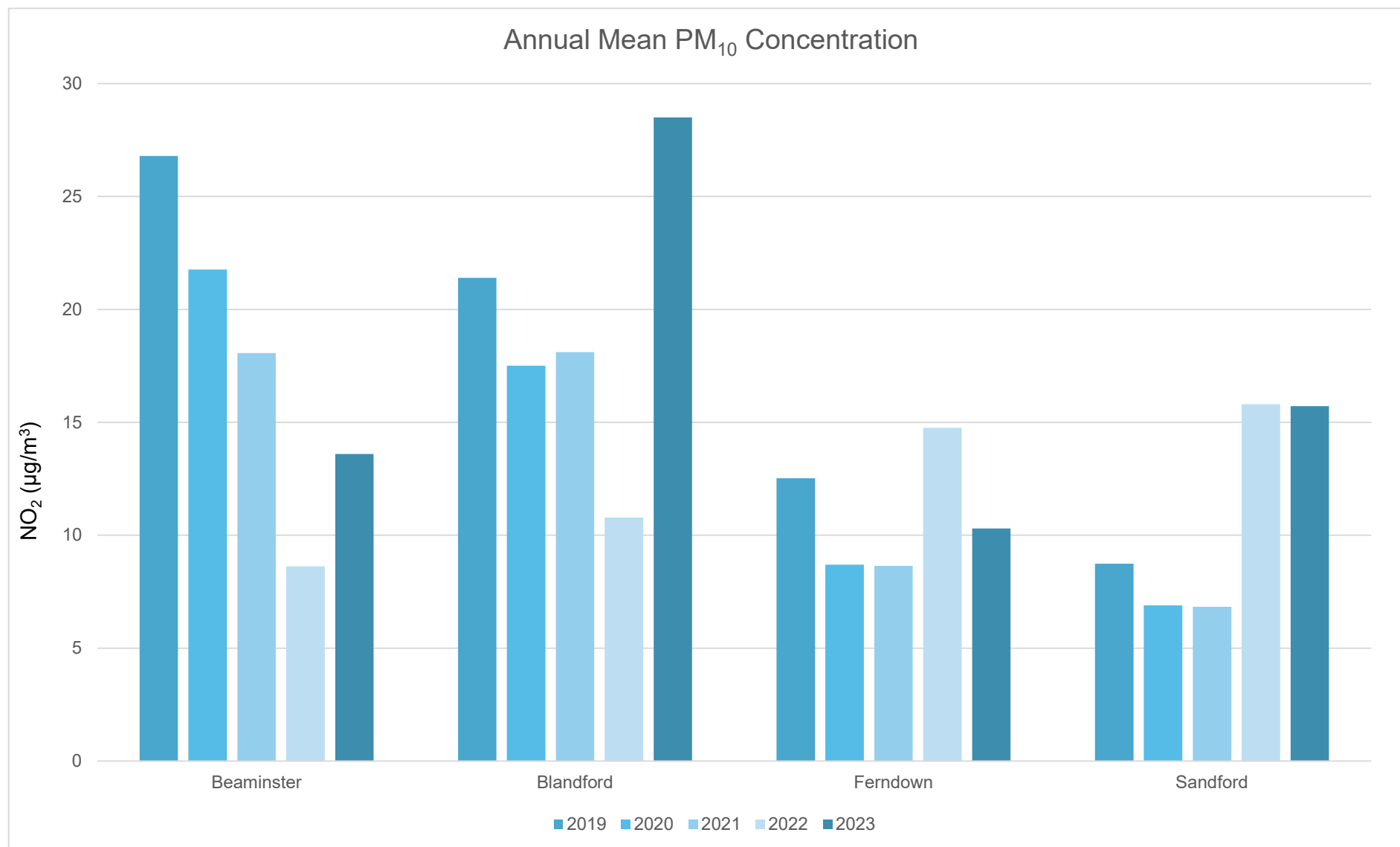
Figure A.2 – Trends in Annual Mean PM₁₀ Concentrations

Annual Mean PM$_{10}$ Concentration

Table A.6 – 24-Hour Mean PM$_{10}$ Monitoring Results, Number of PM$_{10}$ 24-Hour Means > 50µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
Beaminster	347967	101967	Rural	100	100	35	16	4	0	6
Blandford	387965	106833	Rural	100	7.1	17	6	18	2	2
Ferndown	408440	99391	Suburban	97.5	97.5	7	0	0	10	3
Sandford	393245	90156	Suburban	100	38.1	3	0	1	5	8

Notes:

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

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

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

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

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).
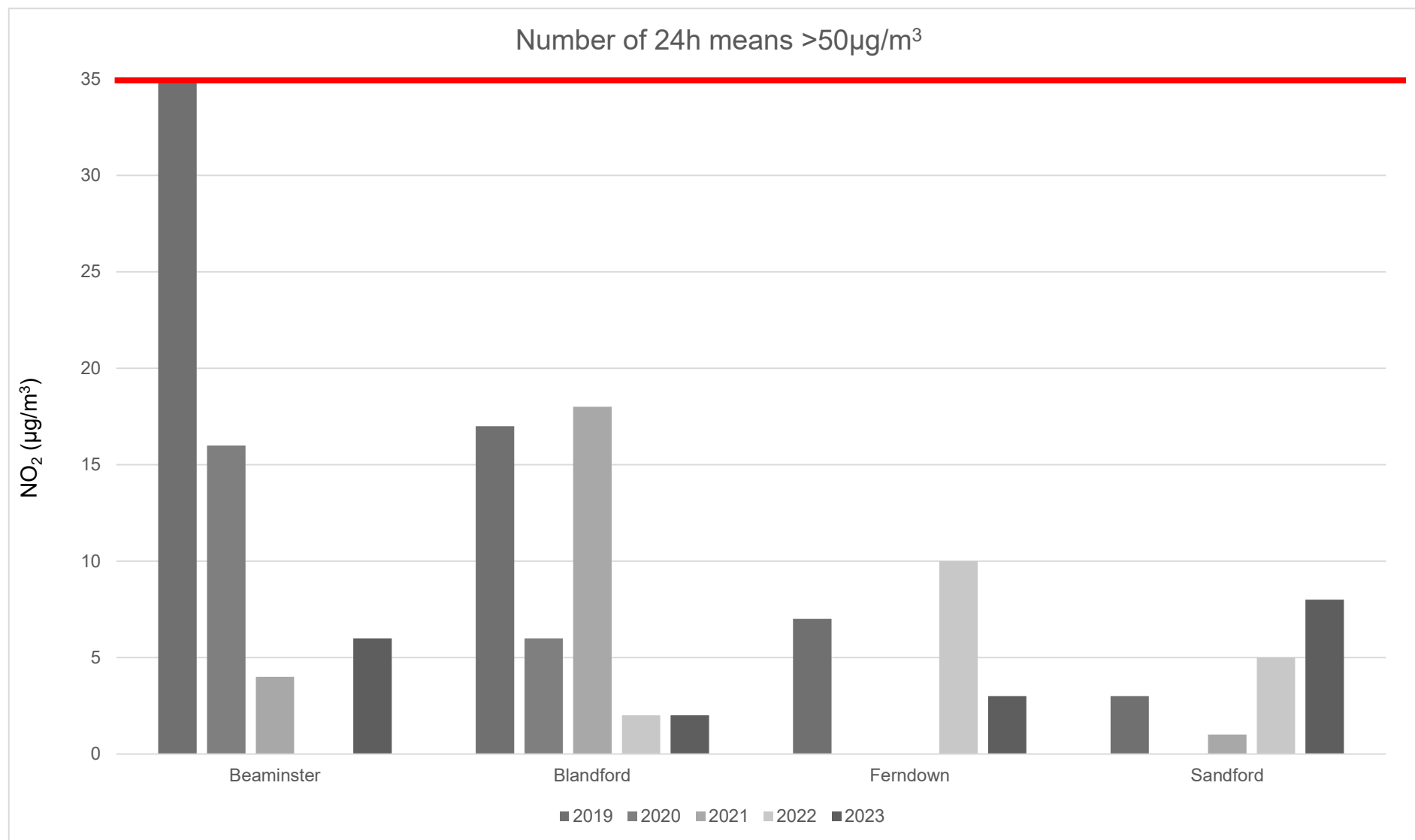
Figure A.3 – Trends in Number of 24-Hour Mean PM$_{10}$ Results > 50µg/m^3

Number of 24h means >50µg/m^3

Table A.7 – Annual Mean PM$_{2.5}$ Monitoring Results (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
Beaminster	347967	101967	Rural	100	100	12.88	9.56	9.6	4.04	8.7
Blandford	387965	106833	Rural	100	7.1	12.06	3.05	7.09	6.12	10.3
Ferndown	408440	99391	Suburban	97.5	97.5	5.29	3.6	4.51	6.41	6.5
Sandford	393245	90156	Suburban	100	38.1	4.16	8.93	3.41	8.28	8.41

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

Notes:

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

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

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

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

Figure A.4 – Trends in Annual Mean PM$_{2.5}$ Concentrations

Annual Mean PM$_{2.5}$ Concentration
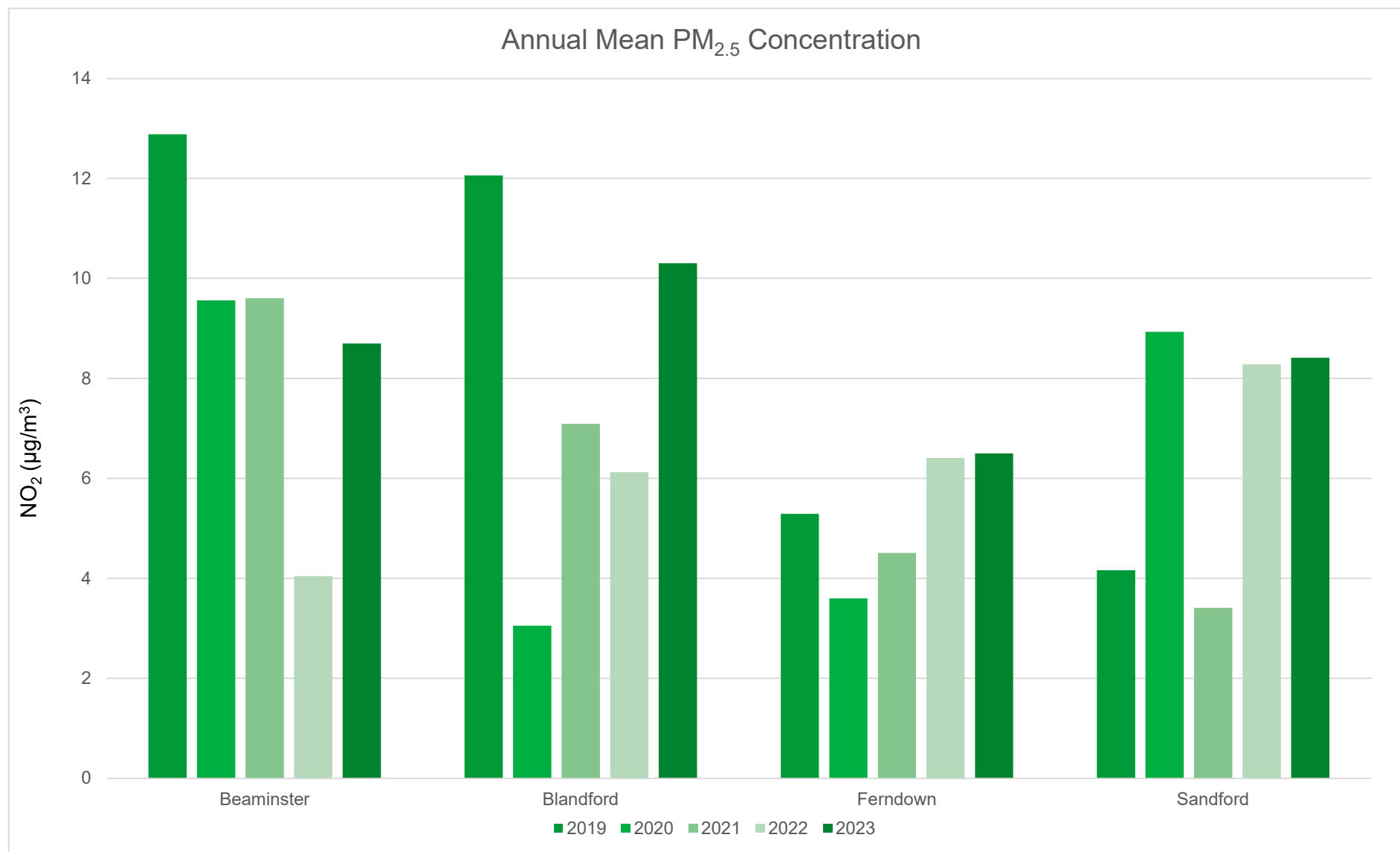
Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO$_2$ 2023 Diffusion Tube Results (µg/m^3)

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 (0.79)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
P3	402790	078950		13.6	17.3	13.1	9.2	12.0	16.0	13.1		29.0	9.7	12.3	14.5	11.5	-	
P4	402860	078830		15.7	13.8	12.2	10.0	12.6	10.8	11.3		13.4	13.2	9.7	12.3	9.7	-	
P5	397910	093425		27.7	21.4	22.5	17.8	22.1	19.8	20.3		14.5			20.8	18.2	-	
P9	393223	089947		20.9	19.1		14.5	19.4	12.8	17.0		19.0	14.0	14.1	16.8	13.2	-	
P10	391790	087190		0.7	11.7	10.0	7.2	7.7	12.1	9.0			16.2	10.1	9.4	7.4	-	
E1	413298	104528	26.4	21.2	19.4	23.0	12.6	20.7	18.3	22.0		28.1	19.1	18.4	20.8	16.5	-	
E2	406362	098711	23.6	23.7	17.5	19.8	11.9	17.1	16.0	17.2		20.3	19.0	16.4	18.4	14.5	-	
E3	402880	099961	17.0	15.9	11.6	11.4	6.8	11.0	11.3	12.9		16.3	15.9	11.8	12.9	10.2	-	
E4	413425	104429	18.5	18.4	12.3	12.0	9.7	17.2	12.9	12.4		12.0	16.7	15.7	14.3	11.3	-	
E5	400677	099998	32.6	34.8	22.3	27.2	21.5	24.0	24.6	8.0		32.3	30.7	25.5	25.8	20.4	-	
E6	407785	100135	26.2	29.8	24.7	26.6	20.0	25.5	20.4	23.6		28.7	41.2	26.2	26.6	21.0	-	
E8	401003	100736	20.4	18.2	14.3	13.0	13.1	14.8	12.8	13.2		20.0	19.2	12.5	15.6	12.3	-	
E9	412782	104118	31.2	28.3	28.2	34.3	20.6	28.5	28.3	27.9		34.0	27.3	27.9	28.8	22.7	-	
E10	408384	097986	28.6	29.2	23.9	26.2	20.4	25.9	20.7	24.8		29.5	25.1	20.3	25.0	19.7	-	
E11	408468	098002	29.0	27.9	18.0	23.8	21.9	15.8	14.7	19.9		19.5			21.2	16.7	-	
E12	400833	100042	22.6	21.4	14.6	16.1	11.6		13.9			19.6	19.4	15.6	17.2	13.6	-	

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 (0.79)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
E13	400901	100149	25.3	20.9	18.9	18.4	15.6	23.4	17.1	17.2		22.6	19.3	15.2	19.4	15.4	-	
W1	368779	071706			8.8	6.5	7.9	7.5	7.3	7.3		7.6	9.8	4.1	7.4	5.9	-	
W2	368003	079527			26.7	33.1	36.8	38.5	23.5	32.9		28.3	31.2	22.6	30.4	24.0	-	
W3	367542	078548			36.0	55.6	51.2	51.0	30.6	35.7		38.5	33.8	22.5	39.4	31.1	-	
W5	367540	078471			25.4		42.1	40.5	40.5	28.7		38.8	28.1	24.7	33.6	31.8	-	
W6	367528	078554			35.0	33.4	32.9	40.6	38.3	34.6		35.0	29.2	25.3	33.8	26.7	-	
W46	368888	074356			16.2	16.2	19.8	16.9	11.9	13.0		12.9	12.7	7.4	14.1	11.1	-	
W47	368847	074356			14.6	18.9	17.6	16.5	12.1	12.2		14.6	13.3	6.9	14.1	11.1	-	
W9	367550	078485			29.6	41.3	45.5	47.9	33.4	39.2		40.9	29.7	24.8	36.9	29.2	-	
W10	367533	078531			42.6	34.4	36.2	43.8	42.5	40.9		44.8	39.5	39.0	40.4	31.9	-	
W12	367879	078567			31.0	30.8	33.2	42.4	39.4	38.9		42.1		27.7	35.7	36.1	-	
W13	367995	079528			33.0	32.2	35.5	39.4	34.0			39.5	31.8	25.8	33.9	30.6	-	
W14	368540	073593			35.2	31.0	35.0	37.9	33.4	34.6		31.5	27.5	25.0	32.3	25.6	-	
W15	369121	090739			31.1	30.9	36.2					22.3	37.3	29.1	31.1	25.9	-	
W17	369484	090759				25.8	19.4	25.3	22.0	25.6		31.1	26.4	24.9	25.0	23.8	-	
W18	369387	090742			34.4	33.2	19.3	31.0	37.2	36.8		44.5	49.7	35.6	35.7	28.2	-	
W24	368982	090453			10.9	8.5	6.4	7.5	8.2	9.8		14.1	10.9	9.5	9.5	7.5	-	
W25	368982	090706			28.7	29.0	26.6	13.4	23.1	25.2		31.5	38.9	22.2	26.5	20.9	-	
W27	347557	093023			44.2	44.4	45.9	48.9	44.1	49.5		52.2	36.7	34.5	44.5	35.2	-	
W28	347612	093050			30.3	33.4	31.1	41.5	37.4	34.6		41.8	32.4	27.4	34.4	27.2	-	

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 (0.79)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
W29	347277	092867			22.7	21.6	23.3	26.0	22.7	27.3		26.5	22.3	18.8	23.5	18.5	-	
W32	342364	092814			16.8	18.6	16.0	17.4	12.0	16.9		16.4	15.3	11.6	15.7	12.4	-	
W33	342151	092869			16.4	18.7	18.5	13.5	10.0	12.5		13.1	15.7	10.7	14.3	11.3	-	
W34	342190	092840			31.3	34.1	25.6	31.3	36.6	39.5		33.4	28.0	24.8	31.6	25.0	-	
W36	342015	092887			36.7	40.2	35.8	44.7	45.7	27.8		38.2	29.4	27.8	36.2	28.6	-	
W37	341946	092908			43.0	44.7	50.0	49.6	46.8	53.1		48.6	38.4	32.9	45.2	35.7	-	
W38	342025	092894			18.5	23.1	21.5	24.3	17.9	24.6		18.5	17.2	13.2	19.9	15.7	-	
W39	341629	093139			62.8	65.7	77.5	77.3	68.5	90.8		68.5	61.2	47.5	68.9	**54.4**	39.7	
W40	381302	126181				33.3	25.4	27.7	25.9	21.5		33.9	36.1	24.3	28.5	27.1	-	
W42	378606	114009			34.4	30.4	26.9	30.2	26.6	26.7		35.2	35.1	23.4	29.9	23.6	-	
H1	342164	092841			20.3	23.4	22.4	22.7	19.2	26.5		19.3	21.2	16.0	21.2	16.8	-	
H2	342143	092845			27.6	31.6	26.8	32.8	35.2	31.1		29.3	25.5	23.6	29.3	23.1	-	
H3	342084	092856			24.5	30.2	27.5	31.5	33.3	35.6		31.3	28.5	22.5	29.4	23.3	-	
H4	342004	092890			30.6	38.0	33.6	43.7	39.2	39.7		35.0	35.3	24.0	35.5	28.0	-	
H5	341933	092913			37.0	41.8	42.6	45.4	41.3	47.2		39.1	29.8	28.6	39.2	31.0	-	
H6	341881	092934			56.7	62.7	60.8	78.3	65.5	68.6		62.9	54.1		63.7	**57.9**	-	
H7	341819	092953			47.7	53.6	51.9	59.1	51.0	53.0		50.2	45.1	36.0	49.7	39.3	36.9	
H8	342129	092847			34.4	39.3	33.7	46.7	49.4	46.7		41.4	40.4	32.0	40.5	32.0	-	

☒ **All erroneous data has been removed from the NO$_2$ 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**

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

Notes:

Exceedances of the NO$_2$ annual mean objective of 40µg/m^3 are shown in **bold**.

NO$_2$ annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO$_2$ 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 Dorset Council During 2023

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

Additional Air Quality Works Undertaken by Dorset Council During 2023

Dorset Council has not completed any additional works within the reporting year of 2022.

QA/QC of Diffusion Tube Monitoring

Diffusion Tube Annualisation

Table C.1 – Annualisation Summary (concentrations presented in µg/m³)

Site ID	Annualisation Factor Bournemouth	Annualisation Factor Charlton Mackrell	Annualisation Factor Southampton	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
P5	1.1431	1.0754		1.1092	20.8	23.0
E12	0.9283	0.9347		0.9315	17.2	-
W5	1.2508	1.1447		1.1978	33.6	40.2
W12	1.3638	1.1992		1.2815	35.7	45.7
W13	1.1962	1.0870		1.1416	33.9	38.7
W15	1.1035	1.0063		1.0549	31.1	32.8
W17	1.2597	1.1434		1.2016	25.0	30.1
W40	1.2597	1.1434		1.2016	28.5	34.3
H6	1.2072	1.0928		1.1500	63.7	73.2

Site ID	Annualisation Factor Bournemouth	Annualisation Factor Charlton Mackrell	Annualisation Factor Southampton	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
Sandford PM$_{2.5}$	0.813	0.851		0.832	10.1	8.41
Sandford PM$_{10}$		0.944	0.853	0.898	17.5	15.72

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2024 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Dorset Council have applied a national bias adjustment factor of 0.79 to the 2023 monitoring data. A summary of bias adjustment factors used by Dorset Council over the past five years is presented in Table C.2.

2023 diffusion tubes were sourced Somerset County Council providing a preparation method of 20% TEA in water. All of the data presented in this report has been bias adjusted using the national adjustment databased available on the LAQM Support website. The data has been adjusted using version 03/24 of the spreadsheet giving a factor of 0.79 for Somerset County Council.

The Chemiluminescent Analyser is no longer in operation, therefore a local bias adjustment factor was not available.

Table C.2 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	National	03/24	SCC: 0.79
2022	National	03/23	SCC: 0.82
2021	National	03/22	SYAQS: 0.77

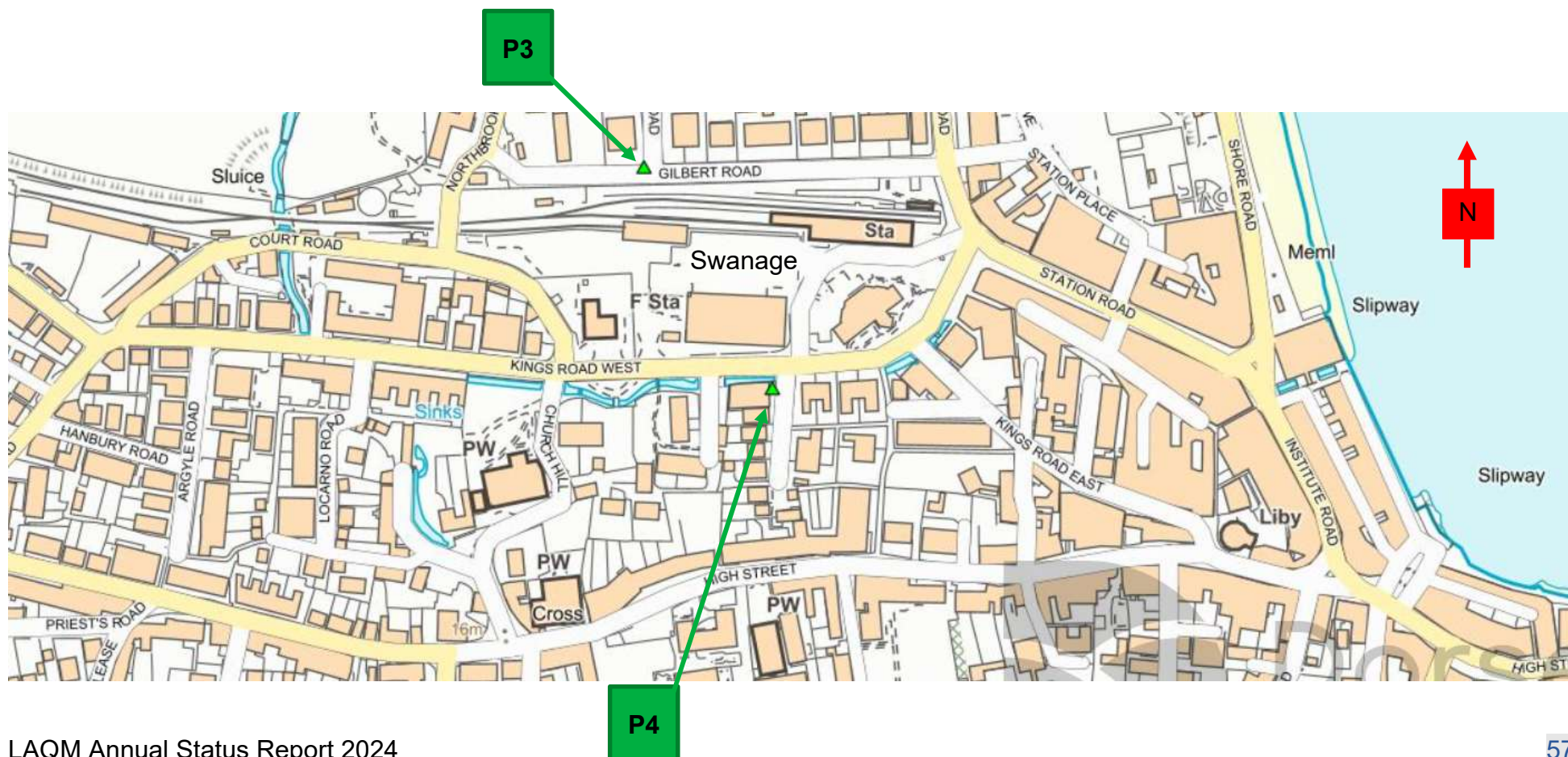|			
2020	National	03/21	Gradko: 0.82
			SYAQS: 0.77
2019	National	03/20	Gradko: 0.89
			SYAQS: 1.01

NO₂ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO₂ fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO₂ concentrations corrected for distance are presented in Table B.1.

Table C.3 – Non-Automatic NO₂ Fall off With Distance Calculations (concentrations presented in µg/m³)

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted	Background Concentration	Concentration Predicted at Receptor	Comments
W39	1.0	4.5	54.4	5.9	*39.7*	*Predicted concentration at Receptor within 10% the AQS objective.*
H7	6.0	7.5	39.3	5.9	*36.9*	*Predicted concentration at Receptor within 10% the AQS objective.*

QA/QC of Automatic Monitoring

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

Automatic Monitoring Annualisation

Annualisation was required for one automatic monitoring site – Sandford – for PM$_{10}$ and PM$_{2.5}$. The annualisation data is presented in Table C.1. Annualisation is required for any site with data capture less than 75% but greater than 25%.

NO$_2$ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO$_2$ concentration at the nearest location relevant for exposure has been estimated using the NO$_2$ fall-off with distance calculator available on the LAQM Support website. Where appropriate, automatic annual mean NO$_2$ concentrations corrected for distance are presented in Table A.3.

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

Figure D.1 – Map of Non-Automatic Monitoring Site

Former Purbeck District Council area monitoring locations

Sandford St Martin's
Church of England
Voluntary Aided
Primary School

War Memls

FILLEUL ROAD

CEDAR DRIVE

MAPLE

WOODLANDS DRIVE

Path

Drain

9m

10m

N

P9

WAREHAM

N

P10
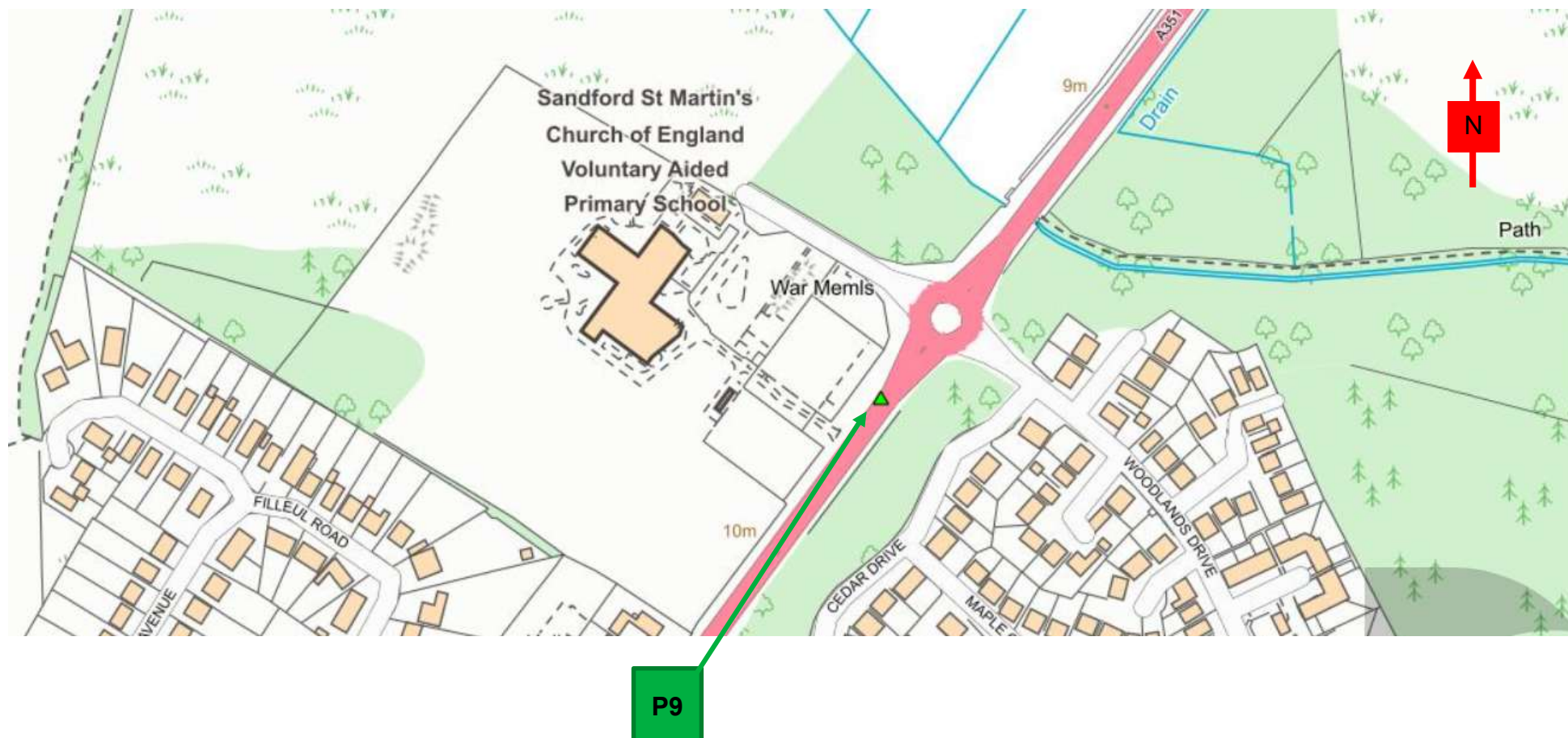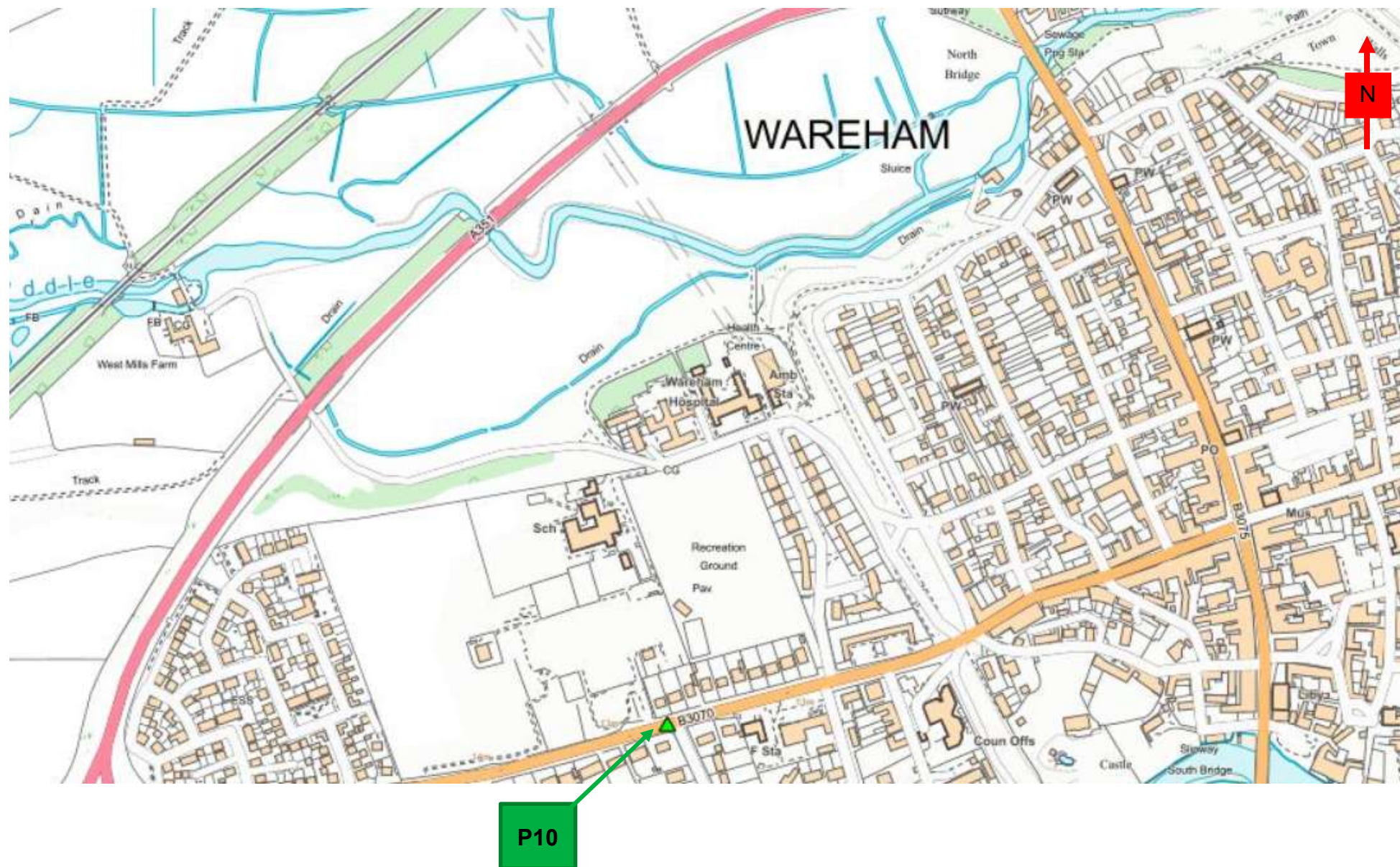
Former East Dorset District Council area monitoring locations
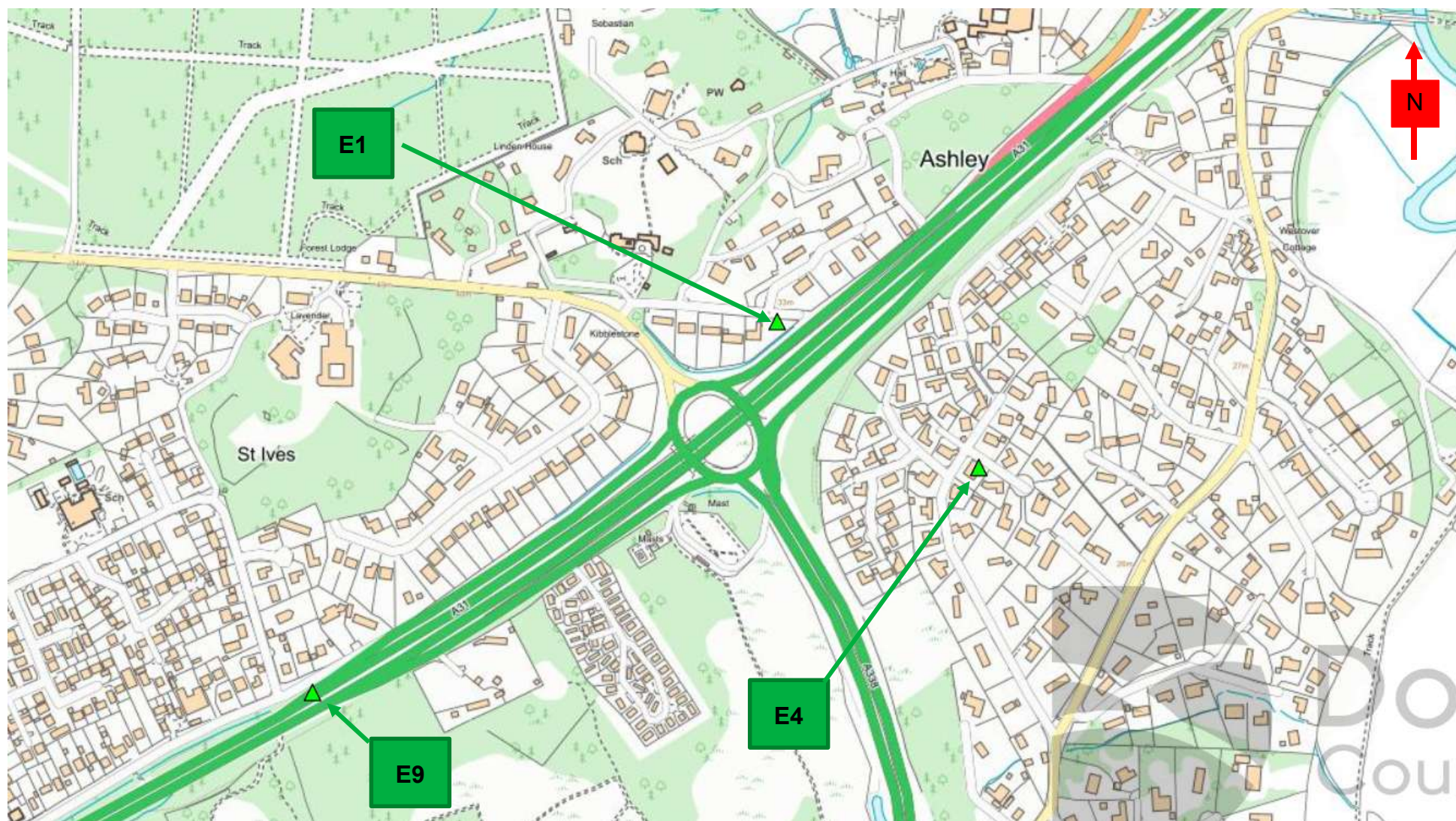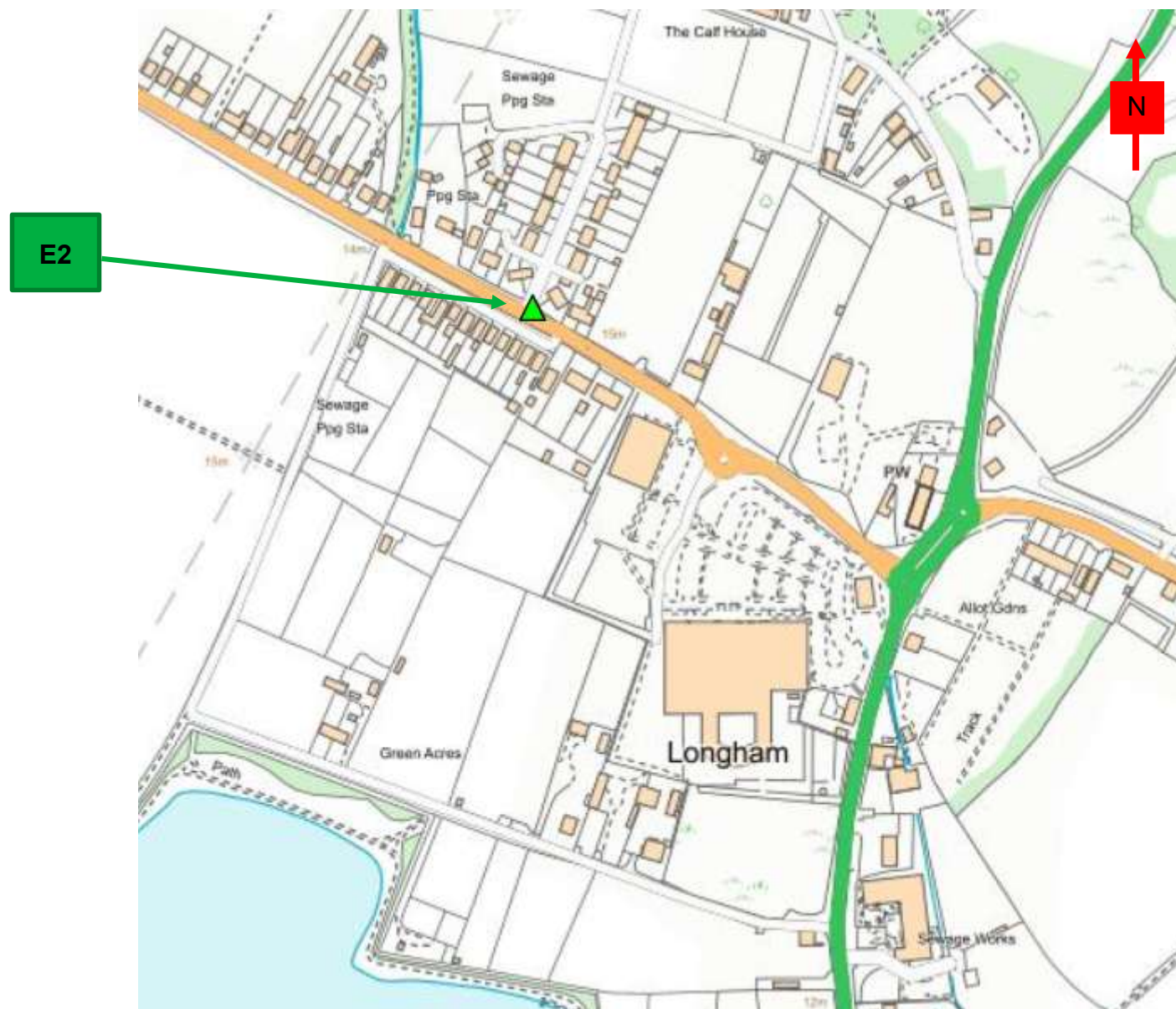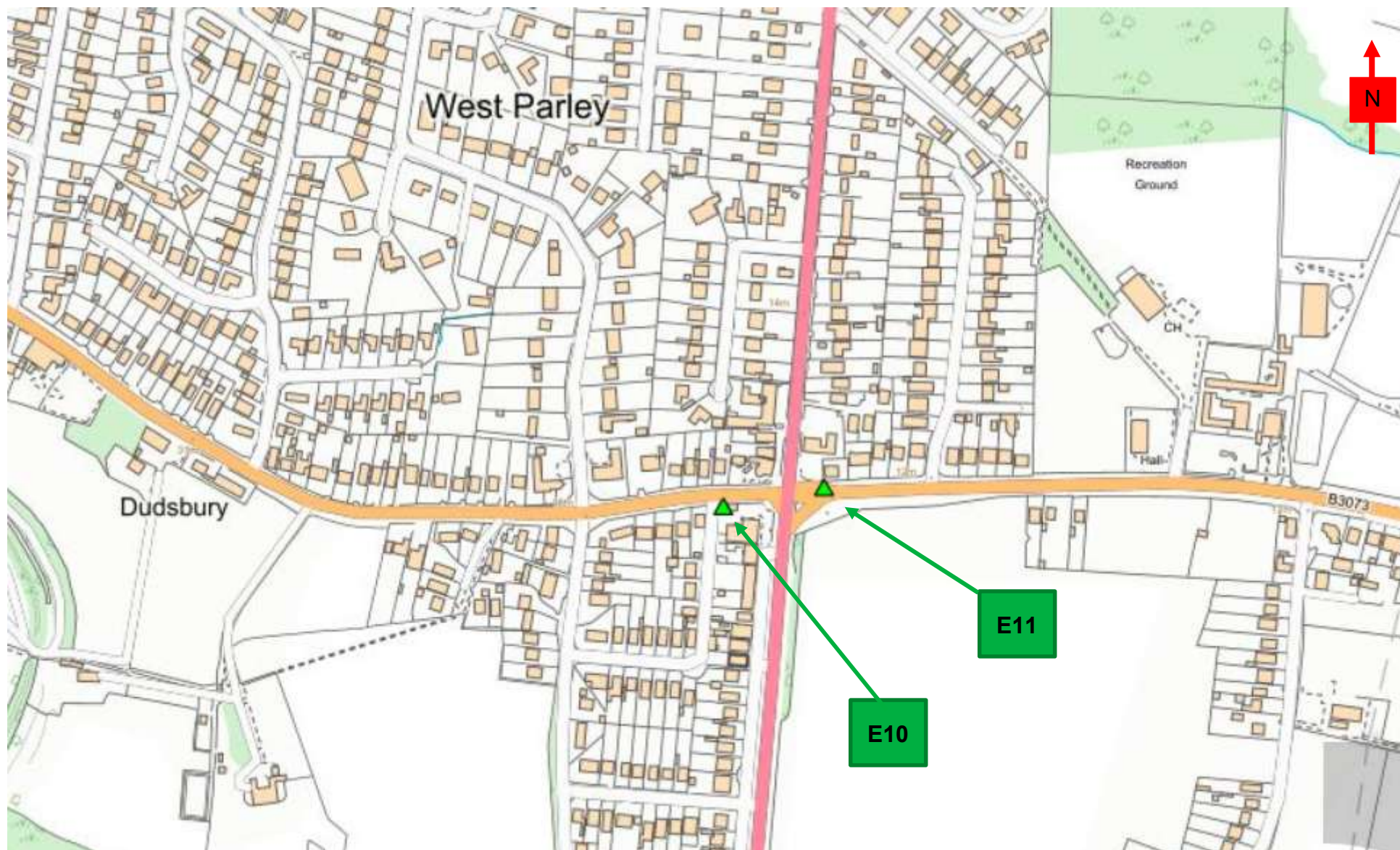
Former Weymouth and Portland Borough Council area monitoring locations

N

W6

W3

Weymouth

W10

W9

W5
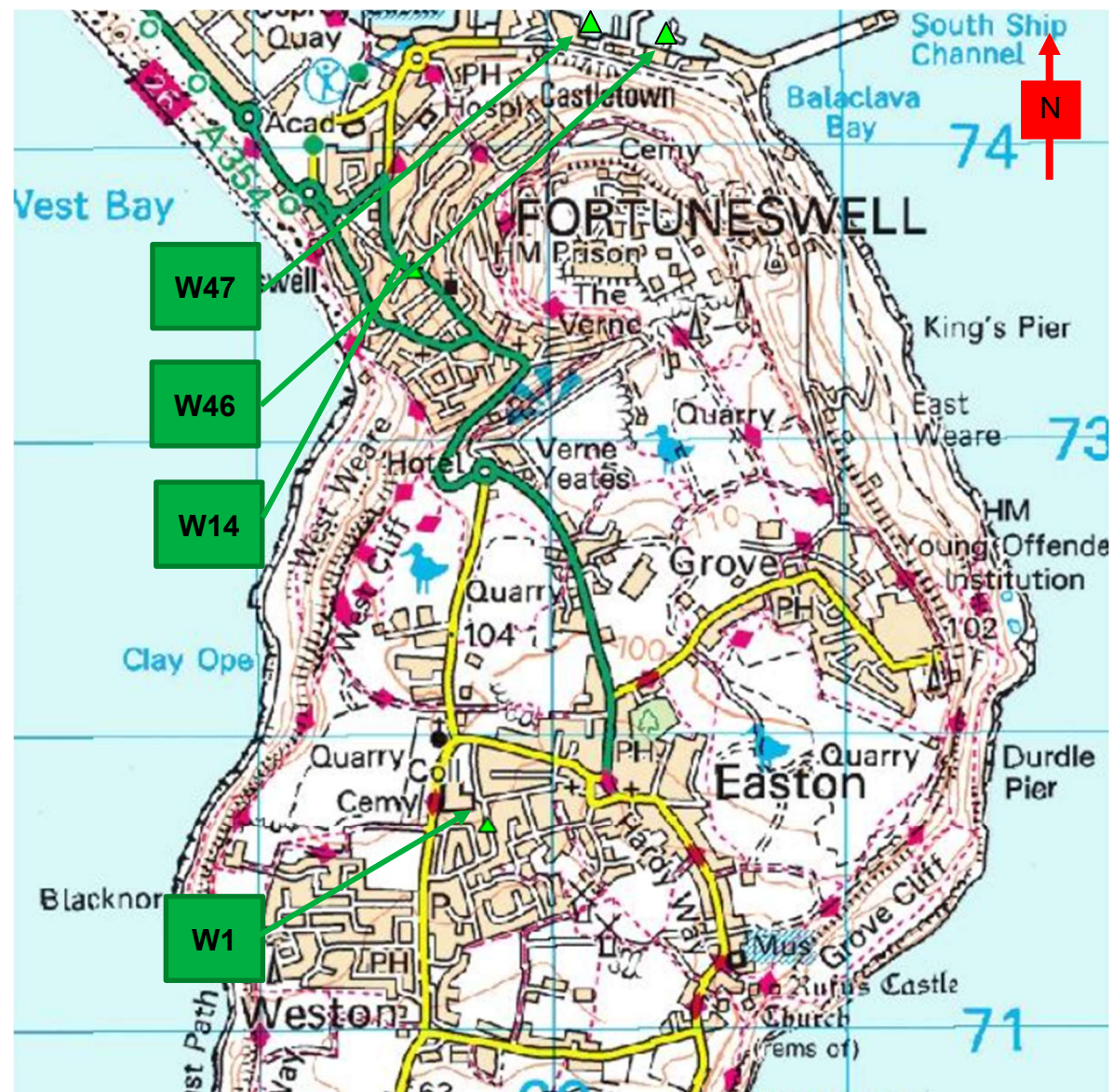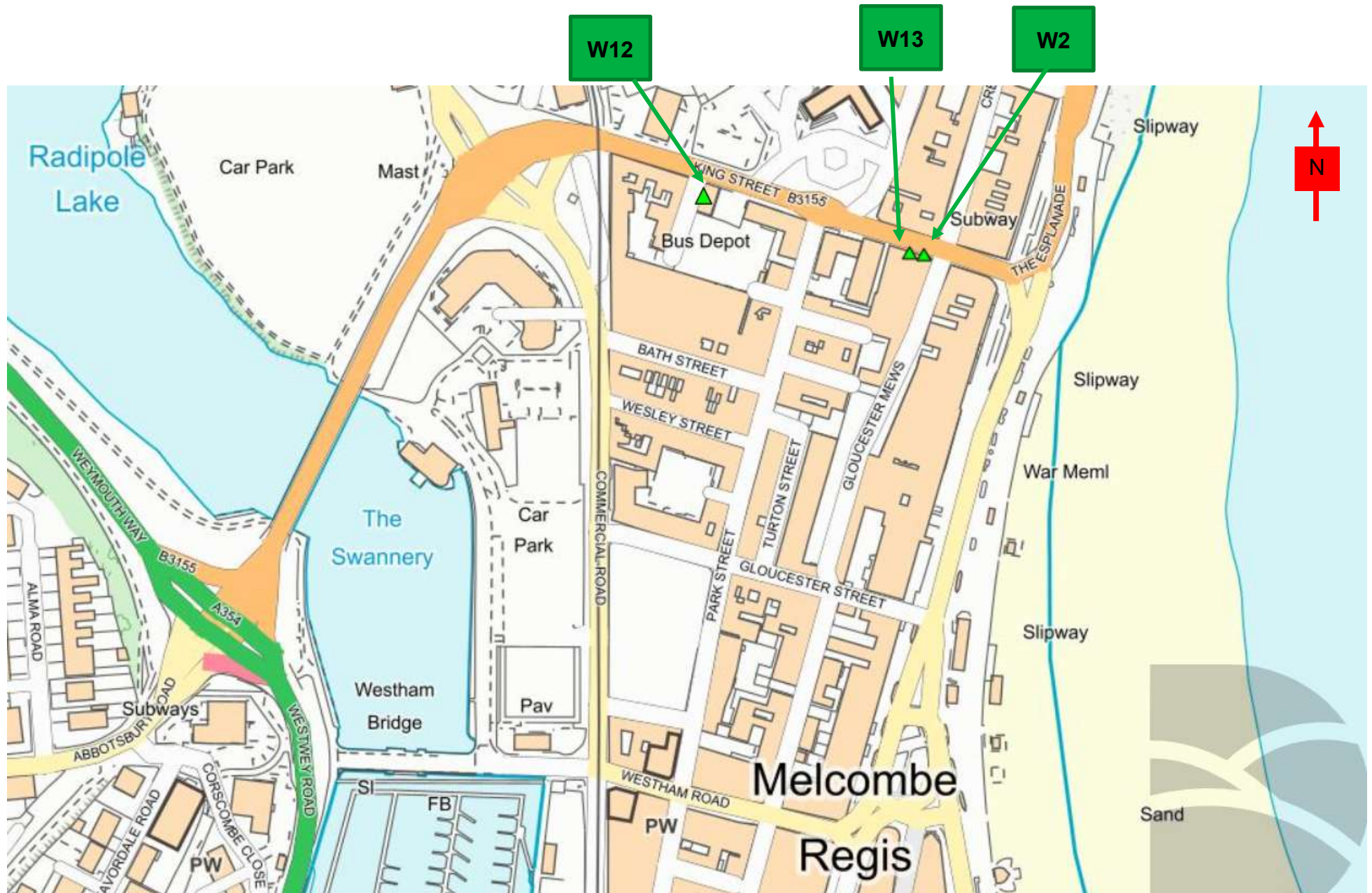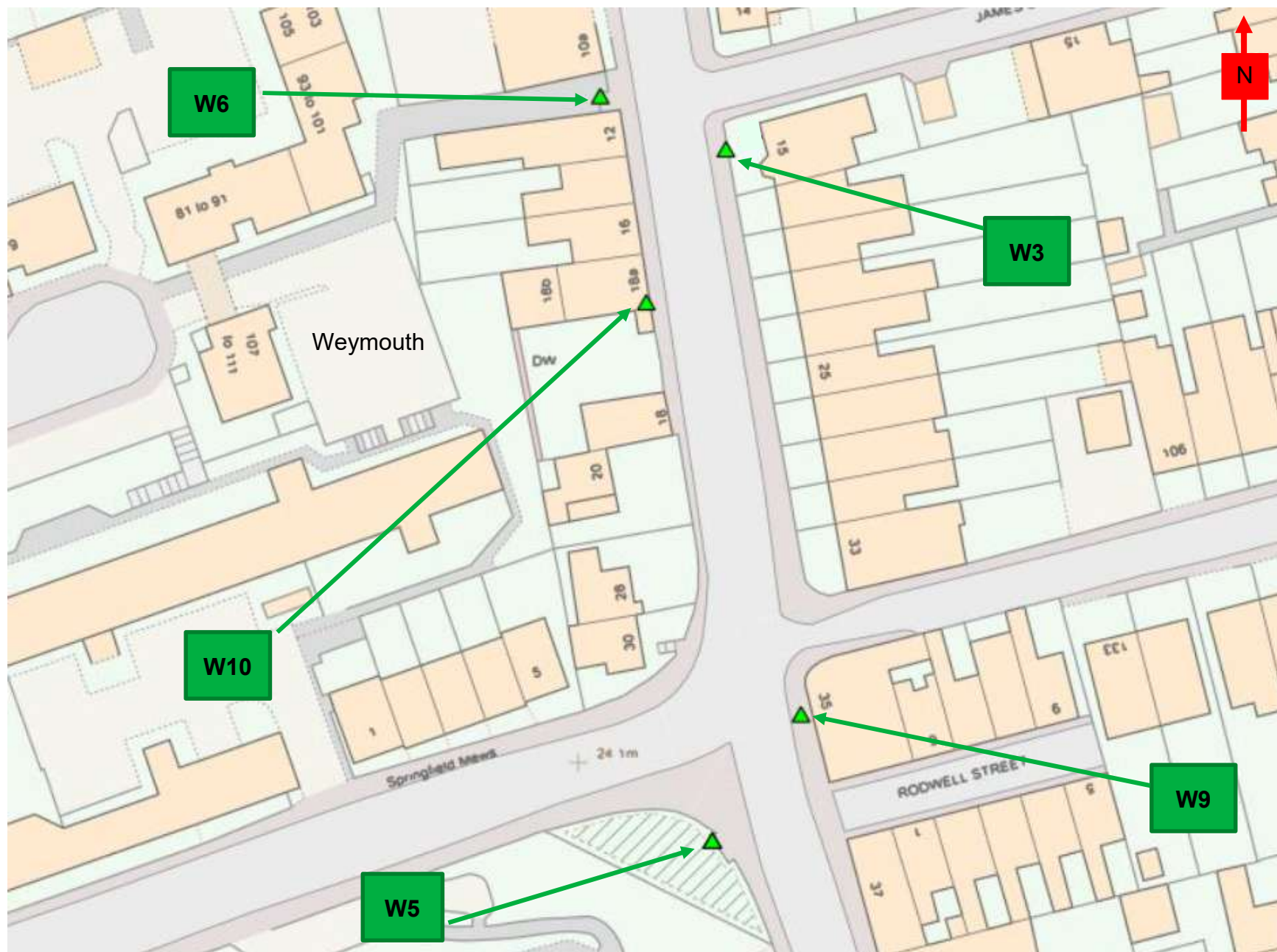
Former West Dorset District Council area monitoring locations
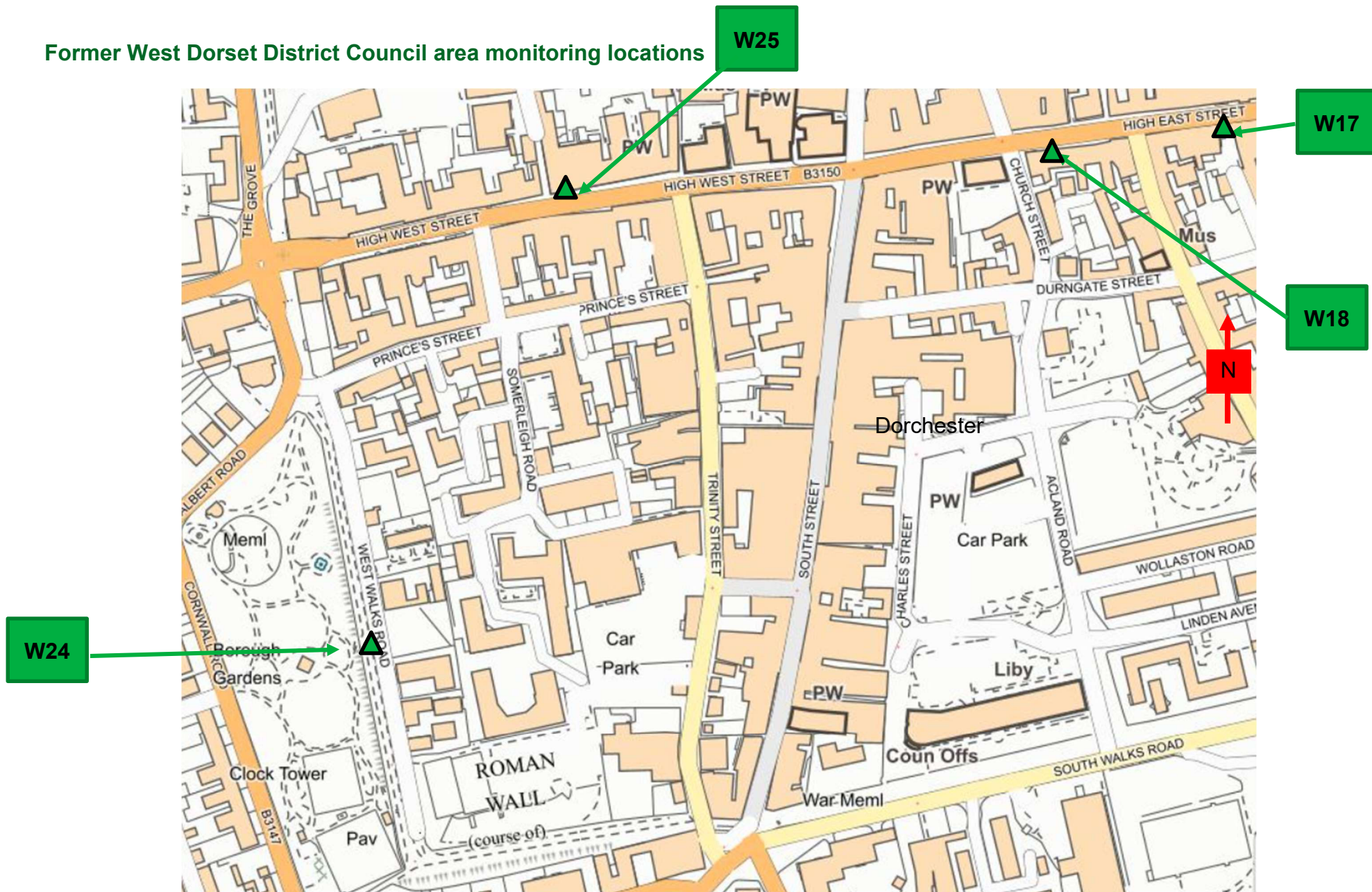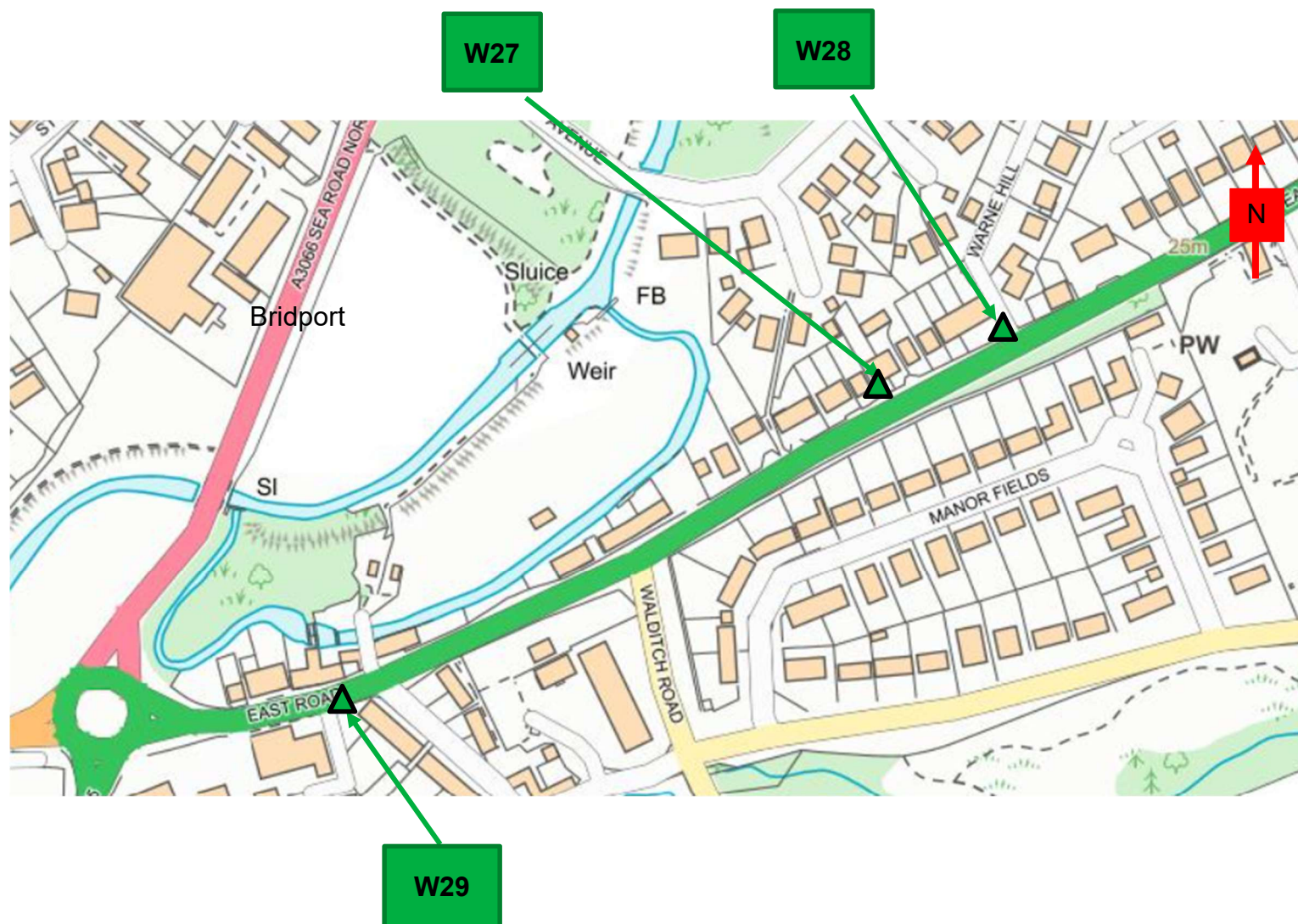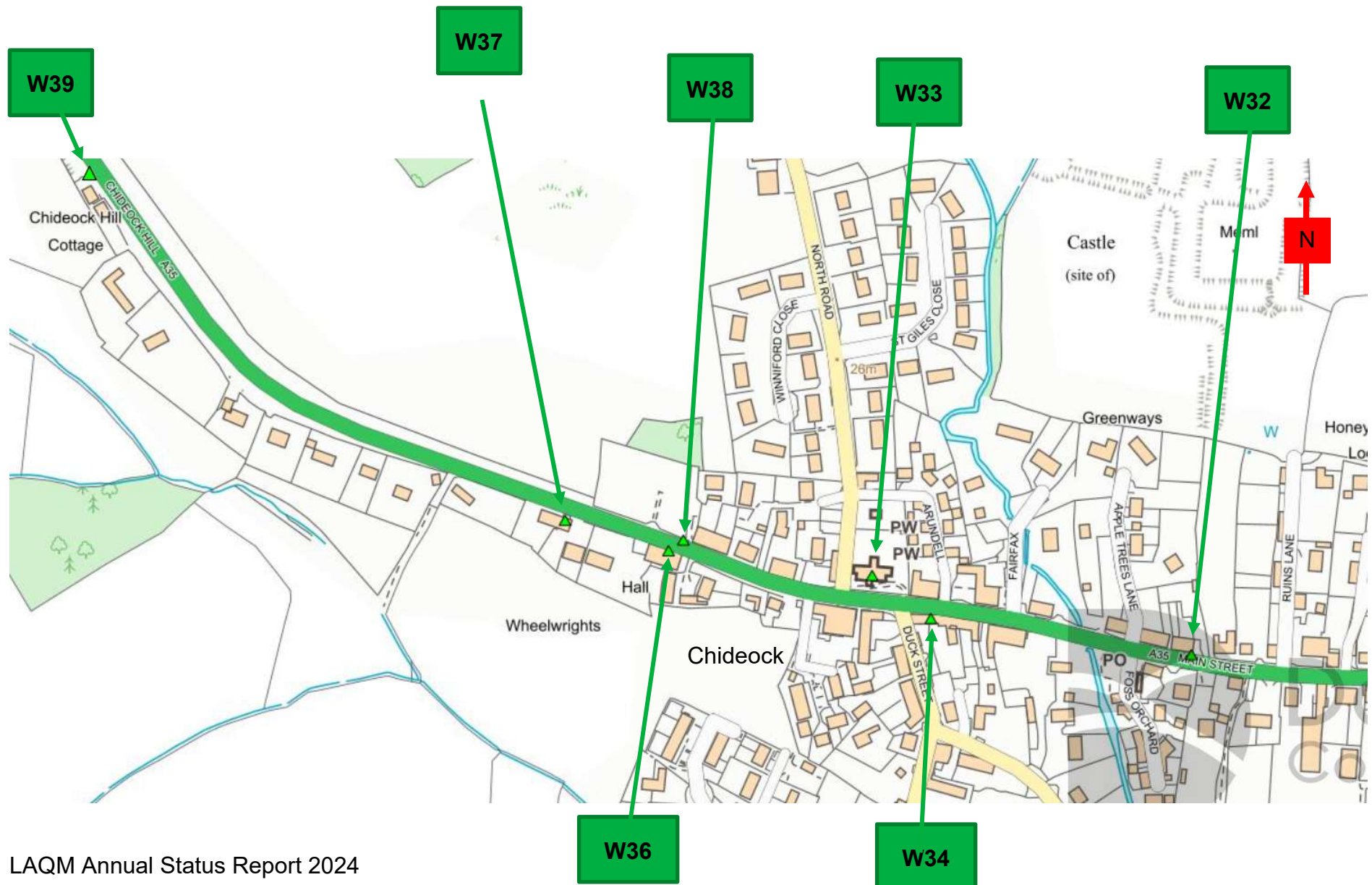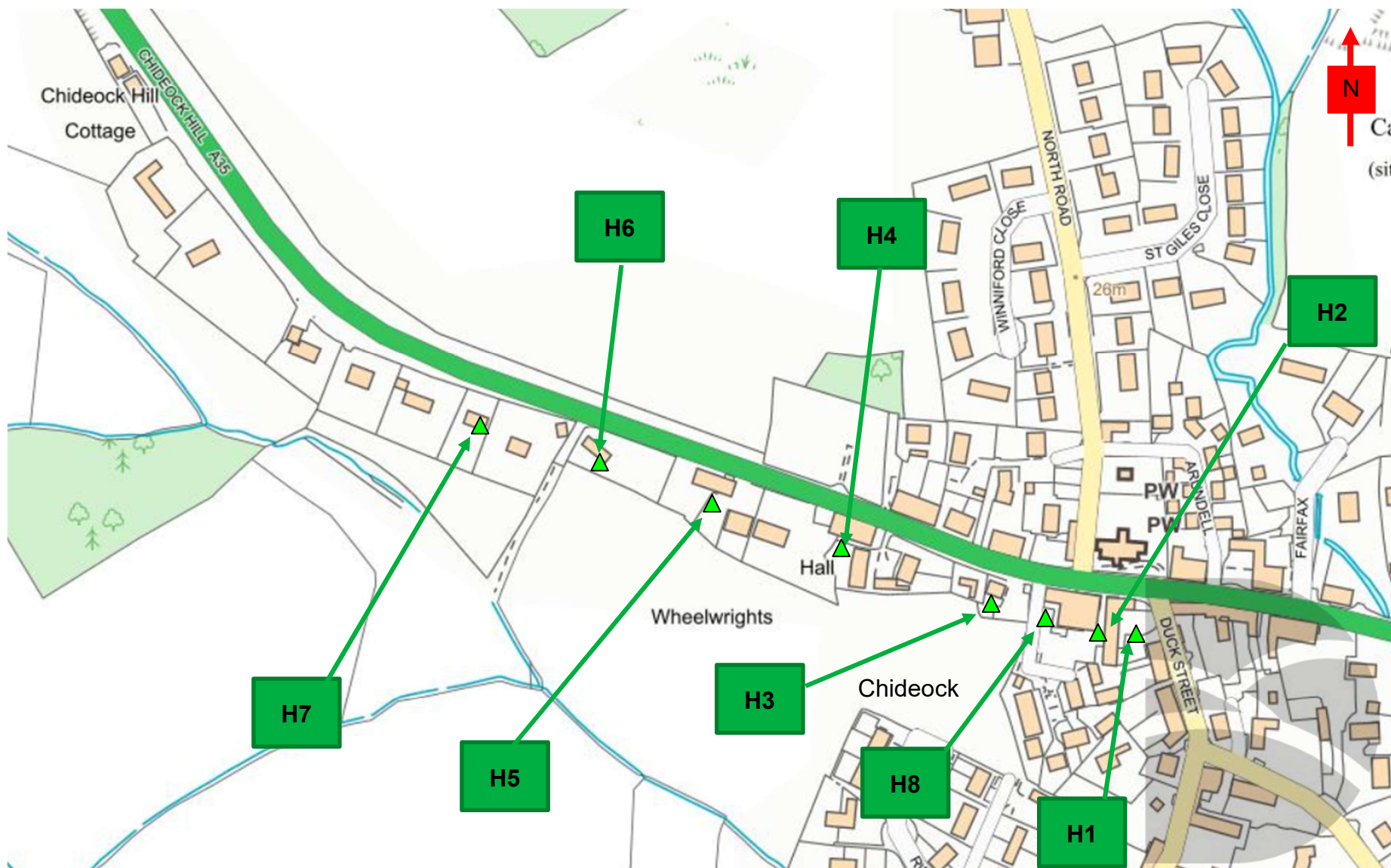
Former North Dorset District Council area monitoring locations

W42

Bathing Island

Recreation
Ground

Gotts Corner

Sturminster

Newton

N
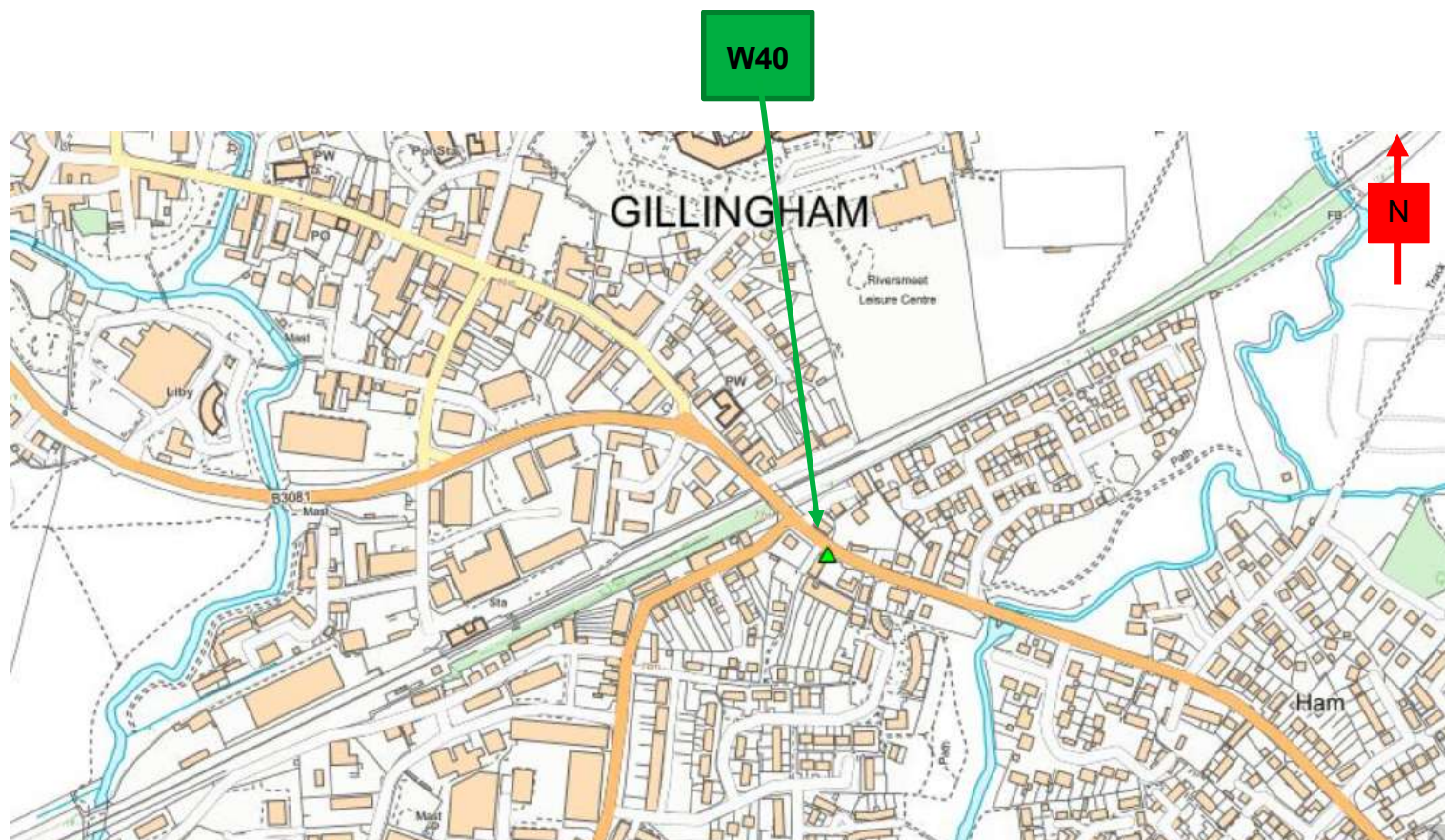
AQMesh continuous analyser positons

Beaminster
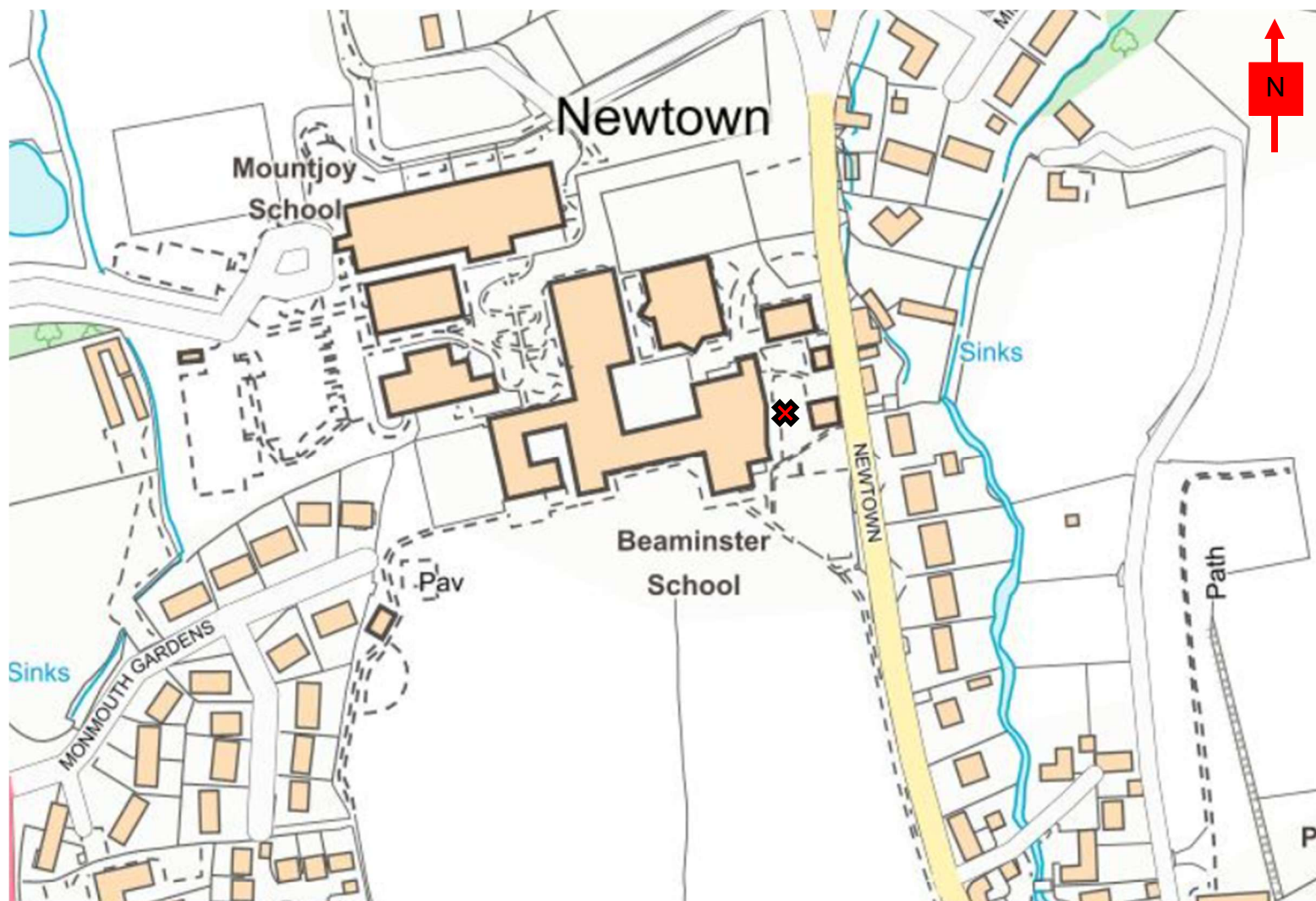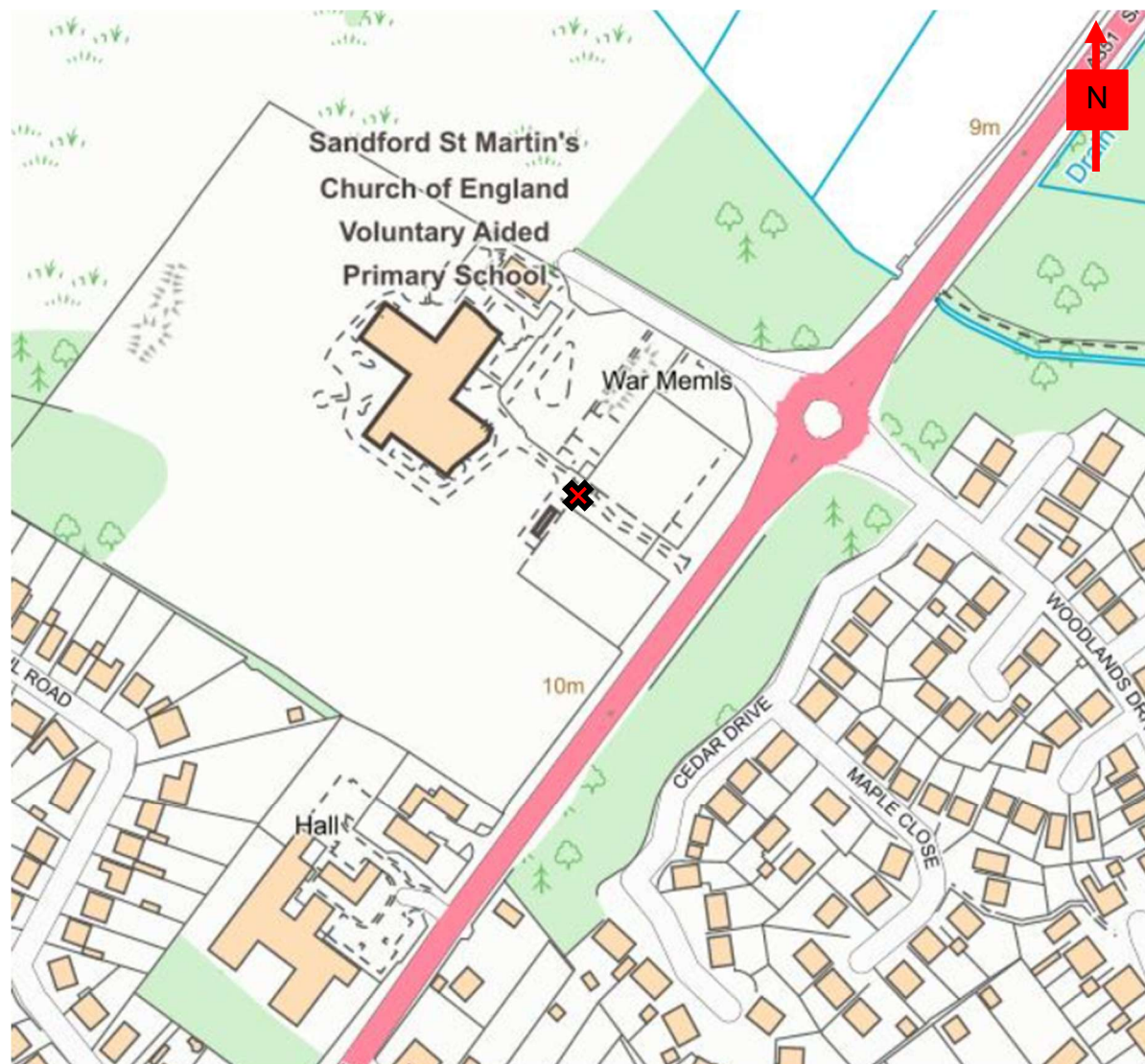
Blandford
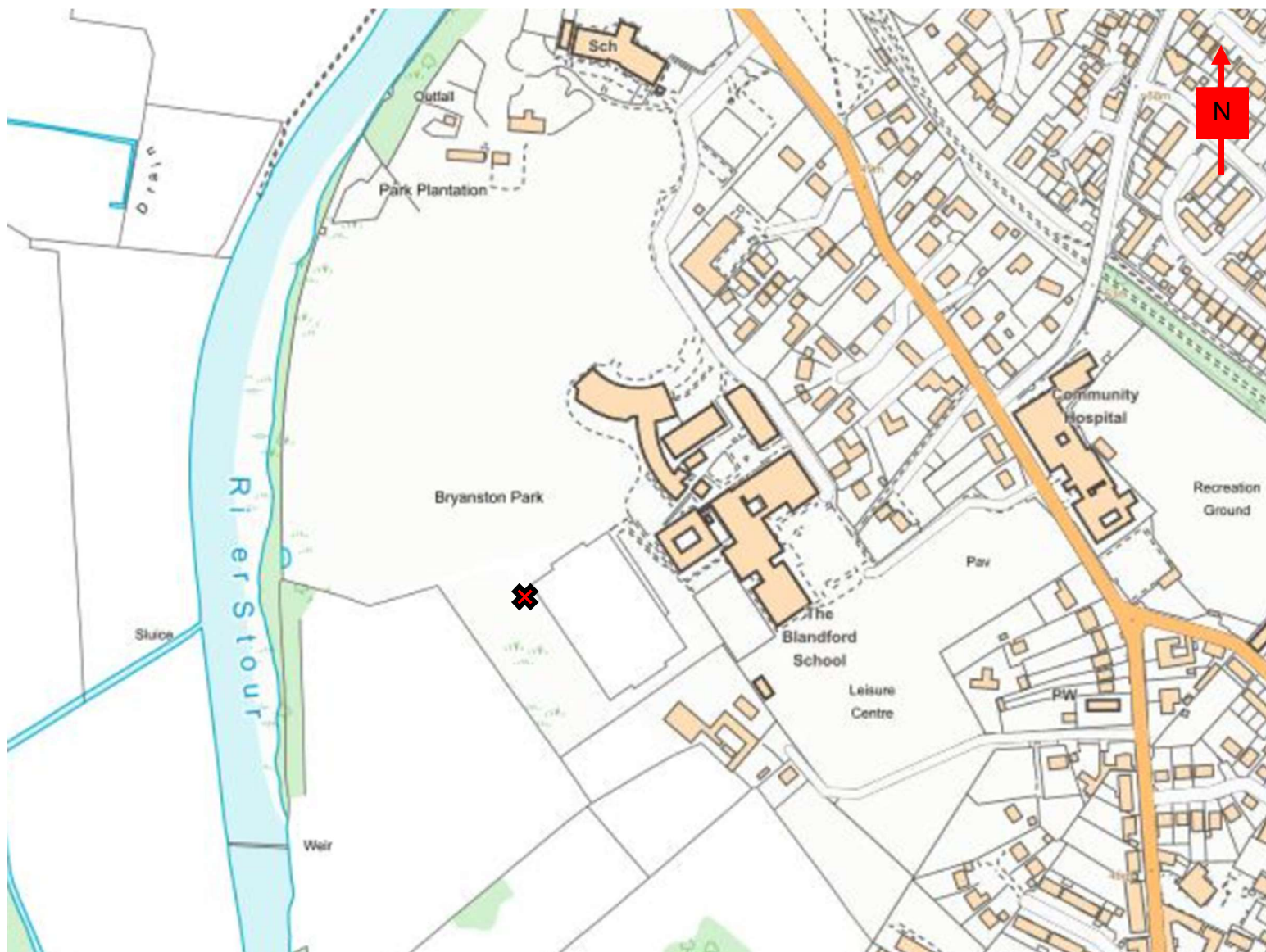
Ferndown
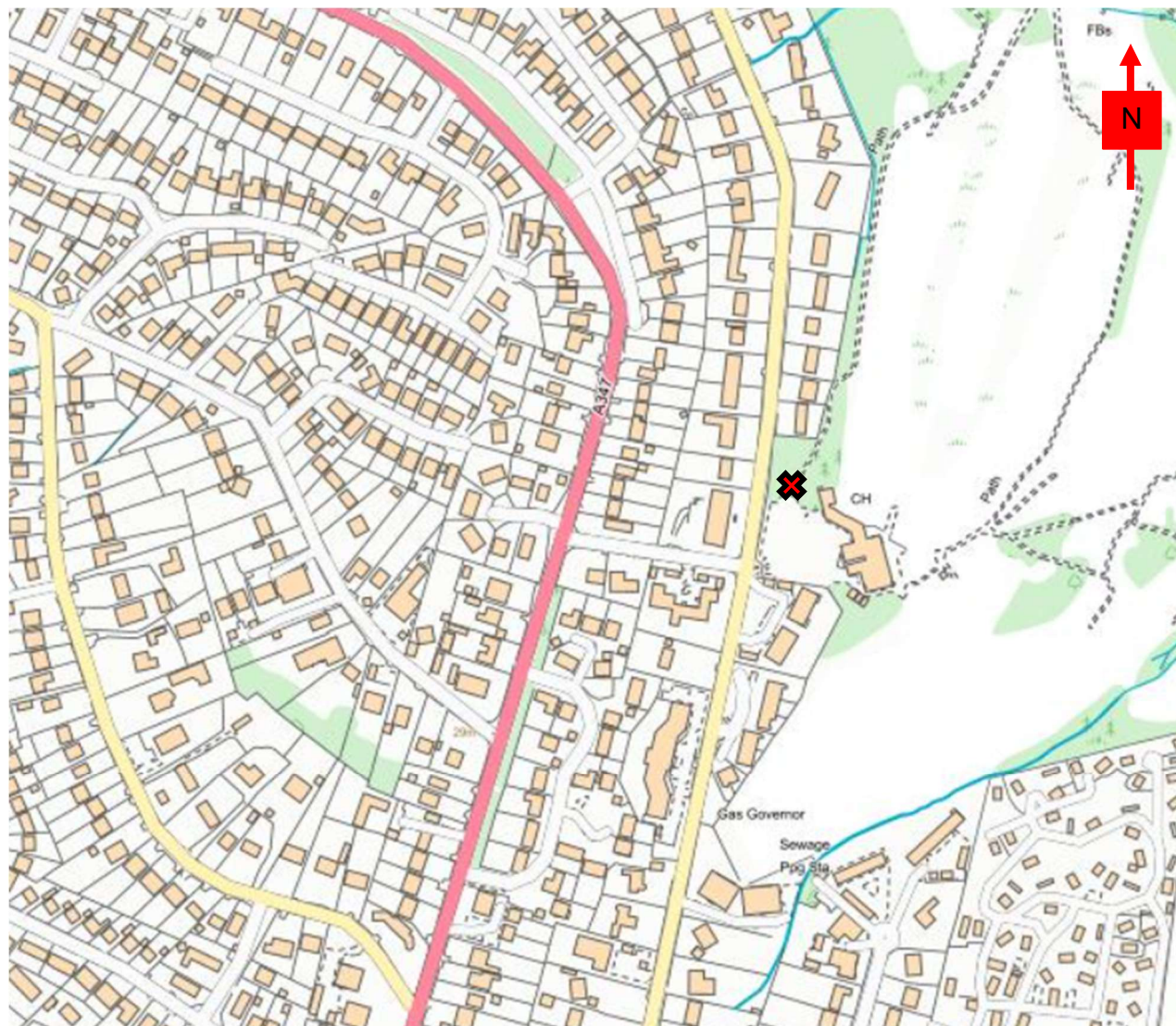
Sandford
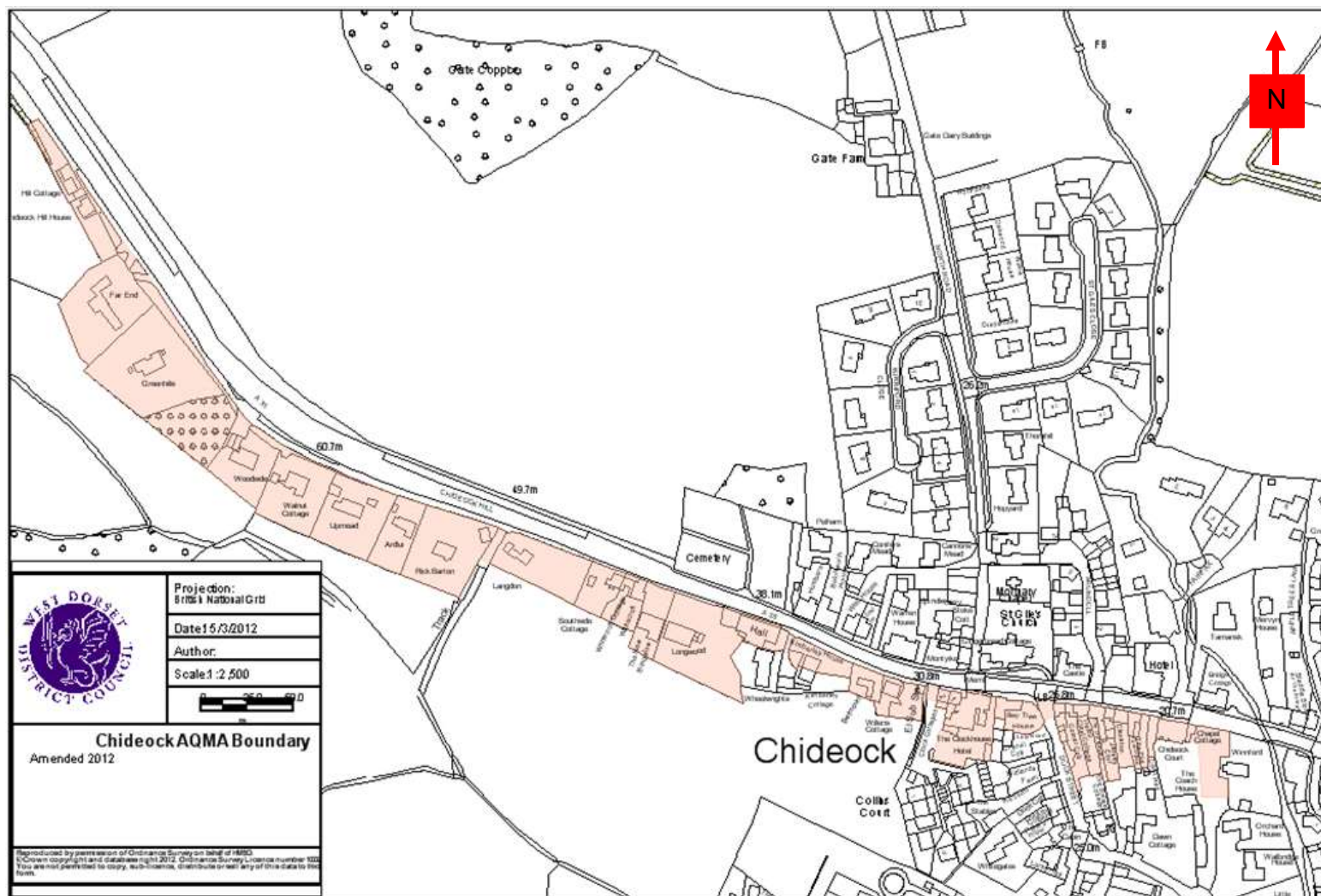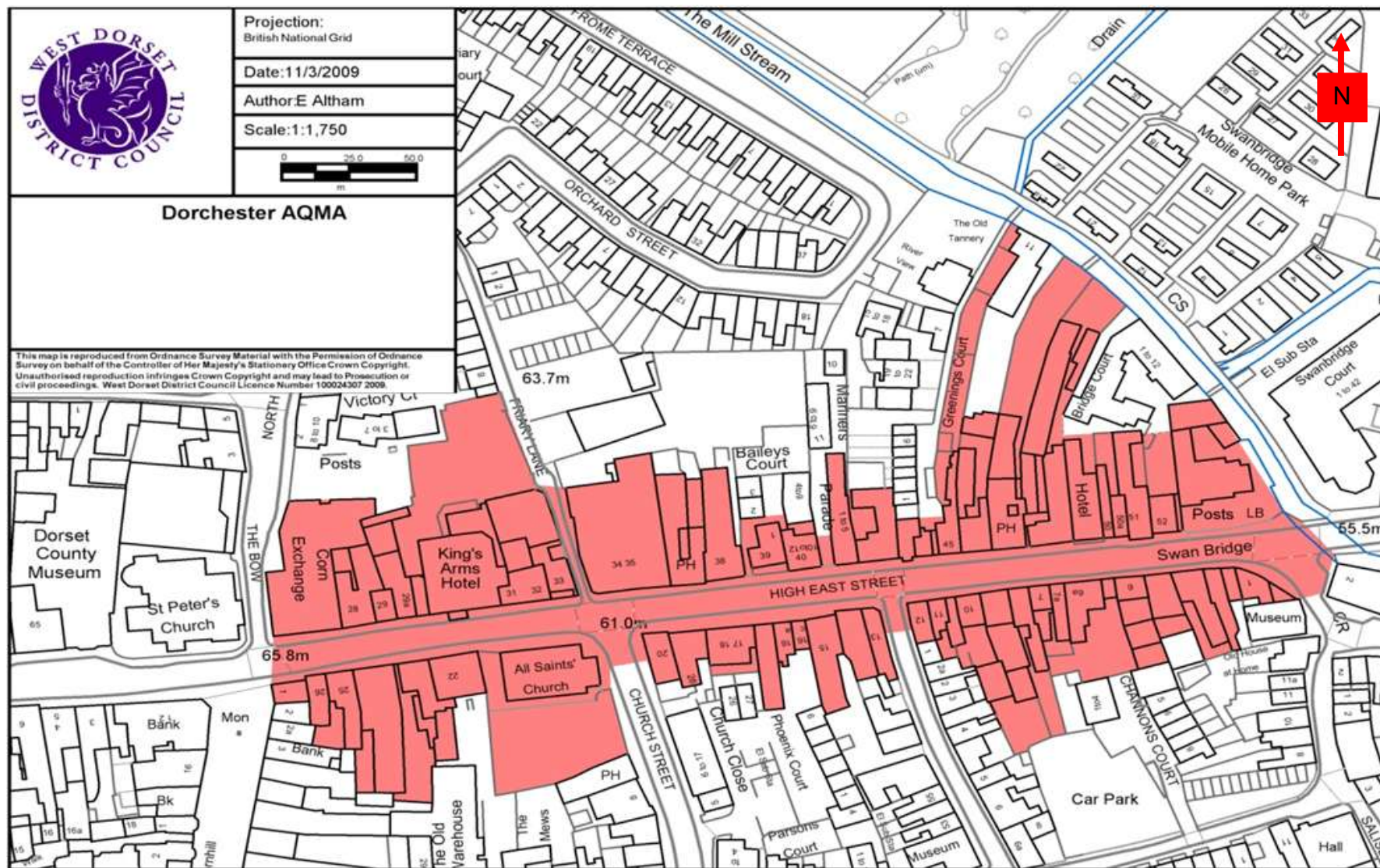
Figure D.2 – Map of AQMAs

AQMA Chideock 2007 Boundary

AQMA Chideock 2012 Amended Boundary

AQMA Dorchester 2009

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[7]

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

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
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.
- Chemical hazards and poisons report: Issue 28. June 2022. Published by UK Health Security Agency
- Air Quality Strategy – Framework for Local Authority Delivery. August 2023. Published by Defra.