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 Dorset

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 343,000 deaths at typical ages[3], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[4].

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)

[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

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.

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[5] 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 Zero[6] 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.

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.

[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

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 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

2022 monitoring has demonstrated annual average exceedances at monitoring sites in Dorset once bias adjustment has occurred. These are all within the Chideock AQMA. It was anticipated in the 2021 and 2022 reports that easing of coronavirus travel restrictions would result in wholescale increases in NO_2 and PM pollution – this has not been the case with the overall picture more mixed. Some areas have increased, some have remained broadly consistent with concentrations observed in 2021. Sites generally remain below 2018 and 2019 levels contributing to an overall downward trend. Further caution is advised against making significant strategic decision on the basis of 2022 results, however the continuation of the downward trend in air pollution is welcome.

Chideock monitoring sites remain below 2019 concentrations. Exceedances of the 40µg/m^3 Air Quality Objective (AQO) have occurred at four sites: W37 – 42.1µg/m^3; W39 – 64.5µg/m^3; H6 – 57.2µg/m^3; and H7 47.2µg/m^3. These sites are all on the Chideock Hill incline. Both H6 and H7 sites were within 10% of the AQO in 2021, and both W37 and W39 previously exceeded the objective in 2019. All W-numbered Chideock sites demonstrate a downwards trend in comparison with 2019 concentrations, with W37 and W39 demonstrating a near 20% decrease.

Sites within Dorchester AQMA demonstrate a continuing downward trend for air pollution in the area when compared with 2019 concentrations. Both monitoring sites rest at least 10% below the AQO. Monitoring will continue into 2023 with a view to revoke the AQMA should air quality remain 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 increased over 2021 concentrations, but remain below 2019. One site (W27) is within 10% of the AQO. Monitoring will continue into 2023.

Sites in Weymouth, including the Boot Hill area largely show improved air quality on 2018 or 2019 levels. Despite this, two sites sit within 10% of the AQO – W3 (37.7µg/m^3) and W10 (37.3µg/m^3). Both of these sites have improved on 2018 data, albeit marginally. Other sites in Weymouth have all increased on 2021 concentrations. Monitoring will continue during 2023.

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. Five sites in East Dorset and all sites in Purbeck show increased pollution levels in comparison to 2019 (with several of these also showing an increase over 2020), 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 three sites (Ferndown, Blandford and Sandford) having 24-hour means over 50µg/m^3 but within the permitted 35 times per year threshold (10, 2 and 5 times respectively). Generally, trends remain downwards, however increases in annual means were seen in both Ferndown and Sandford sites. These increases remain at low concentrations – both below half of the annual objective – and refurbishment of the equipment may have caused correction of sensitivity that supressed previous results. 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, Blandford has resumed its downward trend following an anomalously low 2020 result, Ferndown appears to be increasing, although has not exceeded its 2018 result and Sandford has increased to near its 2020 result. $PM_{2.5}$ monitoring has now been carried out for five years in Dorset, providing an opportunity to analyse a full complement for the first time. Overall, the $PM_{2.5}$ outlook in

Dorset remains good, with all sites remaining below the future 2040 target of 10µg/m^3. This is advised with caution however. An increase in PM monitoring across Dorset is now underway, and will be available during the 2024 ASR. Inconsistencies in data may also be explained by the maintenance and calibration that took place on the AQMesh Pods used for $PM_{2.5}$ measurement. It is anticipated that further monitoring will provide a more consistent picture in future.

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.

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 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 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. 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

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	Declared May 2007, Amended March 2012	NO_2 Annual Mean	A35 in Chideock.	YES	45.5	64.5	0	Chideock Air Quality Action Plan, 2022	https://moderngov.dorsetcouncil.gov.uk/documents/s30911/Appendix%20A%20Dorset%20Chideock%20AQAP%202022.pdf
AQMA Dorchester	Declared May 2009	NO_2 Annual Mean	High East Street, Dorchester	NO	43	32.1	4*	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

**Covid-19 restriction affected years in 2020 and 2021*

☒ **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 Council

Defra's appraisal of last year's ASR concluded the following:

1. Air quality is generally good in the Dorset Council area with one exceedance reported in 2021 which falls below the AQO once distance corrected.
2. AQMA and diffusion tube mapping are comprehensive and clearly shows the monitoring network for NO_2. The council should consider creating equivalent mapping for the PM automatic monitoring network.
3. The priorities and proposed future actions for the coming year are not clearly identified and justified.
4. NO_2 QA/QC procedures appear to have been applied correctly for annualisation using three sites and bias adjustment using the national bias adjustment factor.
5. The monitoring data is well presented and there is extensive discussion of the trends observed in each region, as well as supplementary information provided about observed traffic changes.
6. There is limited information in the How to get Involved section for local residents of Dorset Council to use.
7. Dorset Council have responded to comments made in the 2021 appraisal. However the Dorchester AQAP still has not been updated and the new Chideock AQAP has not yet been published.
8. Table A.1 in the appendix needs to be updated to reflect the lack of data provided by the Boot Hill automatic monitor in 2021 as well as the addition of the PM monitors

Dorset 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. 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 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:

- Implementation of a permanent 30mph speed limit on Chideock Hill in partnership with National Highways
- 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 on 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 2022:

- 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 commences early 2021, in readiness for its adoption in 2023.

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 www.dorsetcouncil.gov.ukuk/dorset-local-plan

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	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 accross 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	

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
8	Highways Maintenance	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2019			Capital	NO	Funded		Implementation				
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	Freight and Delivery Management	Delivery and Service plans	2019	2024	DC	Capital	NO	Funded		Implementation				

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
	development of public EV charging network & promotion of ultra low emissions vehicles, and including on-going management														
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
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	Vehicle Fleet Efficiency	Other	2019	2026	DC	Capital	NO	Funded		Ongoing with significant progress	NO_x, PM_{10} and $PM_{2.5}$			

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
	promote LEVs, EV recharging, tax emission incentives and taxi licensing conditions														
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.PG16 (Chapter 7), 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.

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 at https://public.tableau.com/profile/public.health.dorset#!/vizhome/ARUNandPHDnetwork/ARUNandPHDnetowrk

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 monitoring phase, with a communications campaign planned for late summer and early autumn 2023. Monitoring is ongoing to January 2024 for a full year’s monitoring, with results and completion expected spring-summer 2024.

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

This section sets out the monitoring undertaken within 2022 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 2018 and 2022 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.

3.1.2 Non-Automatic Monitoring Sites

Dorset Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 54 sites during 2022. Table A.2 in Appendix A presents the details of the non-automatic sites.

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

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, annualisation (where the annual mean data capture is below 75% and greater

than 25%), and distance correction. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 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 NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

2022 produces a more widespread increase in NO_2 concentration in comparison to 2021, than 2021 did in comparison with 2020. As a whole, however, 2022 concentrations remained below 2019 or 2018 levels demonstrating that, excluding COVID-19 affected years, downward trends of improving air quality continued.

Four annual mean exceedances were measured during 2022, all of which fall inside the Chideock AQMA.

Location	2018	2019	2020	2021	2022
Whitecroft (W37)	**57.2**	**52.5**	30	32.2	**42.1**

Chideock Hill House (W39)	**97.7**	**80.2**	35.1	35.5	**64.5**
Langdon (H6)				39.9	**57.2**
Yew Tree House (H7)				35.9	**47.2**

Figure 1: Annual Mean concentration of AQO exceeding sites within Chideock AQMA

Tubes with a H# are tubes formerly administered by National Highways, limiting the data available to when they have been under Dorset Council control. Both W37 and W39 remain well below 2019 concentration, demonstrating a 20% decrease. This is likely due to the impact of the implementation of a permanent 30mph speed limit on Chideock Hill, which is in the final stages of being made permanent.

Location	2018	2019	2020	2021	2022
Hope Cottage (W32)	23.0	19.9	17.2	10.4	12.1
Greenhill (W33)	17.9	18.4	19.0	10.4	11.0
Duck St (W34)	**41.9**	**38.0**	**36.4**	20.2	22.1
George Inn (W35)	28.2	24.2	19.5	12.9	13.5
Village Hall (W36)	**40.9**	**39.2**	**38.7**	21.8	23.2
Warren House (W38)	26.7	24.8	23.8	13.7	15.2
Duck St Sign (H1)				16.9	20.7
Bay Tree House (H2)				21.9	28.1
Willens Cottage (H3)				22.3	28.1
Village Hall (H4)				27.3	34.0
Southside Cottage (H5)				29.2	39.3
The Clock (H8)				27.2	36.0

Figure 2: Annual Mean concentration of NO_2 within Chideock AQMA

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 of all sites continues into 2023.

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

Results for 2022 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 have increased on 2020 and 2021 levels which indicated an element of consistency, but have not retuned to 2019 levels. Further consideration is given to revoking the AQMA in place. Monitoring will continue during 2023 for W17 and W18, however W26 monitoring has now ceased due to its proximity to the other two sites.

Location	2018	2019	2020	2021	2022
High East Street 2 (W17)	27.64	24.8	17.2	17.3	24.0
High East Street 1 (W18)	35.48	**36.4**	23.6	21.3	32.1
High West Street (W25)	29.8	27.0	18.8	18.5	27.7

Figure 3: 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 2019 levels, but increased on 2021. It is noted that W27 is within 10% of the AQO, however viewed in the context of 2018-2023, this is part of a wider downward trend in line with the other sites. The monitoring within Bridport area will continue for 2023.

Location	2018	2019	2020	2021	2022
49 East Road (W27)	**42.7**	**37.6**	25.2	24.9	36.6
45 East Road (W28)	**40.52**	**39.8**	26.3	26.5	35.1
East Road Rbt Sign (W29)	26.44	23.8	16	18.1	21.8

Figure 4: 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. 2022 has overall demonstrated an increase for air pollution on this site when compared with 2020 and 2021. Concentrations broadly remain below 2018 or 2019, however W3 and W10 being within 10% of AQO is noted. Passive monitoring as a minimum is set to continue into 2023, and options for a new automatic analyser on site are being explored.

Location	2018	2019	2020	2021	2022
Rodwell Road (W3)	**37.9**	31.0	25.9	24.6	37.7
Co-location I (W5)	31.7	35.9	24	22.8	30.9
Portmore Gardens (W6)	28.1	33.2	22.9	21.0	31.1

Rodwell Inn (W9)	**36.3**	27.3	24.2	23.2	34.8
16 Rodwell Road (W10)	**38.6**	32.8	26.3	19.0	37.3

Figure 5: 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.

There were no exceedances of the annual NO_2 air quality objective in the former Purbeck District Council area. Whilst increases were observed on the 2019 and 2020 data, all were below the 2018 data meaning no obvious change in trend is observable yet and increases were marginal with many sites being below or around half of the annual objective.

There were no exceedances of the annual air quality objective in former East Dorset. Again, none exceed 2018 levels (where available) again demonstrating a continuation of a downward trend. Where exceedances of 2019 data occurred, these were at around half the annual objective.

Both sites in North Dorset continue to demonstrate NO_2 levels lower than measured in 2019. Whilst decreases are small, they demonstrate a continuing downward trend.

2022 was the first year where no Covid-19 restrictions were enacted. The following tables show reduction of traffic in 2020, 2021 and 2022 against 2019 levels:

	2020				2021				2022			
	A35	B3150	A354	B3081	A35	B3150	A354	B3081	A35	B3150	A354	B3081
Jan	2%		0%	4%	-48%		-32%	-32%	-7%	n/a	-1%	7%
Feb	-5%		-2%	-1%	-48%		-30%	-28%	-8%	n/a	-4%	3%
Mar	-27%	-28%	-21%	-18%	-37%	-25%	-20%	-6%	-7%	-2%	-3%	
Apr	-80%	-70%	-69%	-60%	-19%	-8%	-2%	-5%	-6%	-2%	0%	3%
May	-67%	-54%	-46%	-51%	-7%	-9%	-2%	-2%	-6%	-1%	1%	-6%
Jun	-46%	-32%	-24%	-25%	1%	-1%	2%	4%	-8%	3%	0%	1%

Jul	-21%	-18%	-11%	-17%	-4%	-4%	-1%	-3%	-8%	-4%	-6%	-3%
Aug	-11%	-7%	-1%	-10%	-4%	0%	1%	-10%	-9%	-1%	0%	-1%
Sep	-1%		0%	-8%	-5%		-3%	-2%	-11%		-3%	-3%
Oct	-8%		-7%	-13%	-4%		0%	-2%	-7%		0%	-1%
Nov	-38%		-22%	-26%	-9%		-1%	-5%	-7%		-1%	-2%
Dec	-22%	-19%	-8%	-16%	-12%	-12%	-7%	-10%	-9%	-13%	-6%	-14%
Average	-27%	-33%	-18%	-20%	-16%	-8%	-8%	-8%	-8%	-3%	-2%	-1%
Ann. Av.	-24%				-10%				-3%			

Figure 6: Percentage difference in traffic flows along Dorset Roads between 2019 and 2020

The roads measured are as follows:

A35 – Winterborne Kingston

B3150 – East of Dorchester

A354 – Weymouth Relief Road

B3081 – South of Gillingham

This demonstrated that overall, traffic flow reductions in 2022 have broadly returned to pre-COVID-19 pandemic levels. The A35 trunk road saw traffic with half the reduction in 2022 compared to 2021. This explains to some extent the increases in NO_2 monitoring data although not all road monitoring sites increased despite universally increasing traffic flows. Likewise, in some areas concentrations were above those measured in 2019, whilst others were below.

Changes to Dorset Council monitoring locations continue, with further sites being added and removed in response to new developments as appropriate. A district-wide review of air quality monitoring is planned for autumn 2023, to redistribute diffusion tube and AQMesh resources. In addition, known continuing developments are monitored as they progress for slow increases in air pollution due to their effect.

3.2.2 Particulate Matter (PM_{10})

Table A.6 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.7 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 three sites (Ferndown, Sandford and Blandford Forum) demonstrate daily means above 50µg/m^3, none have exceeded this greater than 35 times in 2022. The levels of PM generally is mixed in comparison to 2021 data – with two sites decreasing significantly and two sites increasing. It is pertinent to note that the units were refurbished and recalibrated during 2022 meaning the data may be different due to improved accuracy. The lack of data from 2021 has been resolved, however all sites have been annualised using sites from the AURN network sites in Chilbolton, Charlton Mackrell and Honiton.

3.2.3 Particulate Matter ($PM_{2.5}$)

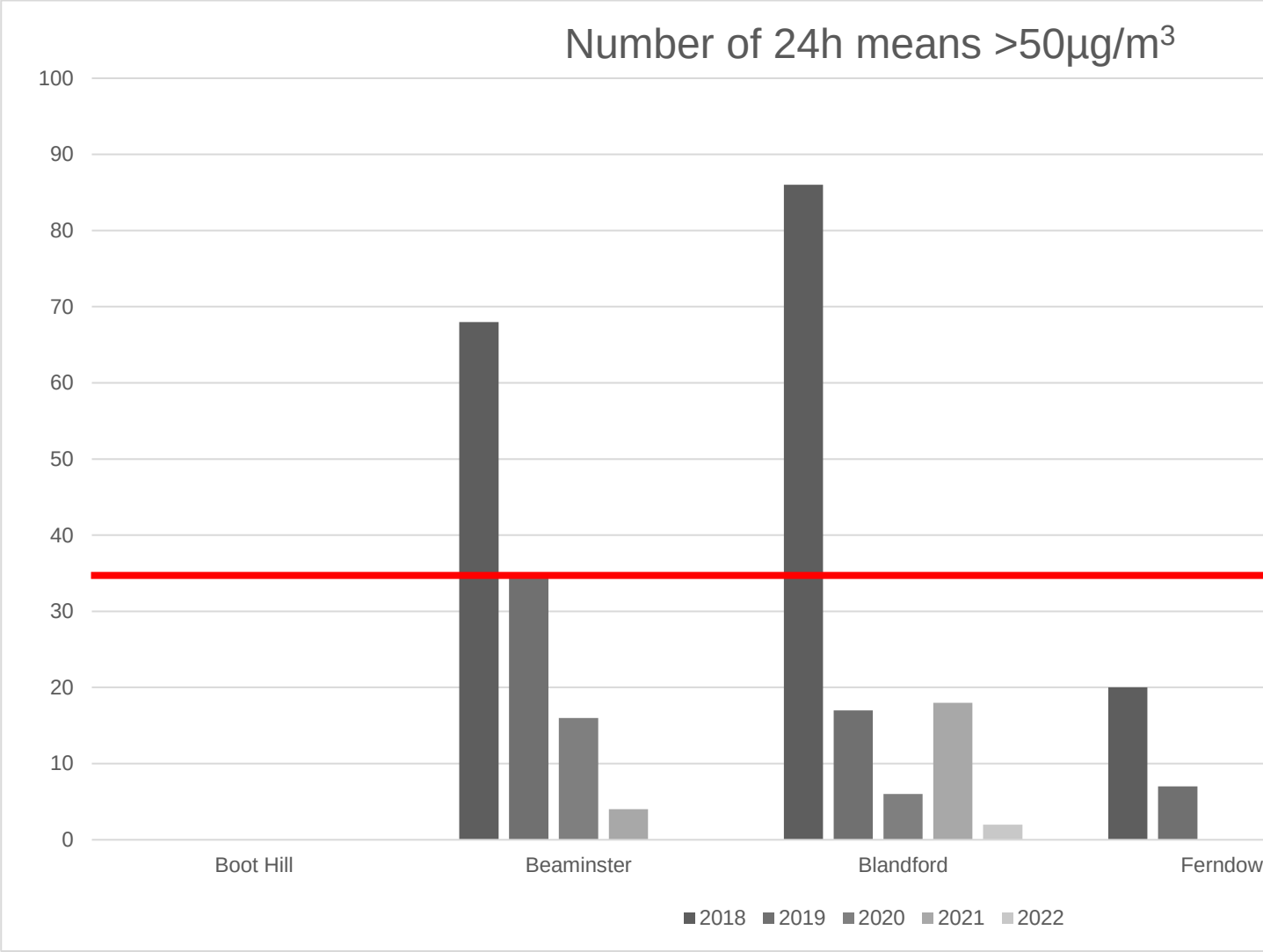


Figure 16*: Number of PM10 24h means over 50µg/m3, 2018-2022*

Table A.8 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_{10} has been measured at four school-based sites across Dorset: Blandford Forum, Beaminster, Ferndown and Sandford. $PM_{2.5}$ remians low in Dorset, with the four monitoring sites all demonstrating concentrations below 10µg/m^3. However, as with PM_{10}, this provides a mixed picture with two sites demonstrating decreased concentrations (Beaminster and Blandford) and two with increased concentrations (Ferndown and Sandford). 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)
Boot Hill	Boot Hill	Roadside	367541	78471	NO_2	NO	Chemiluminescent	N/A	3.5	2
Boot Hill	Boot Hill	Roadside	367541	78471	PM_{10}	NO	TEOM FDMS	N/A	3.5	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)
P3	Swanage, Gilbert Road	Urban Background	402790	78950	NO_2		7.0	1.0	No	2.3
P4	Swanage, Kings Rd.	Roadside	402860	78830	NO_2		14.0	1.0	No	2.1
P5	Upton, Blandford Road North	Roadside	397910	93425	NO_2		19.0	2.0	No	2.2
P9	Sandford, Sandford Road	Roadside	393223	89947	NO_2		20.0	1.0	No	2.3
P10	Wareham, Wogret Road	Roadside	391790	87190	NO_2		13.0	1.0	No	2.3
E1	Horton Road, Ashley Heath	Roadside	413298	104528	NO_2		0.0	4.0	No	3.0
E2	Ham Lane (19 Glissons, Longham)	Roadside	406362	98711	NO_2		0.0	1.0	No	3.0
E3	Leigh Road (byetheway) Wimborne	Roadside	402880	99961	NO_2		0.0	2.0	No	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)
E4	45 Davids Lane, Ashley Heath	Urban Background	413425	104429	NO_2		7.0	0.5	No	3.0
E5	2 Julians Road, Wimborne	Roadside	400677	99998	NO_2		0.0	1.0	No	3.0
E6	392 Ringwood Road, Ferndown	Roadside	407785	100135	NO_2		4.0	1.3	No	3.0
E8	7/9 Wimborne Road, Wimborne	Roadside	401003	100736	NO_2		0.0	1.5	No	3.0
E9	A31 24 Ringwood Road, Ashley Heath	Roadside	412782	104118	NO_2		26.0	1.3	No	3.0
E10	235 Christchurch Road, West Parley	Roadside	408384	97986	NO_2		8.0	1.0	No	3.0
E11	opp. 233 Christchurch Road, West Parley	Roadside	408468	98002	NO_2		4.0	1.0	No	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)
E12	28a West Street, Wimborne	Roadside	400833	100042	NO_2		0.0	1.2	No	3.0
E13	7 West Borough, Wimborne	Roadside	400901	100149	NO_2		0.0	3.6	No	3.0
W1	St Georges Est, Portland	Urban Background	368779	71706	NO_2		0.0	2.0	No	2.5
W2	King St, Weymouth	Roadside	368003	79527	NO_2		0.0	2.0	No	2.5
W3	Rodwell Rd, Weymouth	Roadside	367542	78548	NO_2		2.5	2.5	No	2.5
W5	Co-location	Roadside	367540	78473	NO_2		0.0	3.5	No	3.0
W6	Portmore Gardens, Weymouth	Roadside	367528	78554	NO_2		0.0	2.0	No	3.0
W46	Portland Port	Roadside	368888	74356	NO_2		0.0	0.5	No	3.0
W47	Castletown	Roadside	368847	74356	NO_2		0.0	0.5	No	3.0
W9	Rodwell Inn, Weymouth	Roadside	367550	78485	NO_2		0.0	2.0	No	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)
W10	16 Rodwell Road, Weymouth	Roadside	367533	78531	NO_2		0.0	2.0	No	3.0
W11	Mulberry Ave, Portland	Roadside	368337	74204	NO_2		0.0	1.0	No	3.0
W12	Upwey St, Weymouth	Roadside	367879	78567	NO_2		0.0	1.5	No	3.0
W13	Dominoes, Weymouth	Roadside	367995	79528	NO_2		0.0	2.5	No	3.0
W14	Fortuneswell, Portland	Roadside	368540	73593	NO_2		0.9	1.5	No	2.5
W15	Stratton House, Dorchester	Roadside	369121	90739	NO_2		0.0	2.0	No	2.5
W17	High East St (Majestic Wines)	Roadside	369484	90759	NO_2		0.0	2.0	No	2.5
W18	High East St (Church House)	Roadside	369387	90742	NO_2	Dorchester	0.0	2.0	No	2.5
W24	Borough Gardens, Dorchester	Urban Background	368982	90453	NO_2		5.0	2.0	No	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)
W25	High West St (Homechester Hse)	Roadside	368982	90706	NO_2		0.0	3.0	No	2.5
W27	49 East Rd (Lampost 12) Bridport	Roadside	347557	93023	NO_2		0.0	2.0	No	2.5
W28	45 East Rd (Lampost 10) Bridport	Roadside	347612	93050	NO_2		0.0	2.0	No	2.0
W29	East Rd (Rdbt sign) Bridport	Roadside	347277	92867	NO_2		0.0	4.0	No	2.5
W32	Hope Cottage, Chideock	Roadside	342364	92814	NO_2	Chideock	0.0	1.5	No	2.0
W33	Greenhill, Chideock	Roadside	342151	92869	NO_2	Chideock	0.0	1.5	No	2.5
W34	Duck St, Chideock	Roadside	342190	92840	NO_2	Chideock	0.0	1.0	No	2.0
W36	Village Hall, Chideock	Roadside	342015	92887	NO_2	Chideock	0.0	2.0	No	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)
W37	Whitecroft, Chideock	Roadside	341946	92908	NO_2	Chideock	0.0	1.0	No	2.0
W38	Warren House, Chideock	Roadside	342025	92894	NO_2	Chideock	0.0	1.5	No	2.0
W39	Chideock Hill Cottage, Chideock	Roadside	341629	93139	NO_2	Chideock	3.5	1.0	No	2.5
W40	Lawrence Cotts, Gillingham	Roadside	381302	126181	NO_2		4.1	1.5	No	2.5
W42	The Barbers, Sturminster Newton	Kerbside	378606	114009	NO_2		0.0	1.3	No	2.5
H1	Duck St Sign	Roadside	342164	92841	NO_2	Chideock	0.0	3.0	No	2.0
H2	Bay Tree House	Roadside	342143	92845	NO_2	Chideock	0.0	1.5	No	2.0
H3	Willens Cottage	Roadside	342084	92856	NO_2	Chideock	0.0	1.5	No	2.5
H4	Village Hall	Roadside	342004	92890	NO_2	Chideock	0.0	1.5	No	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)
H5	Southside Cottage	Roadside	341933	92913	NO_2	Chideock	0.0	3.0	No	2.5
H6	Langdon	Roadside	341881	92934	NO_2	Chideock	0.0	1.5	No	2.0
H7	Yew Tree House	Roadside	341819	92953	NO_2	Chideock	1.5	6.0	No	1.5
H8	The Clock	Roadside	342129	92847	NO_2	Chideock	0.0	1.5	No	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 NO_2 Monitoring Results: Automatic Monitoring (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 2022 (%) (2)	2018	2019	2020	2021	2022
Boot Hill	367541	78471	Roadside	0	0	39.6				

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

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

Notes:

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

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

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

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

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

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

Table A.4 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^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 2022 (%) [2]	2018	2019	2020	2021	2022
P3	402790	078950	Urban Background	100	90.4	17.7	11.0	8.5	9.0	10.5
P4	402860	078830	Roadside	100	67.3	15.8	10.0	9.2	10.3	11.8
P5	397910	093425	Roadside	100	82.7	28.1	15.0	16.3	17.4	22.1
P9	393223	089947	Roadside	100	90.4	24.6	12.0	13.4	14.0	15.7
P10	391790	087190	Roadside	100	82.7	15.4	9.0	8.2	8.9	10.7
E1	413298	104528	Roadside	100	100.0	23.0	20.4	14.7	14.5	19.4
E2	406362	098711	Roadside	100	100.0			14.8	14.6	18.6
E3	402880	099961	Roadside	100	100.0			12.1	11.6	12.0
E4	413425	104429	Urban Background	100	100.0	18.0	11.0	11.6	11.3	12.9
E5	400677	099998	Roadside	100	100.0			17.8	18.9	24.7
E6	407785	100135	Roadside	100	100.0	29.0	21.0	19.1	18.4	22.3
E8	401003	100736	Roadside	100	76.9			10.4	11.4	13.1
E9	412782	104118	Roadside	100	100.0	33.0	16.0	23.8	21.0	25.7

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 2022 (%) [2]	2018	2019	2020	2021	2022
E10	408384	097986	Roadside	100	84.6	27.0	16.0	20.2	20.0	23.4
E11	408468	098002	Roadside	100	84.6	30.0	20.0	18.8	17.2	20.6
E12	400833	100042	Roadside	100	100.0		17.3	12.6	11.6	15.4
E13	400901	100149	Roadside	100	100.0		19.4	14.0	13.3	16.1
W1	368779	071706	Urban Background	100	90.4	8.2	7.4	6.6	6.6	8.2
W2	368003	079527	Roadside	100	90.4	28.0	28.4	19.7	17.9	27.7
W3	367542	078548	Roadside	100	90.4	37.9	31.0	25.9	24.6	37.7
W5	367540	078471	Roadside	100	73.1	31.7	35.9	24.0	22.8	30.9
W6	367528	078554	Roadside	100	90.4	28.1	33.2	22.9	21.0	31.1
W46	368888	074356	Roadside	100	90.4				10.4	13.0
W47	368847	074356	Roadside	100	90.4				9.5	13.5
W9	367550	078485	Roadside	100	90.4	36.3	27.3	24.2	23.2	34.8
W10	367533	078531	Roadside	100	82.7	38.6	32.8	26.3	19.0	37.3
W12	367879	078567	Roadside	100	57.7	30.8	35.1	21.9	20.1	28.6

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
W13	367995	079528	Roadside	100	90.4	32.5	39.1	22.1	20.8	30.5
W14	368540	073593	Roadside	100	90.4	36.8	33.0	24.0	21.2	31.2
W15	369121	090739	Roadside	100	80.8	36.8	33.0	21.5	22.2	30.7
W17	369484	090759	Roadside	100	90.4	27.6	24.8	17.2	17.3	24.0
W18	369387	090742	Roadside	100	90.4	35.5	36.4	23.6	21.3	32.1
W24	368982	090453	Urban Background	100	73.1	11.2	10.1	7.4	7.8	9.5
W25	368982	090706	Roadside	100	90.4	29.8	27.0	18.8	18.5	27.7
W27	347557	093023	Roadside	100	90.4	**42.7**	37.6	25.2	24.9	36.6
W28	347612	093050	Roadside	100	82.7	**40.5**	39.8	26.3	26.5	35.1
W29	347277	092867	Roadside	100	90.4	26.4	17.0	16.0	18.1	21.8
W32	342364	092814	Roadside	100	65.4	19.9	17.2	10.4	12.1	13.8
W33	342151	092869	Roadside	100	90.4	18.4	19.0	10.4	11.0	14.4
W34	342190	092840	Roadside	100	75.0	38.0	36.4	20.2	22.1	29.8
W36	342015	092887	Roadside	100	82.7	39.2	38.7	21.8	23.2	32.7

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 2022 (%) [2]	2018	2019	2020	2021	2022
W37	341946	092908	Roadside	100	90.4	**57.2**	**52.5**	30.0	32.2	**42.1**
W38	342025	092894	Roadside	100	90.4	24.8	23.8	13.7	15.2	19.5
W39	341629	093139	Roadside	100	90.4	**97.7**	**80.2**	**45.1**	**47.6**	**64.5**
W40	381302	126181	Roadside	100	75.0	32.9	27.0	22.8	23.0	25.7
W42	378606	114009	Kerbside	100	90.4	37.0	31.4	19.7	20.1	28.1
H1	342164	092841	Roadside	100	73.1				16.9	20.7
H2	342143	092845	Roadside	100	90.4				21.9	28.1
H3	342084	092856	Roadside	100	90.4				22.3	28.1
H4	342004	092890	Roadside	100	90.4				27.3	34.0
H5	341933	092913	Roadside	100	90.4				29.2	39.3
H6	341881	092934	Roadside	100	90.4				39.9	**57.2**
H7	341819	092953	Roadside	100	90.4				35.9	**47.2**
H8	342129	092847	Roadside	100	90.4				27.2	36.0

☒ **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 µg/m^3.

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**.

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

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

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

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

Figure A.1 – Trends in Annual Mean NO_2 Concentrations

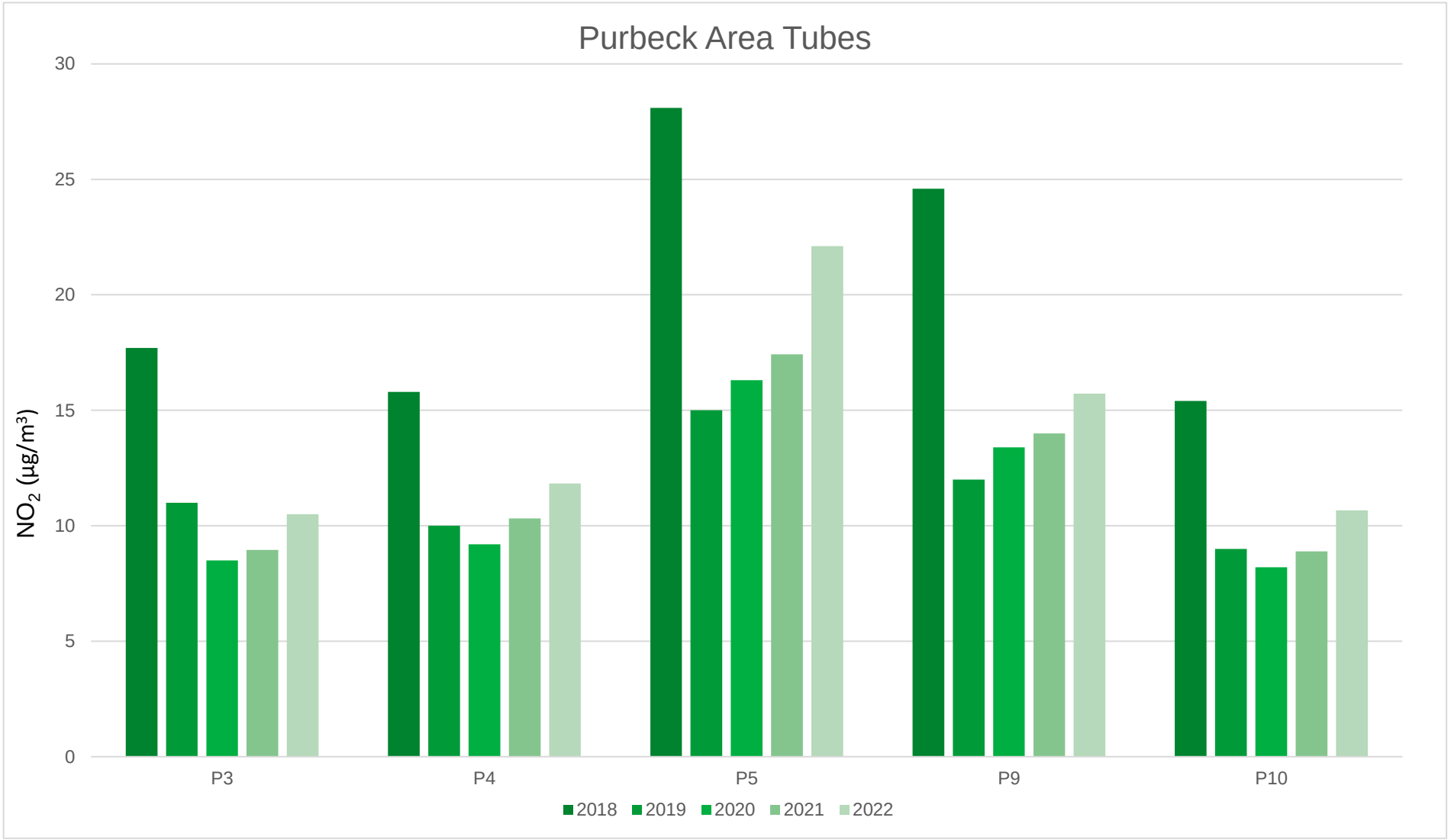


Figure 7: Former Purbeck District Council area annual mean NO_2 results, 2018-2022

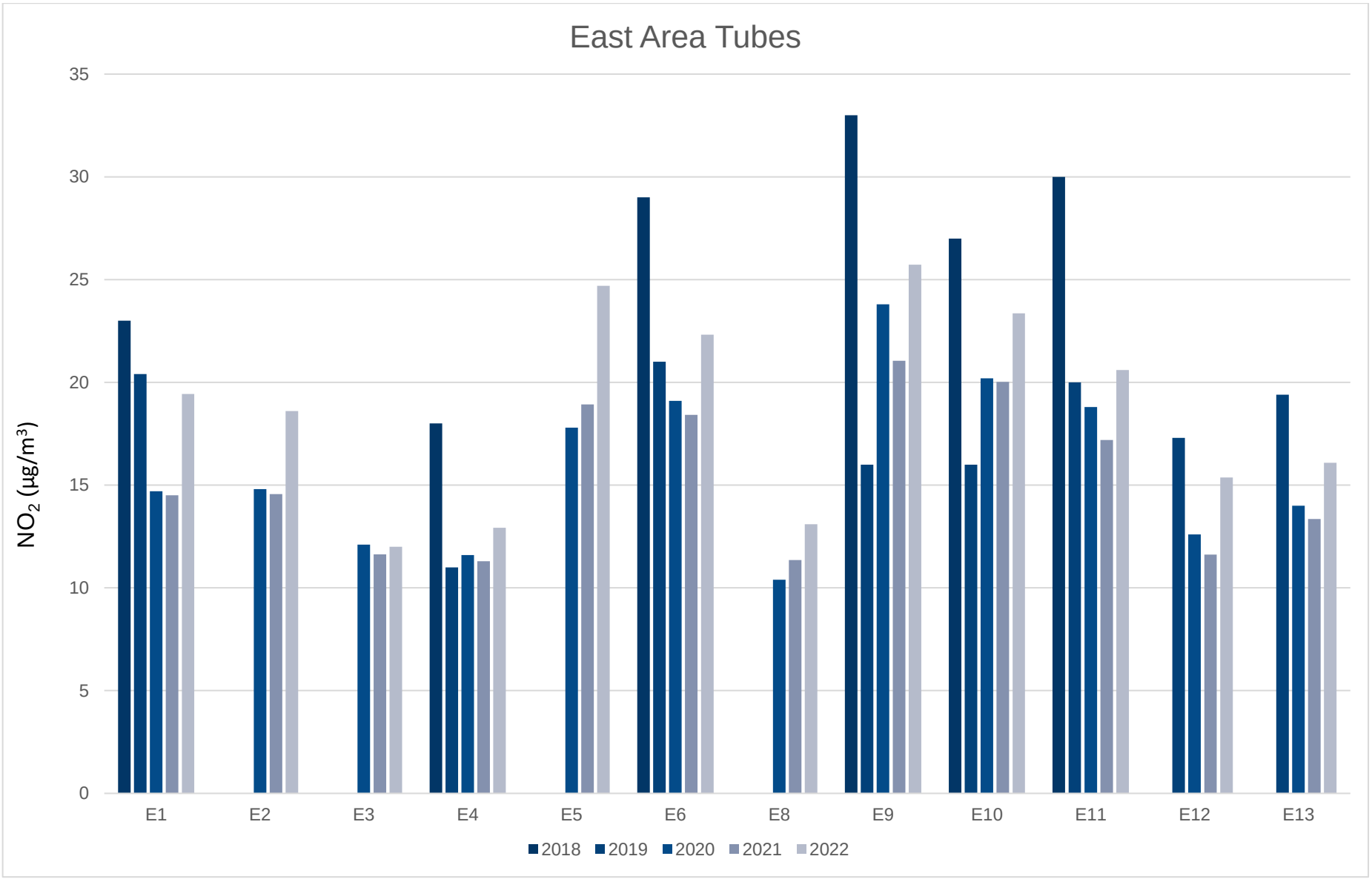


Figure 8: Former East Dorset District Council area annual mean NO_2 results, 2018-2022

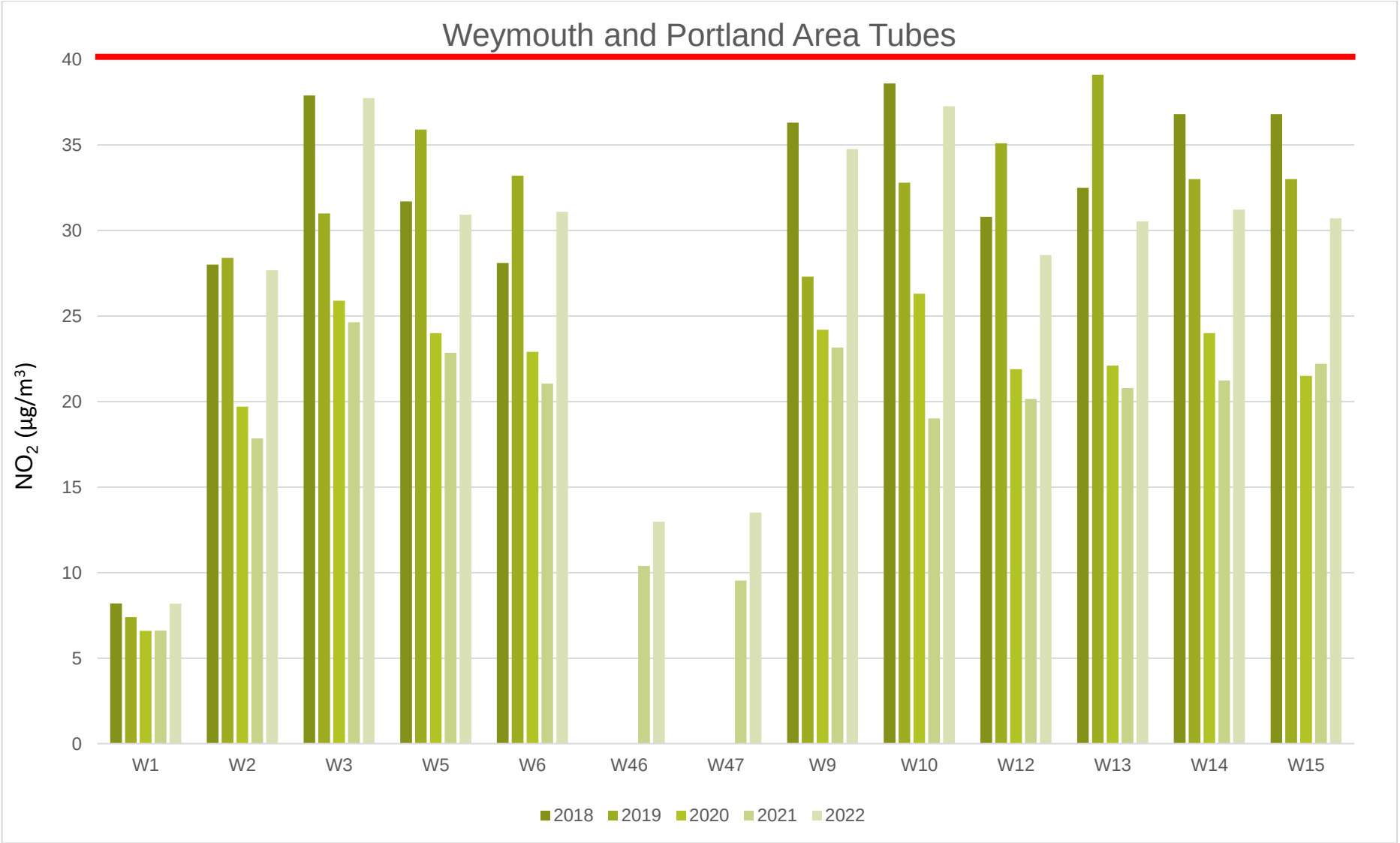


Figure 9: Former Weymouth and Portland Borough Council area annual mean NO_2 results, 2018-2022. N.B. Tubes W3 – W10 in Boot Hill area for concern.

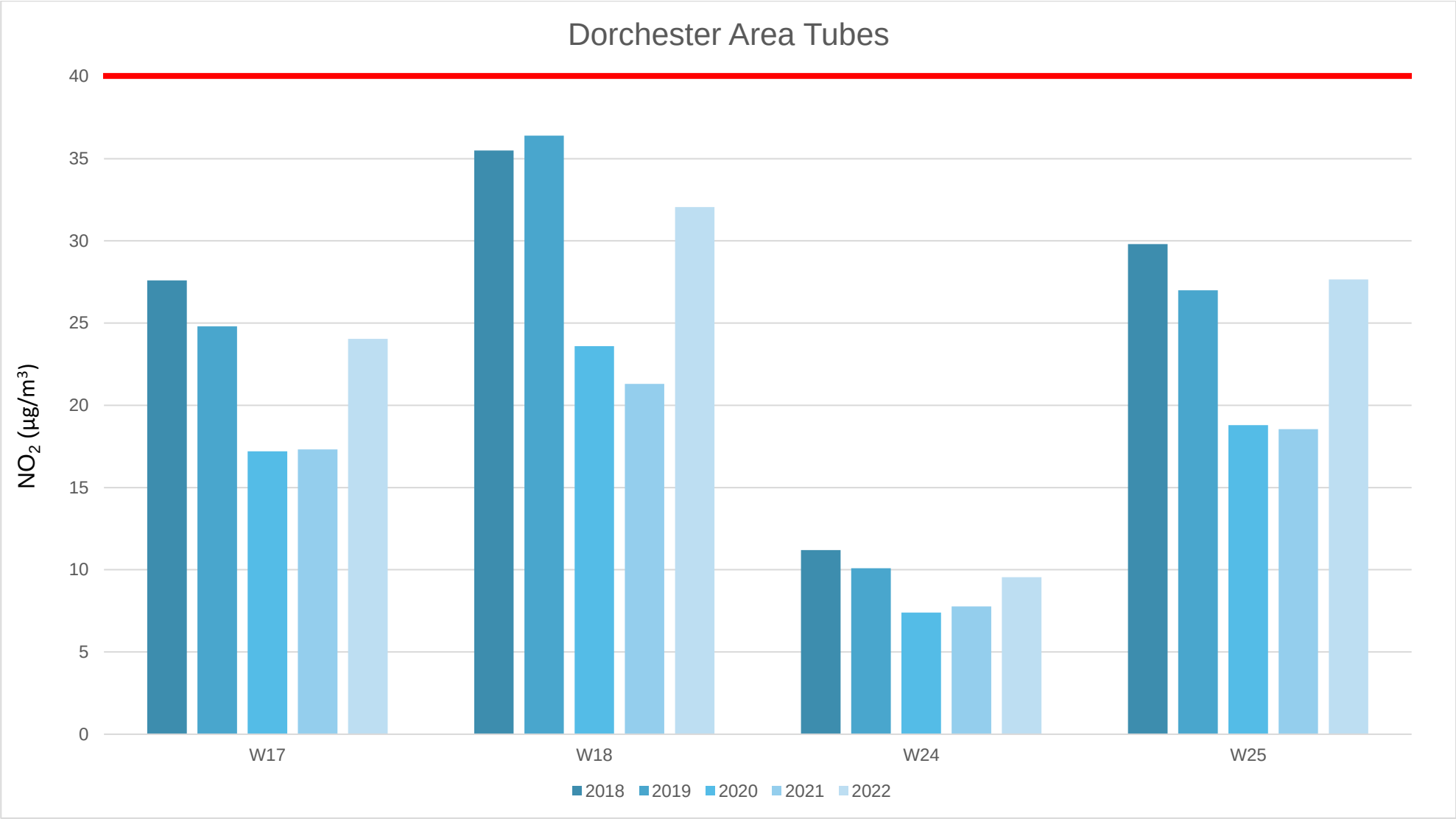


Figure 10: Dorchester (former West Dorset District Council) area annual mean NO_2 results, 2018-2022. N.B. Tubes W17 and W18 within Dorchester High East Street AQMA

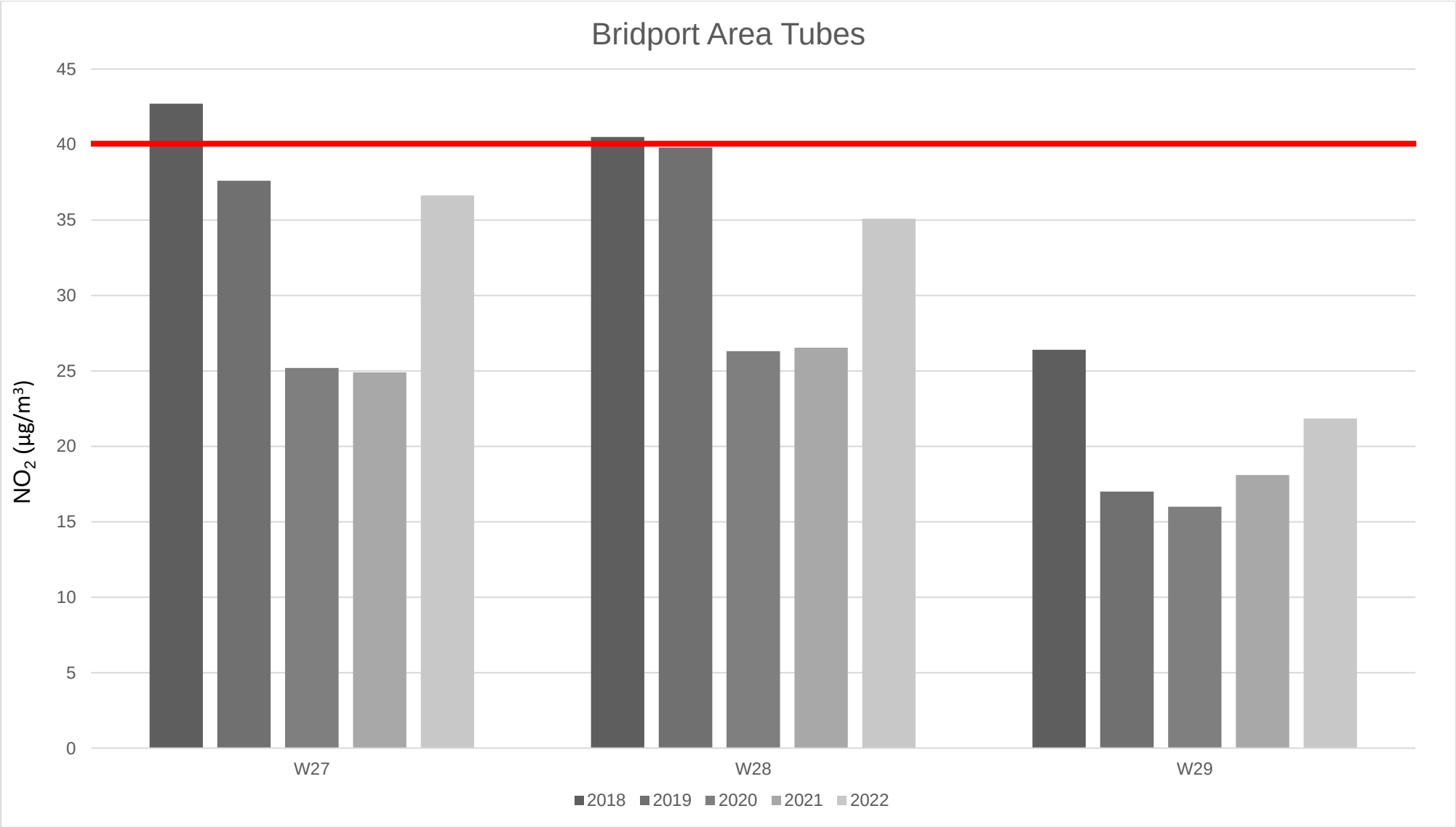
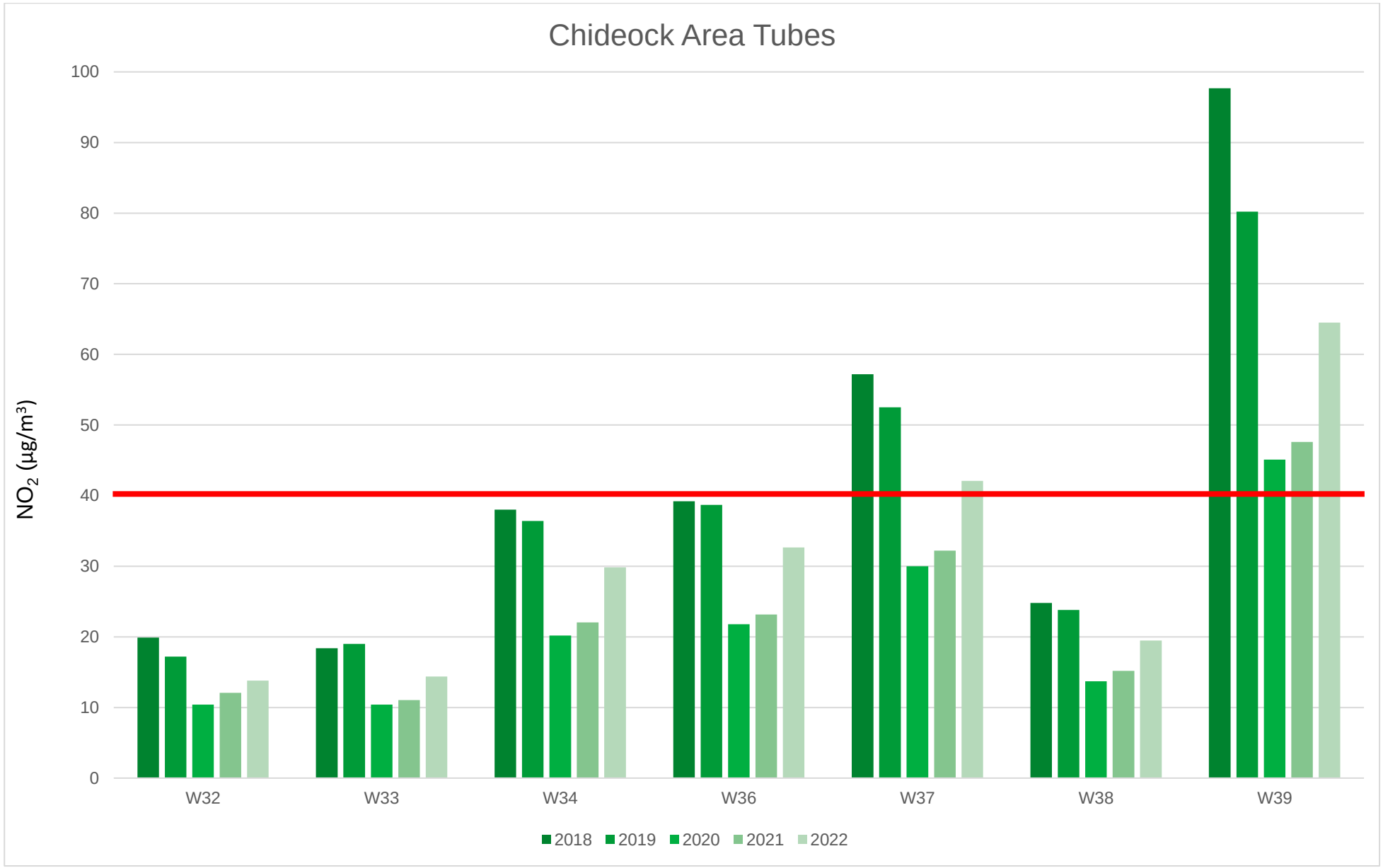
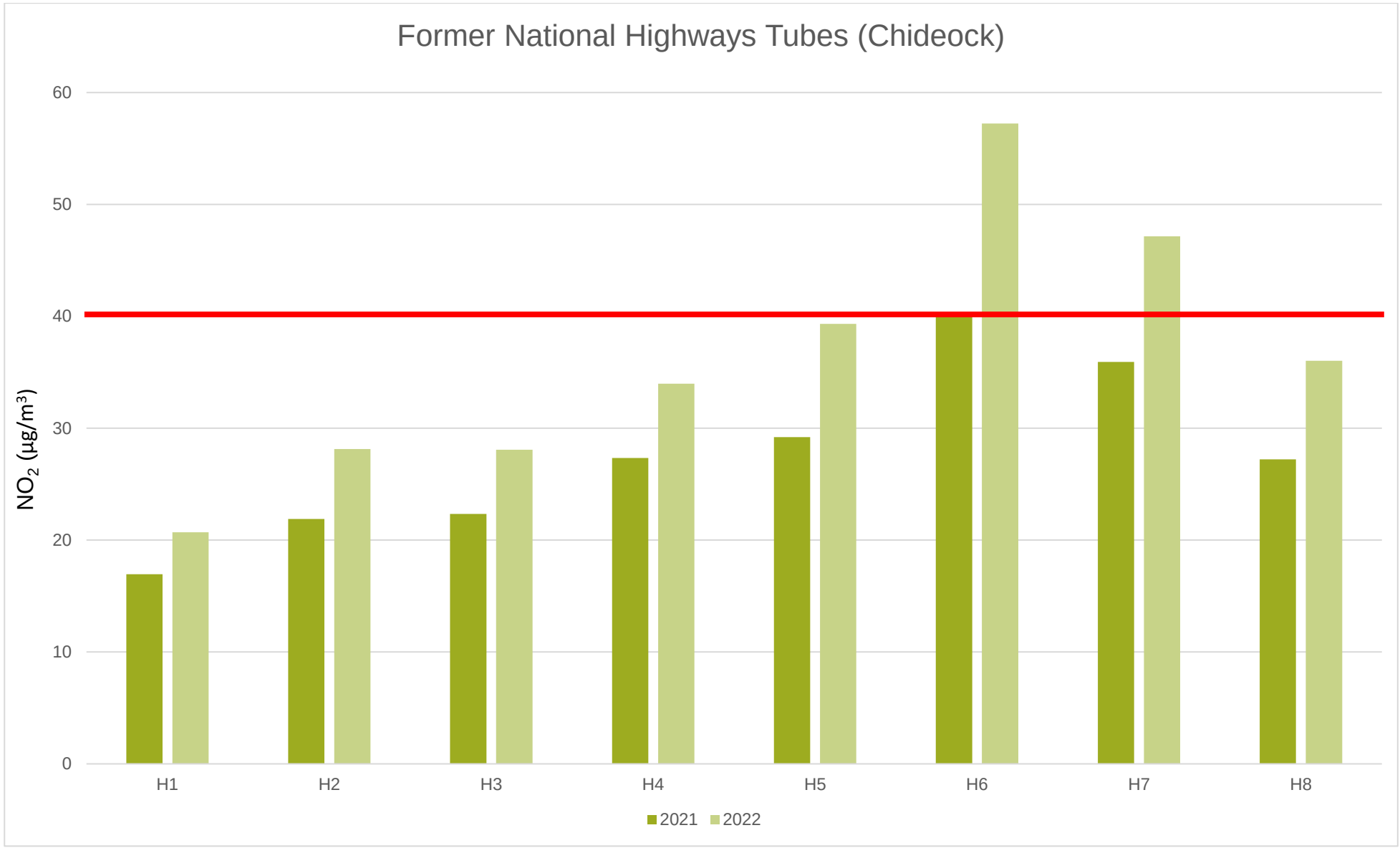


Figure 11: Bridport (former West Dorset District Council) area annual mean NO_2 results, 2018-2022. N.B. All tubes within East Road area for concern


Chideock Area Tubes
100
90
80
70
60
50
40
30
20
10
0
NO2 (µg/m3)
W32
W33
W34
W36
W37
W38
W39
2018
2019
2020
2021
2022



Figures 12 and 13: Chideock area annual mean NO_2 results, 2018-2022. N.B. All tubes within Chideock AQMA.

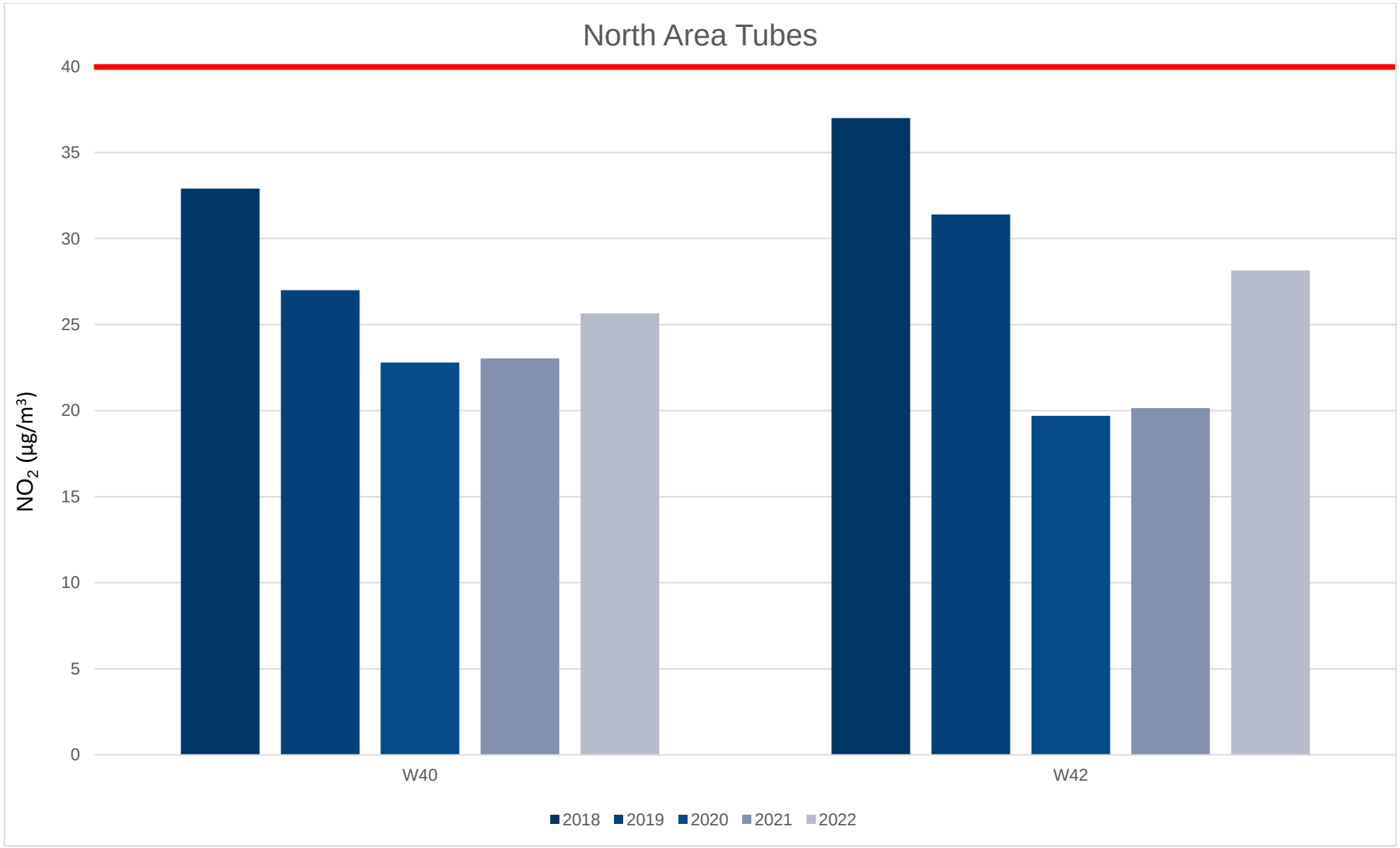


Figure 14: Former North Dorset District Council area annual mean NO_2 results, 2018-2022

Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/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 2022 (%) (2)	2018	2019	2020	2021	2022
Boot Hill	367541	78471	Roadside	0	0	0	0			

Notes:

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

Exceedances of the NO_2 1-hour mean objective (200µg/m^3 not to be exceeded more than 18 times/year) are shown in **bold**.

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

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

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

Table A.6 – Annual Mean PM_{10} Monitoring Results ($\mu g/m^3$)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
Boot Hill	367541	78471	Roadside	0	0	21.17	19.76			
Beaminster	347967	101967	Rural	74.8	74.8	**38.51**	26.8	21.77	18.07	8.62
Blandford	387965	106833	Rural	75.6	75.6	**45.61**	21.4	17.51	18.11	10.78
Ferndown	408440	99391	Suburban	63.8	63.8	18.51	12.52	8.7	8.64	14.76
Sandford	393245	90156	Suburban	58.9	58.9	10.15	8.74	6.89	6.83	15.80

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

Notes:

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

Exceedances of the PM_{10} annual mean objective of 40$\mu g/m^3$ are shown in **bold**.

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

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

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

Figure A.2 – Trends in Annual Mean PM_{10} Concentrations

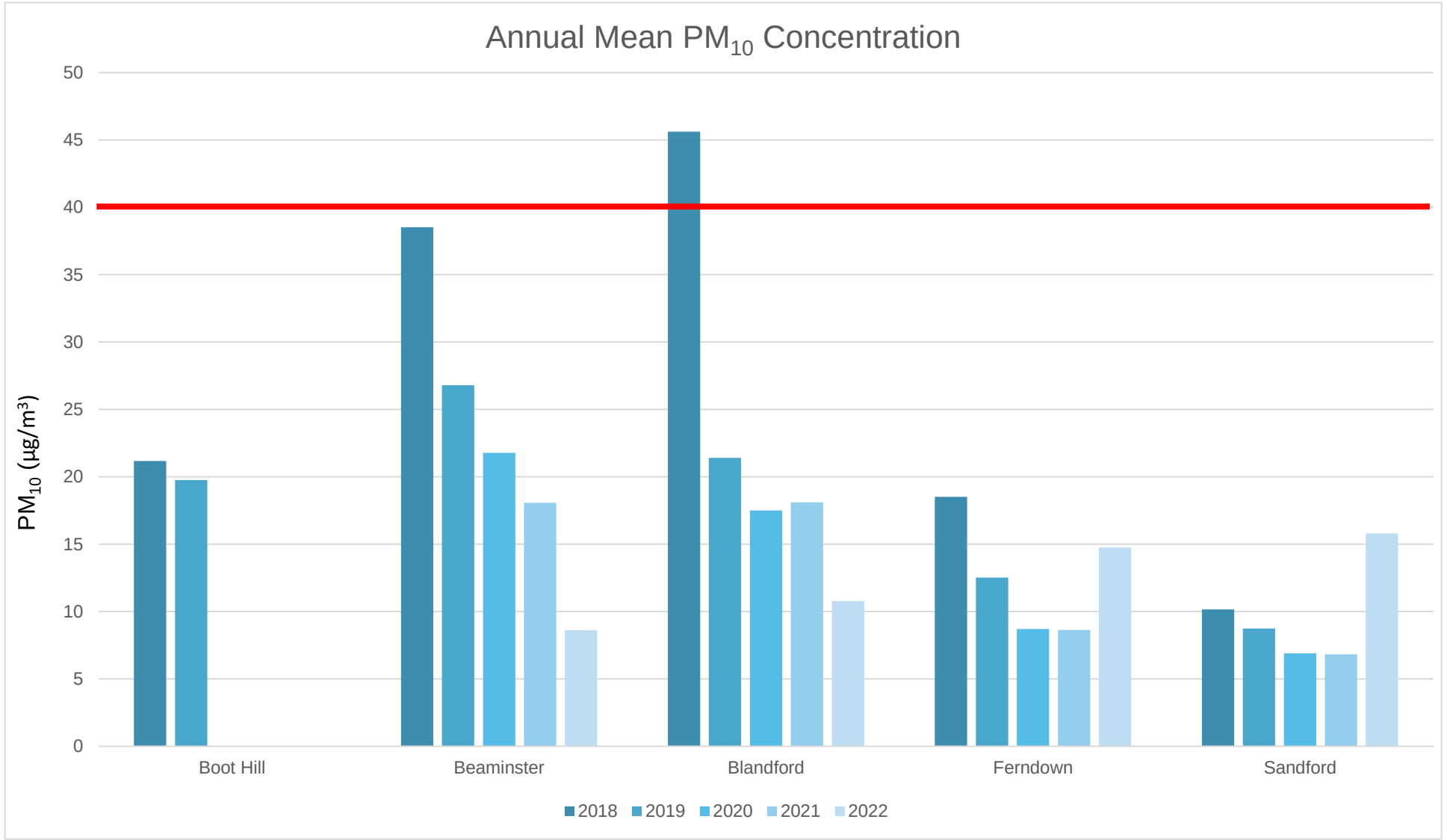


Figure 15: Annual mean PM_{10} concentrations, 2018-2022

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
Boot Hill	367541	78471	Roadside	0	0	0	0			
Beaminster	347967	101967	Rural	74.8	74.8	**68**	35	16	4	0
Blandford	387965	106833	Rural	75.6	75.6	**86**	17	6	18	2
Ferndown	408440	99391	Suburban	63.8	63.8	20	7	0	0	10
Sandford	393245	90156	Suburban	58.9	58.9	0	3	0	1	5

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/m³

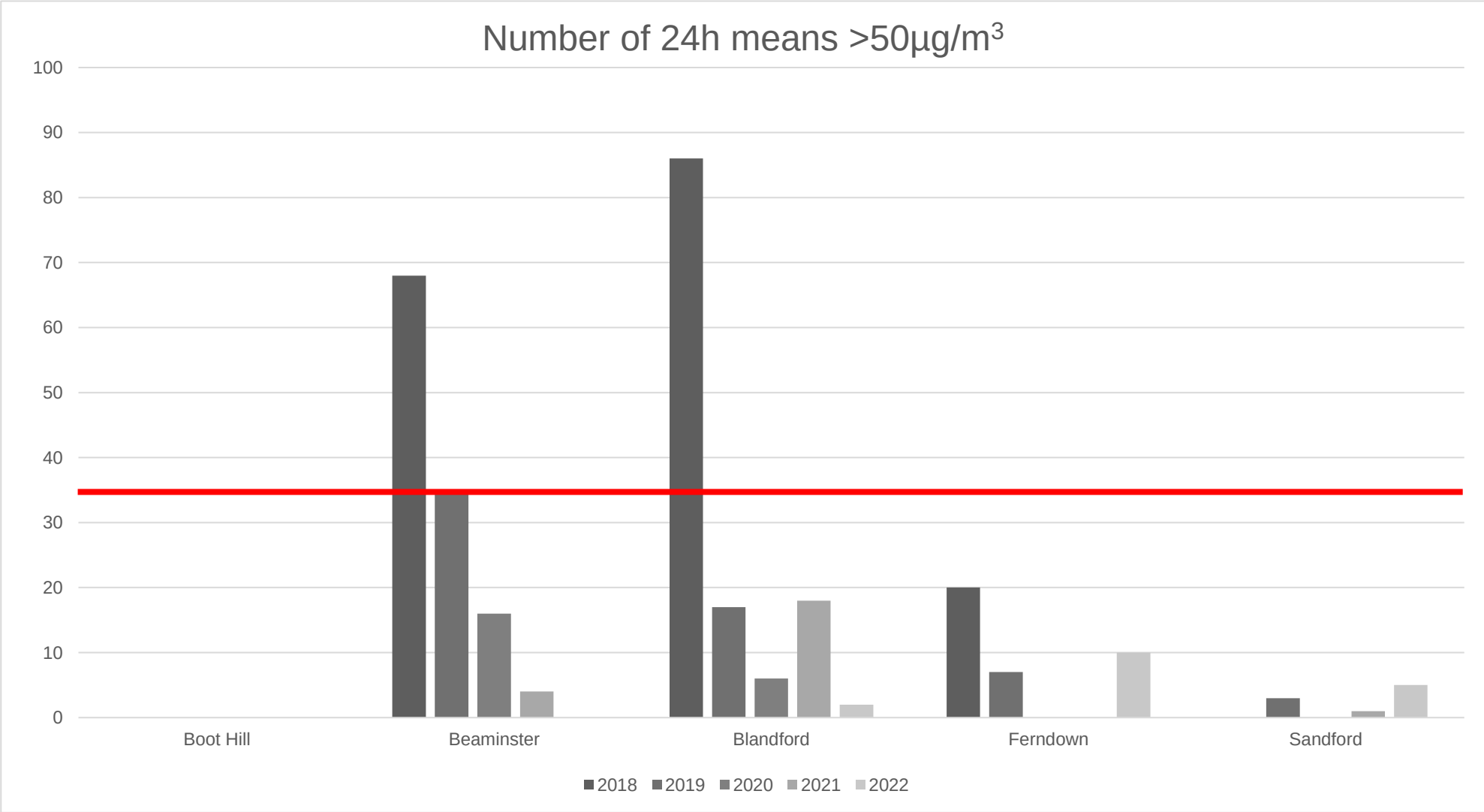


Figure 16: Number of PM_{10} 24h means over 50µg/m³, 2018-2022

Table A.8 – Annual Mean $PM_{2.5}$ Monitoring Results ($\mu g/m^3$)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
Beaminster	347967	101967	Rural	74.8	74.8	13.85	12.88	9.56	9.6	4.04
Blandford	387965	106833	Rural	75.6	75.6	12.08	12.06	3.05	7.09	6.12
Ferndown	408440	99391	Suburban	63.8	63.8	6.52	5.29	3.6	4.51	6.41
Sandford	393245	90156	Suburban	58.9	58.9	4.54	4.16	8.93	3.41	8.28

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

Notes:

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

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

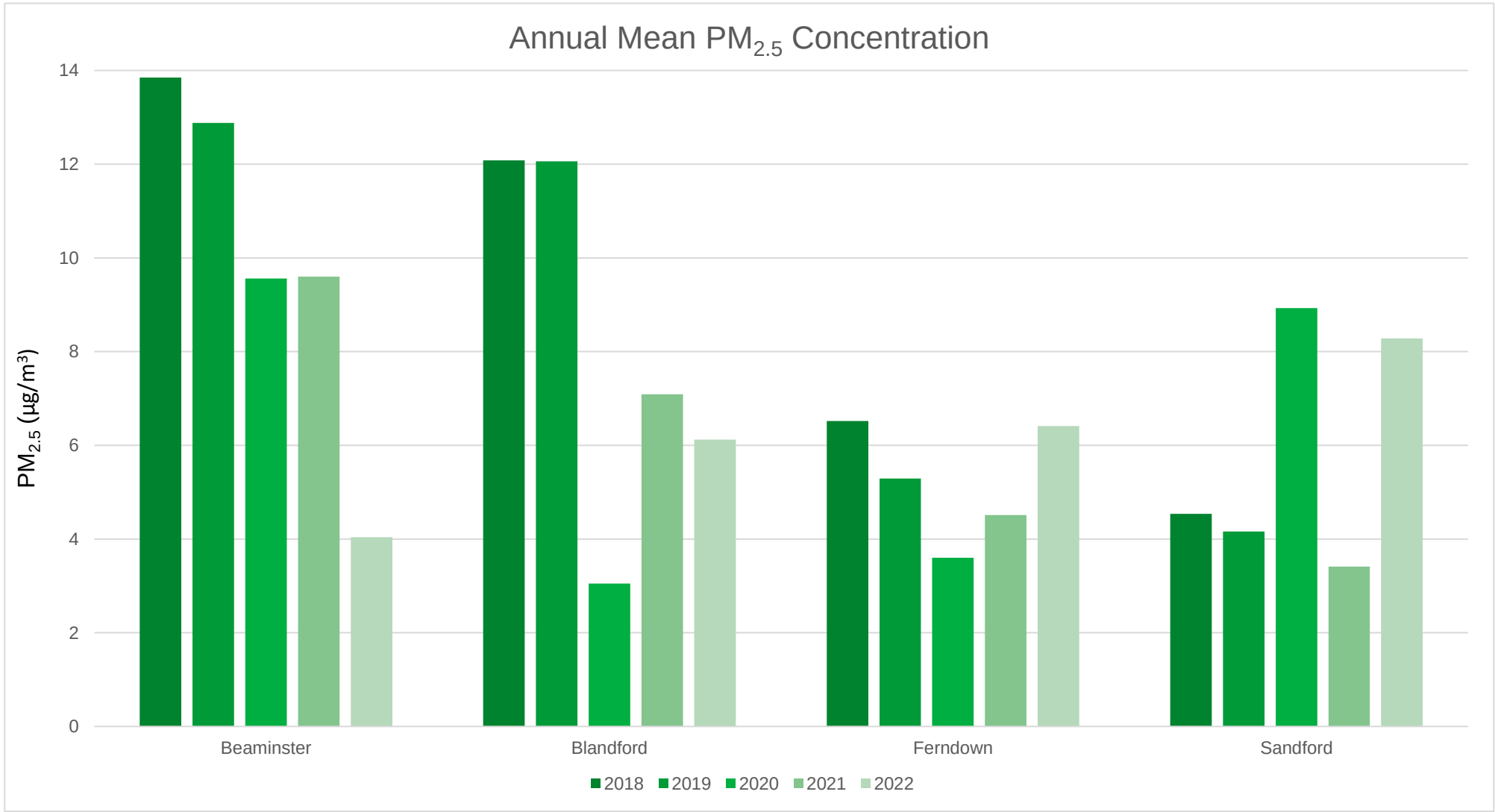


Figure 17: Annual mean $PM_{2.5}$ concentrations, 2018-2022

Appendix B: Full Monthly Diffusion Tube Results for 2022

Table B.1 – NO_2 2022 Diffusion Tube Results ($\mu g/m^3$)

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 <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
P3	402790	078950	15.2	9.0	15.3	14.4		12.9	13.4	13.6	10.0	13.0	13.0	11.2	12.8	10.5	-	
P4	402860	078830	20.2	10.1		21.2		13.6	16.1			10.8	12.1	15.9	15.0	11.8	-	
P5	397910	093425	36.3	28.3	29.1	22.5			28.3	25.8	24.3	22.5	27.5	24.9	27.0	22.1	-	
P9	393223	089947	19.3	15.1	32.4	12.6		15.5	18.4	25.8	18.4	18.8	17.0	17.8	19.2	15.7	-	
P10	391790	087190	17.6	8.3	18.4	11.4			12.5	12.7	11.8	9.5	12.5	15.6	13.0	10.7	-	
E1	413298	104528	23.7	20.5	35.6	19.8	19.1	31.6	20.8	23.1	17.7	23.1	25.7	23.6	23.7	19.4	-	
E2	406362	098711	29.6	21.8	34.3	20.1	18.9	19.3	19.6	20.3	20.6	22.2	23.9	21.7	22.7	18.6	-	
E3	402880	099961	20.0	14.1	21.6	11.5	11.2	12.0	11.0	12.8	12.9	15.2	14.8	18.5	14.6	12.0	-	
E4	413425	104429	23.7	14.2	19.5	15.8	13.9	10.3	13.7	14.3	15.3	14.3	17.4	16.8	15.8	12.9	-	
E5	400677	099998	40.2	31.8	30.6	27.5	25.4	22.2	27.7	33.4	30.3	29.4	34.7	28.4	30.1	24.7	-	
E6	407785	100135	33.4	19.8	39.9	27.5	22.6	16.9	24.6	31.5	24.3	27.7	26.5	32.0	27.2	22.3	-	
E8	401003	100736		13.2	17.9	16.3	14.4	11.5	13.8			17.7	18.7	20.3	16.0	13.1	-	
E9	412782	104118	33.8	27.4	46.5	28.5	27.6	26.3	27.1	34.4	25.2	33.9	35.9	29.9	31.4	25.7	-	
E10	408384	097986			36.5	26.8	26.3	25.7	27.8	30.6	26.2	27.9	29.8	27.4	28.5	23.4	-	
E11	408468	098002			34.4	29.1	22.7	17.4	22.8	26.9	22.7	22.8	23.4	29.1	25.1	20.6	-	
E12	400833	100042	25.3	17.4	22.2	16.7	13.5	12.3	14.0	18.0	15.9	26.8	19.7	23.2	18.7	15.4	-	
E13	400901	100149	25.5	16.4	24.0	18.7	17.5	14.1	15.3	19.5	16.5	21.6	22.9	23.3	19.6	16.1	-	

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
W1	368779	071706	12.4	6.2	18.2	11.4		9.9	9.3	8.7	8.2	7.0	7.1	11.3	10.0	8.2	-	
W2	368003	079527	46.9	28.7	38.5	41.3		6.6	35.3	48.0	36.5	29.3	29.4	31.0	33.8	27.7	-	
W3	367542	078548	45.7	31.7	67.6	54.1		25.8	52.9	61.3	50.1	40.2	33.0	43.7	46.0	37.7	32.7	
W5	367540	078471	47.5	30.3	24.3	42.1		36.0	46.6	50.4	25.2	37.2			37.7	30.9	-	
W6	367528	078554	37.7	33.1	45.2	36.1		35.2	40.1	45.3	36.4	37.7	34.7	35.7	37.9	31.1	-	
W46	368888	074356	13.4	10.8	5.0	21.9		34.3	15.4	17.6	14.7	11.7	13.1	16.1	15.8	13.0	-	
W47	368847	074356	15.3	11.2	27.1	23.6		14.0	15.9	17.5	14.6	12.9	12.2	17.0	16.5	13.5	-	
W9	367550	078485	45.2	32.2	56.4	43.9		32.2	47.7	55.9	45.5	37.8	33.9	35.8	42.4	34.8	-	
W10	367533	078531	52.5		43.7	44.5		34.5	48.0	51.2	47.3	44.5	44.1	44.2	45.4	37.3	-	
W12	367879	078567	43.0			38.6		36.0		48.8	34.1		36.1	31.4	38.3	28.6	-	
W13	367995	079528	45.0	31.7	39.9	35.9		31.6	42.6	51.4	33.5	36.2	34.4	27.4	37.2	30.5	-	
W14	368540	073593	47.1	31.5	41.6	39.4		33.2	39.7	45.4	39.8	35.4	32.8	32.9	38.1	31.2	-	
W15	369121	090739	50.7	33.7	42.0	34.8		27.1	32.8	37.8	37.3		42.6	35.8	37.5	30.7	-	
W17	369484	090759	38.8	27.5	36.2	24.7		21.9	26.9	30.9	27.5	26.3	33.1	28.8	29.3	24.0	-	
W18	369387	090742	49.0	41.3	37.7	30.1		26.3	32.8	35.4	29.8	40.2	71.8	35.8	39.1	32.1	-	
W24	368982	090453	18.3	9.8	13.4	10.0		7.9	8.9	9.3			12.2	15.1	11.6	9.5	-	
W25	368982	090706	39.1	26.6	34.6	28.3		23.9	25.6	32.5	27.1	28.5	57.3	47.7	33.7	27.7	-	
W27	347557	093023	47.7	35.0	45.9	40.5		43.8	43.7	55.2	44.4	39.0	50.5	45.8	44.7	36.6	-	
W28	347612	093050	51.3	36.1		41.7		37.0	50.1	57.7	45.1	34.7	38.9	35.4	42.8	35.1	-	
W29	347277	092867	33.9	22.6	27.9	28.2		22.8	28.5	33.7	27.5	22.3	22.6	23.2	26.6	21.8	-	

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
W32	342364	092814	23.2	13.1	23.2	21.1		14.2	19.3	21.5				16.1	19.0	13.8	-	
W33	342151	092869	23.5	14.2	22.9	23.4		11.4	15.9	17.2	16.1	14.4	15.2	18.8	17.5	14.4	-	
W34	342190	092840	40.7		38.2	36.6		33.2	43.5	48.8	31.3	29.2		26.0	36.4	29.8	-	
W36	342015	092887	46.9	33.2	40.0	36.7		37.4	45.4	49.2		38.0	37.9	33.8	39.8	32.7	-	
W37	341946	092908	60.7	46.2	51.2	38.7		51.3	68.1	70.6	51.7	44.3	40.4	41.5	51.3	**42.1**	-	
W38	342025	092894	31.3	17.7	26.6	25.7		21.0	28.4	29.6	22.5	18.9	19.4	20.1	23.8	19.5	-	
W39	341629	093139	87.6	68.5	79.0	88.3		72.5	94.2	106.0	80.7	63.2	62.3	62.8	78.6	**64.5**	**47.4**	
W40	381302	126181	47.2		40.6	27.2		27.5	31.3	15.2		21.6	37.0	34.1	31.3	25.7	-	
W42	378606	114009	45.5	33.0	32.7	29.7		26.8	29.8	34.3	35.3	31.8	39.0	39.7	34.3	28.1	-	
H1	342164	092841	33.7	19.3	25.1			21.6		35.0	27.0	17.7	25.3	22.5	25.2	20.7	-	
H2	342143	092845	39.9	31.5	37.8	34.4		32.0	39.8	41.3	32.6	29.4	30.0	29.0	34.3	28.1	-	
H3	342084	092856	44.8	26.7	37.8	35.3		32.1	40.1	44.0	34.0	24.5	29.7	27.7	34.2	28.1	-	
H4	342004	092890	46.5	36.8	44.1	38.6		40.9	53.9	58.5	42.5	30.1	34.0	30.1	41.4	34.0	-	
H5	341933	092913	49.5	41.4	51.0	50.9		42.0	65.1	62.5	49.8	42.4	37.9	34.9	48.0	39.3	-	
H6	341881	092934	71.3	62.2	69.1	71.8		67.4	96.1	92.5	73.3	61.1	54.6	48.4	69.8	**57.2**	-	
H7	341819	092953	66.7	46.3	55.6	55.3		58.3	74.9	73.1	60.9	52.2	46.7	42.5	57.5	**47.2**	**44.4**	
H8	342129	092847	46.5	38.4	44.3	44.8		46.6	55.5	56.8	41.5	38.4	37.0	33.5	43.9	36.0	-	

☒ **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**

☒ **National bias adjustment factor used**

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

☒ **Dorset Council confirm that all 2022 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 2022

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

Additional Air Quality Works Undertaken by Dorset Council During 2022

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/m^3)

Site ID	Annualisation Factor Bournemouth AURN	Annualisation Factor Honiton AURN	Annualisation Factor Charlton Mackrell AURN	Annualisation Factor Chilbolton AURN	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
P4	0.9252	0.9338	0.9791	1.0099	0.9620	15.0	14.4
W12	0.9323	0.8783	0.9050	0.9245	0.9100	38.3	34.8
W32	0.8712	0.9042	0.8867	0.8900	0.8880	19.0	16.8
Beaminster (PM_{10})	-	0.973	0.972	0.960	0.968	8.9	8.62

Site ID	Annualisation Factor Bournemouth AURN	Annualisation Factor Honiton AURN	Annualisation Factor Charlton Mackrell AURN	Annualisation Factor Chilbolton AURN	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
Blandford (PM_{10})	-	0.973	1.000	0.968	0.980	11.0	10.78
Ferndown (PM_{10})	-	1.000	1.020	0.992	1.004	14.7	14.76
Sandford (PM_{10})	-	1.058	1.020	1.000	1.026	15.4	15.80
Beaminster ($PM_{2.5}$)	-	0.957	1.009	0.974	1.009	4.0	4.04
Blandford ($PM_{2.5}$)	-	0.985	1.037	0.987	1.037	5.9	6.12
Ferndown ($PM_{2.5}$)	-	1.015	1.069	1.027	1.069	6.0	6.41
Sandford ($PM_{2.5}$)	-	1.082	1.076	1.027	1.076	7.7	8.28

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2022 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_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 0.82 to the 2022 monitoring data. A summary of bias adjustment factors used by Dorset Council over the past five years is presented in Table C.2.

2022 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 03/23 of the spreadsheet giving a factor of 0.82 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
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
2018	National	03/22	Gradko: 0.77

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 Diffusion Tube Data Processing Tool/NO_2 fall-off with

distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table B.1.

Three sites needed correction for fall-off with distance from road. They are:

- W3 – Rodwell Rd, Weymouth
- W39 – Chideock Hill Cottage
- H7 – Yew Tree House

Table C.3 – NO_2 Fall off With Distance Calculations (concentrations presented in µg/m^3)

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
W3	2.5	5.0	37.7	8.2	32.7	
W39	1.0	4.5	64.5	8.2	47.4	Predicted concentration at receptor above AQO
H7	6.0	7.5	47.2	8.2	44.4	Predicted concentration at receptor above AQO

QA/QC of Automatic Monitoring

Dorset Council utilises ACOEM AQMesh Pods. The data is operated and managed by ACOEM UK.

The data provided to the ASR is ratified, and live and historic data is available through airmonitors.net

The type of PM_{10}/$PM_{2.5}$ monitor(s) utilised within Dorset Council do not required the application of a correction factor.

PM_{10} and $PM_{2.5}$ Monitoring Adjustment

The type of PM_{10}/$PM_{2.5}$ monitor(s) utilised within Dorset Council do not require the application of a correction factor.

Automatic Monitoring Annualisation

Annualisation factors for all PM monitors is presented in table C.1.

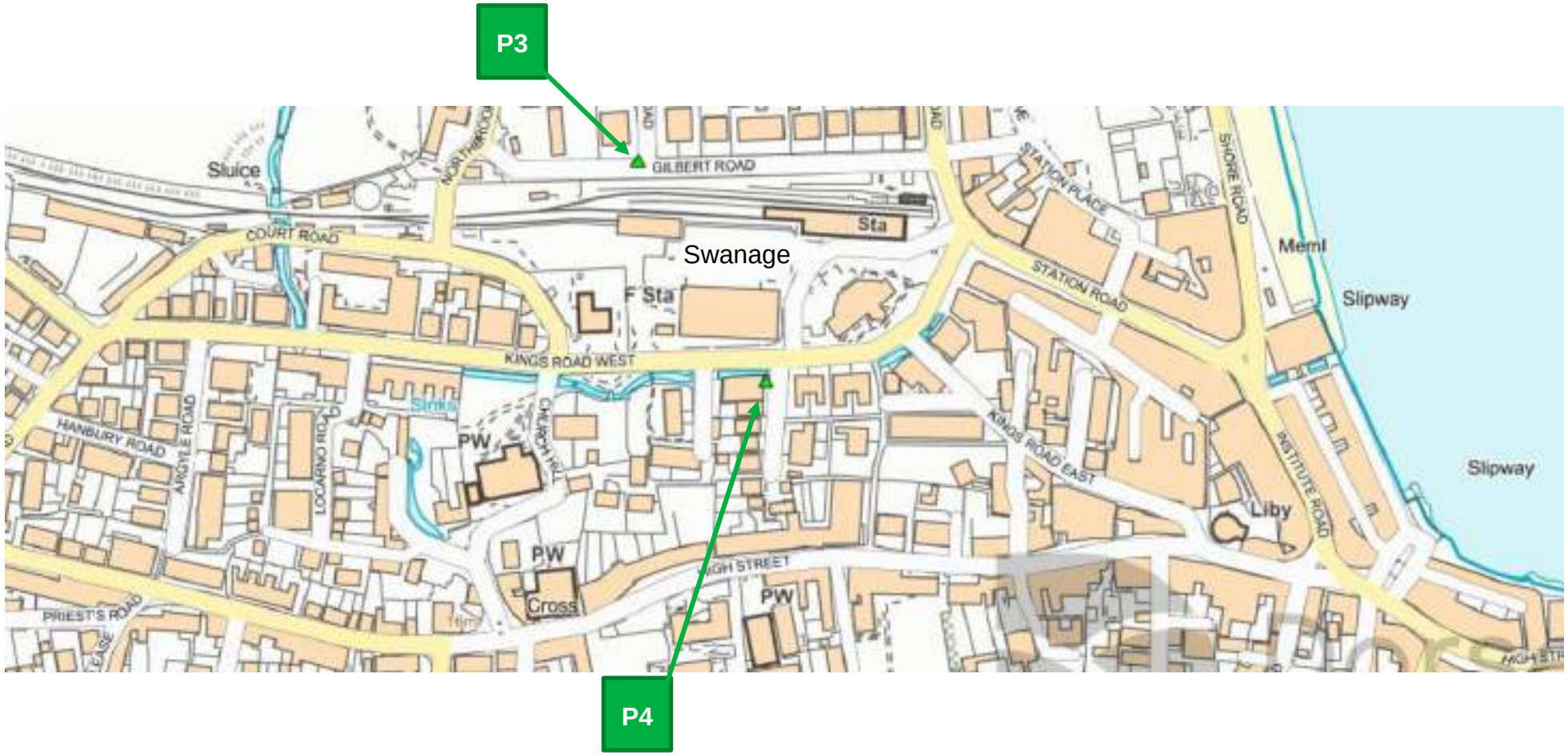
NO_2 Fall-off with Distance from the Road

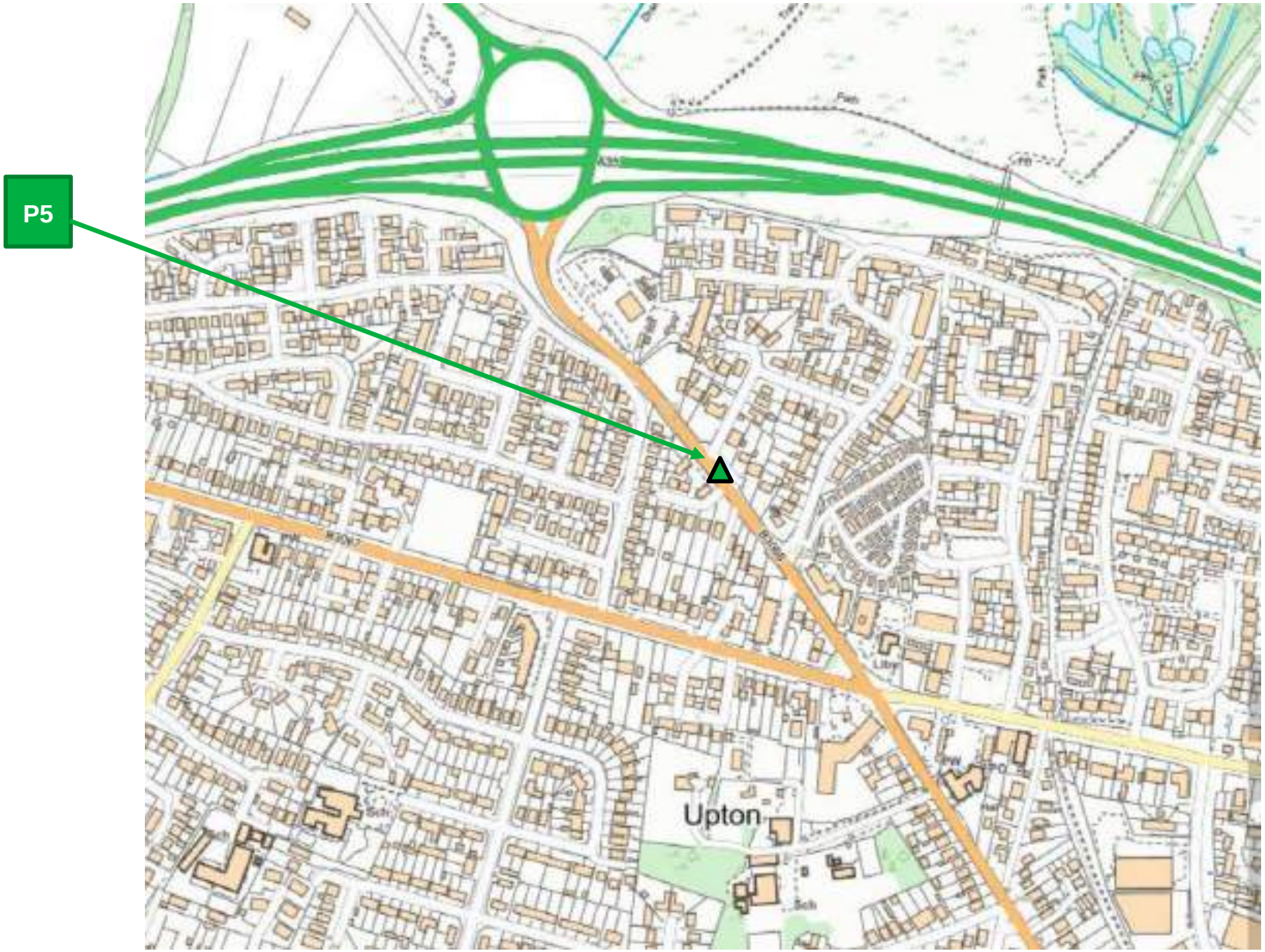
Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table B.1.

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

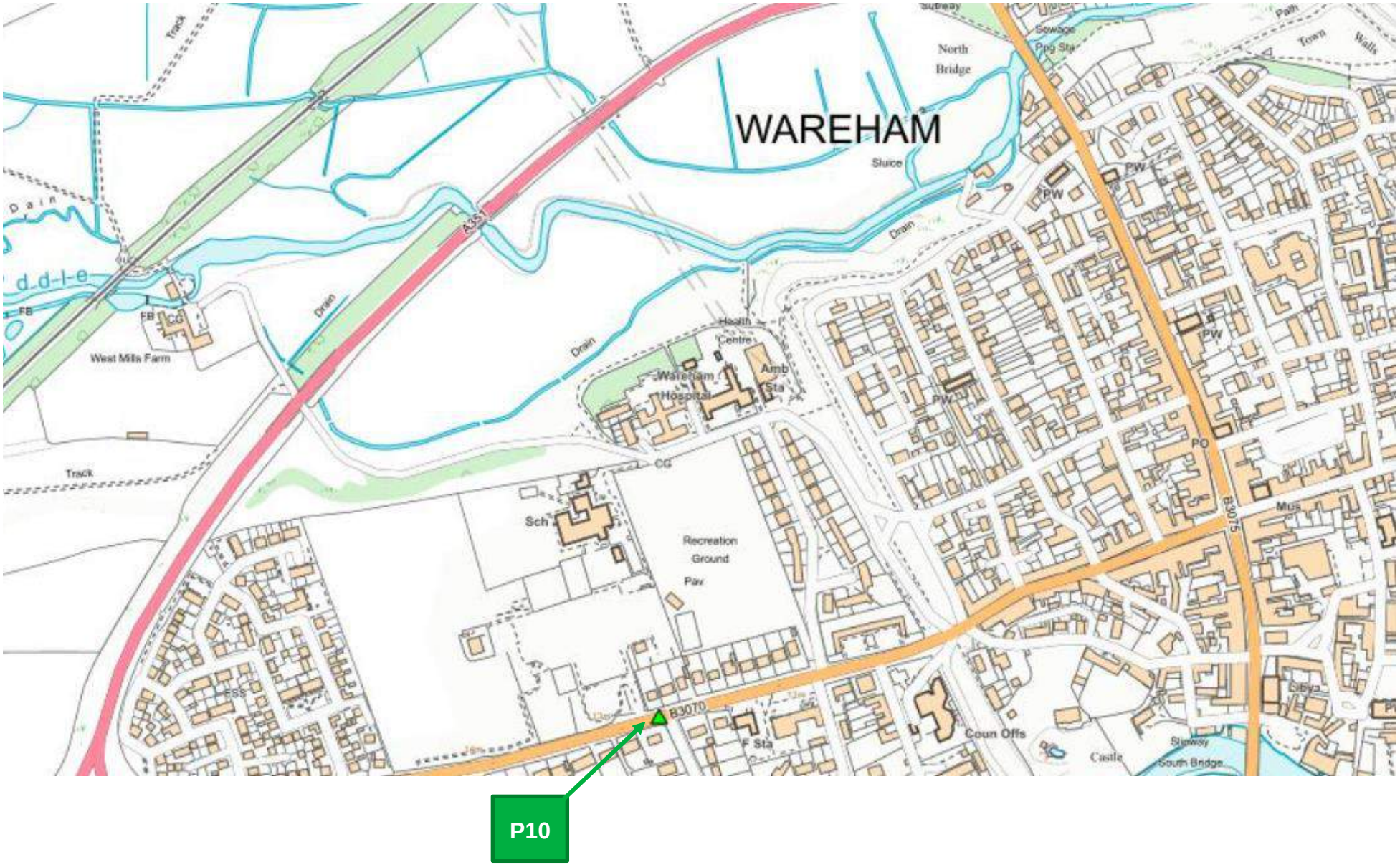
Figure D.1 – Map of Non-Automatic Monitoring Site

Former Purbeck District Council area monitoring locations




P5
Upton


Sandford St Martin's
Church of England
Voluntary Aided
Primary School
War Memls
9m
Drain
Path
10m
FILLEUL ROAD
CEDAR DRIVE
MAPLE
WOODLANDS DRIVE
P9

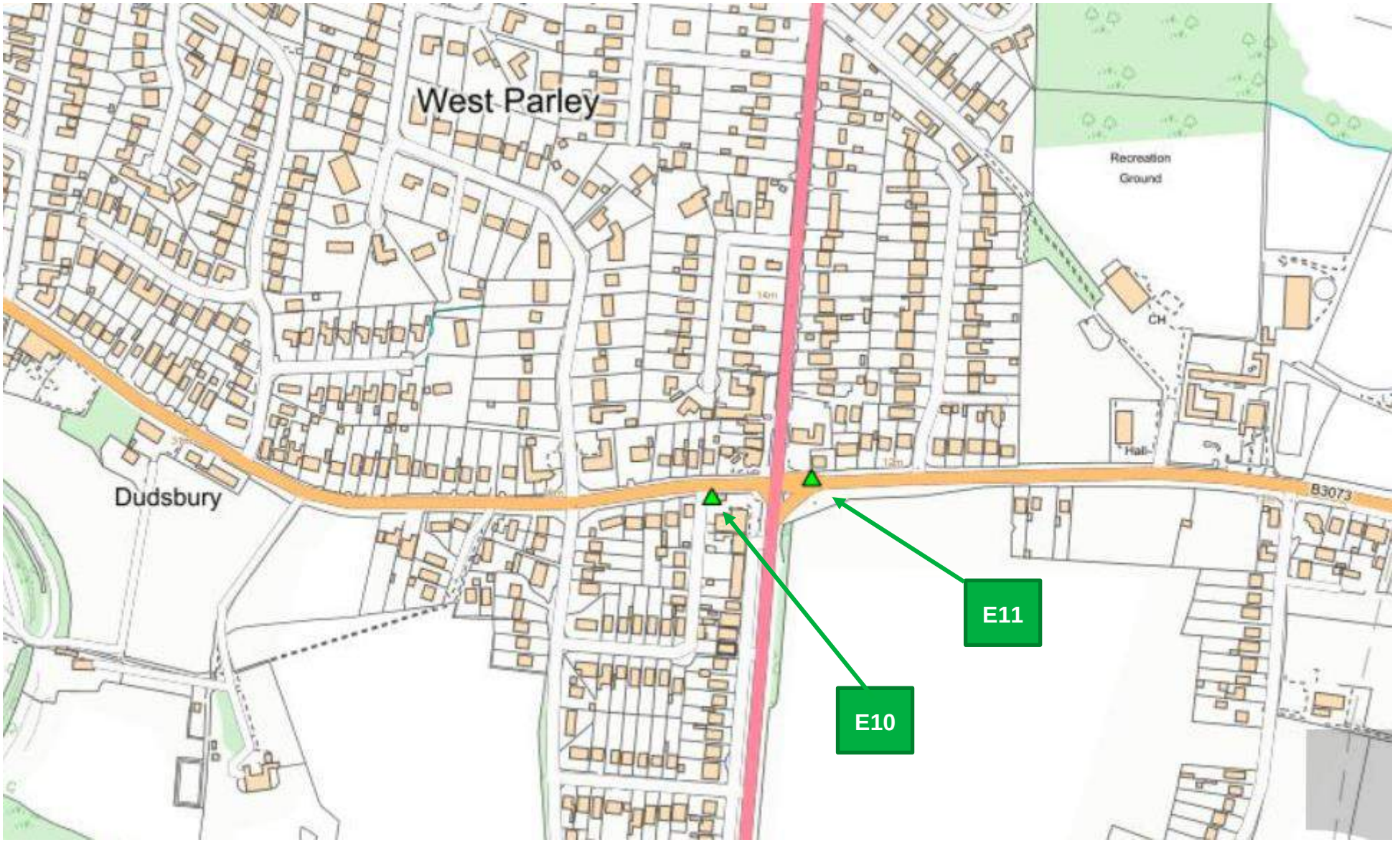

WAREHAM
North Bridge
Sewage Pmg Sta
Path
Town Walls
Subway
Track
A351
Drain
Sluice
PW
West Mills Farm
FB
CG
Health Centre
Wareham Hospital
Amb Sta
PO
Mus
B3075
Sch
Recreation Ground
Pav
B3070
F Sta
Coun Offs
Castle
Slipway
South Bridge
Library
P10

Former East Dorset District Council area monitoring locations

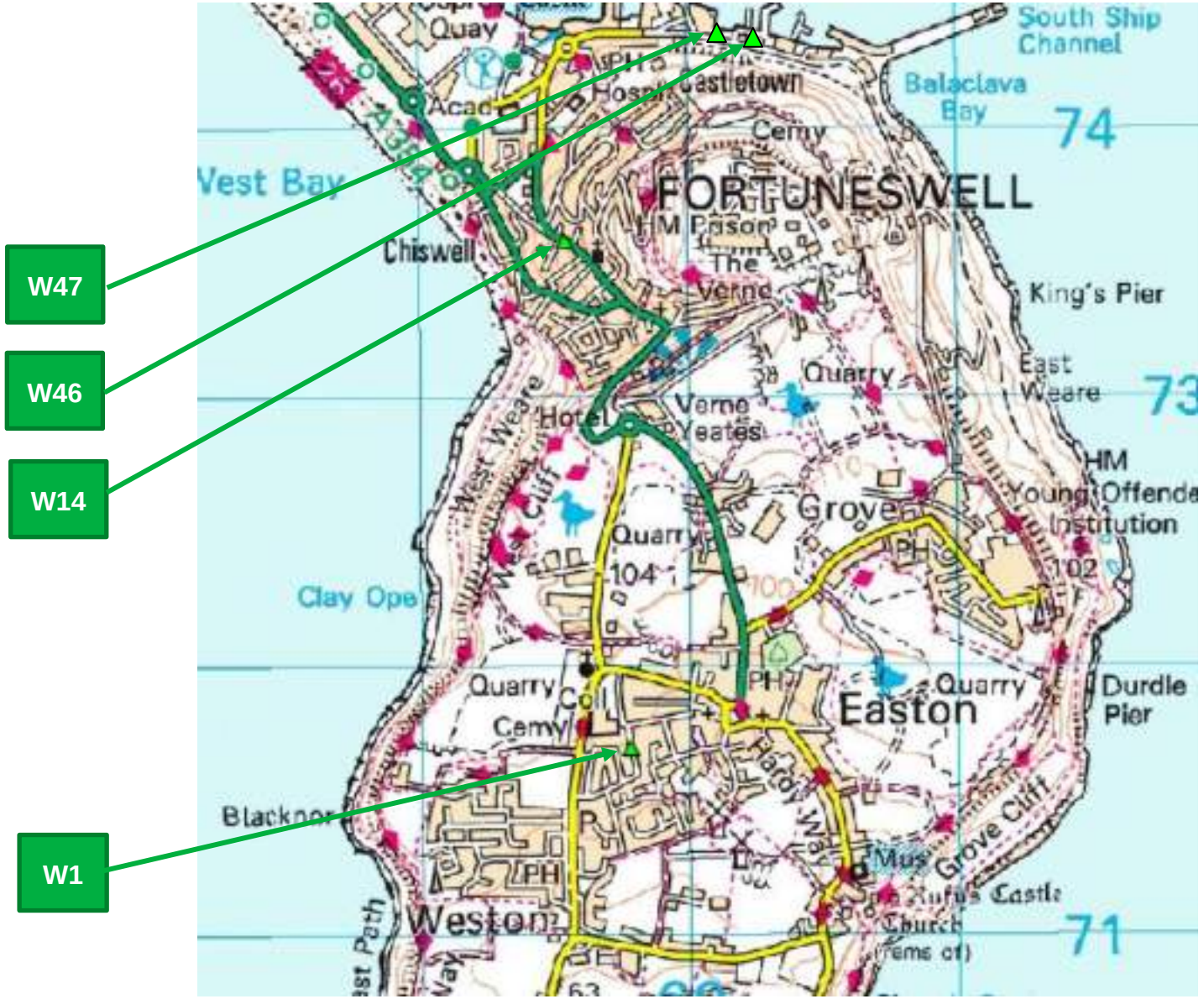

E2
The Calf House
Sewage
Ppg Sta
Ppg Sta
Sewage
Ppg Sta
PW
Allot Gdns
Track
Longham
Green Acres
Path
Sewage Works

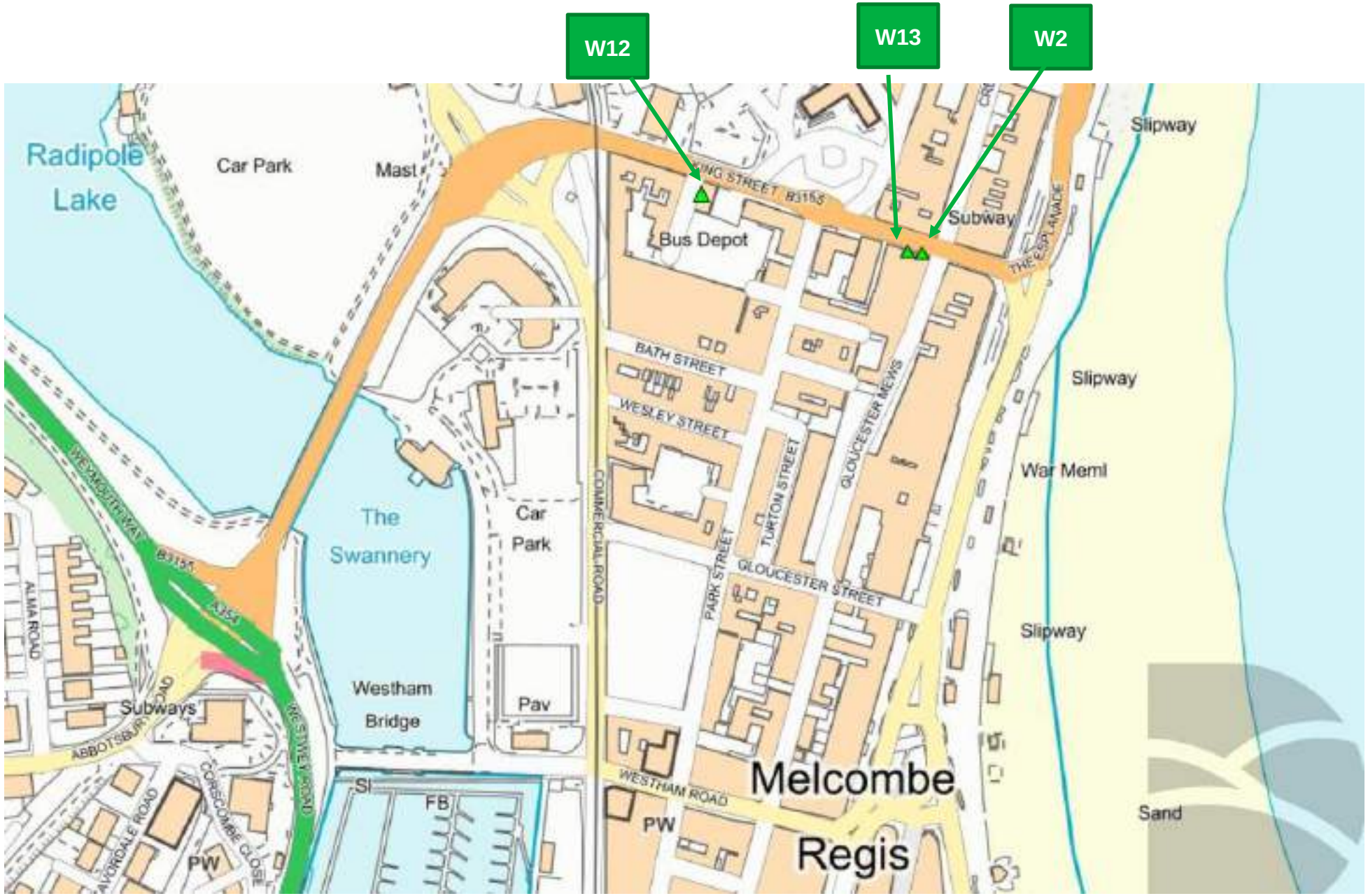

E8
E5
E12
E13
E3
WIMBORNE
MINSTER
Colehill
Rowlands
East Brook
St Johns
Leigh
Leigh Common
Old Manor Farm
MODEL VILLAGE
Allot
Cemy
Hospl
Sch
FB
TH
MS
256

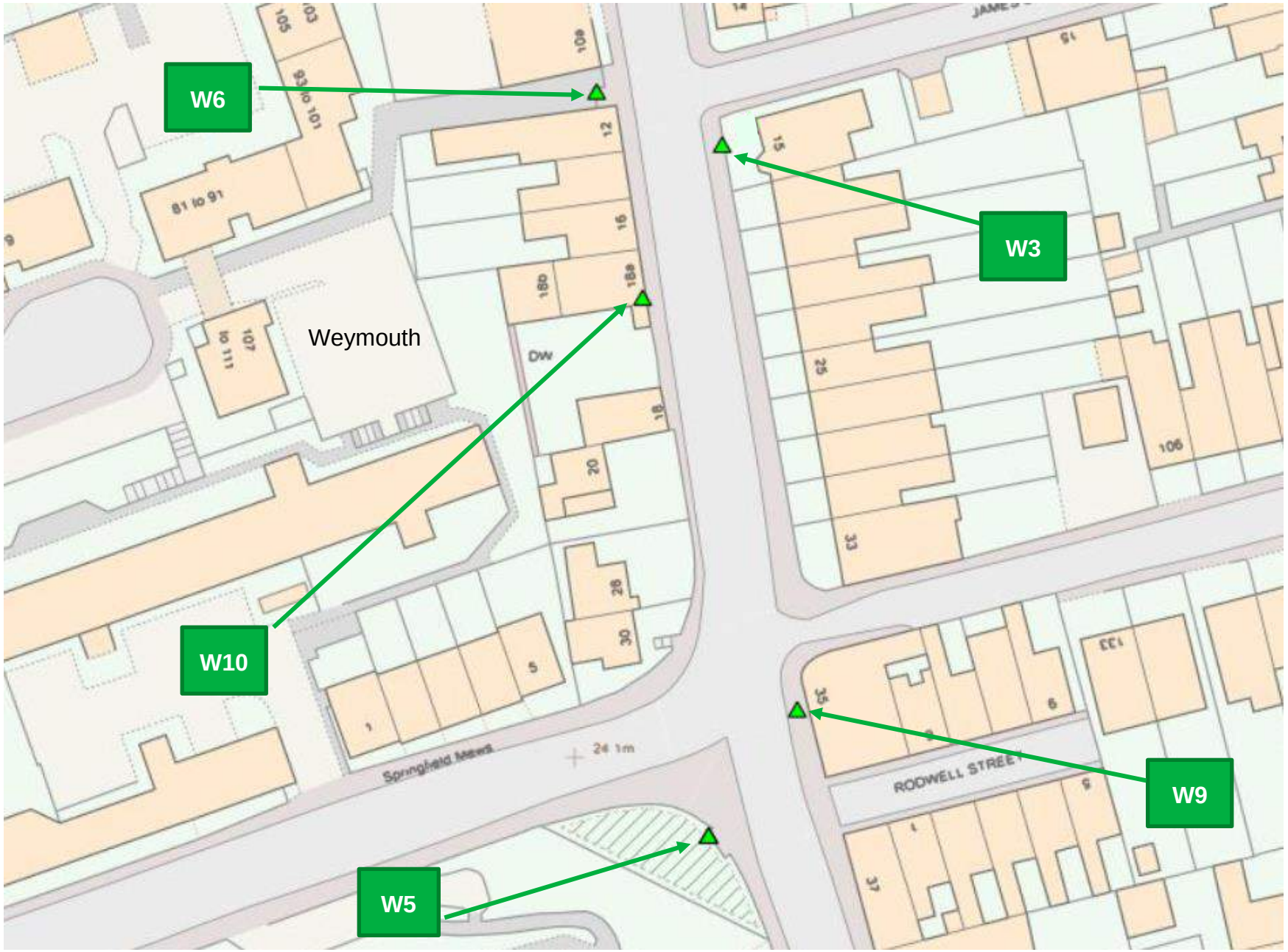

Ferndown
E6


West Parley
Recreation Ground
CH
Hall
Dudsbury
B3073
E11
E10

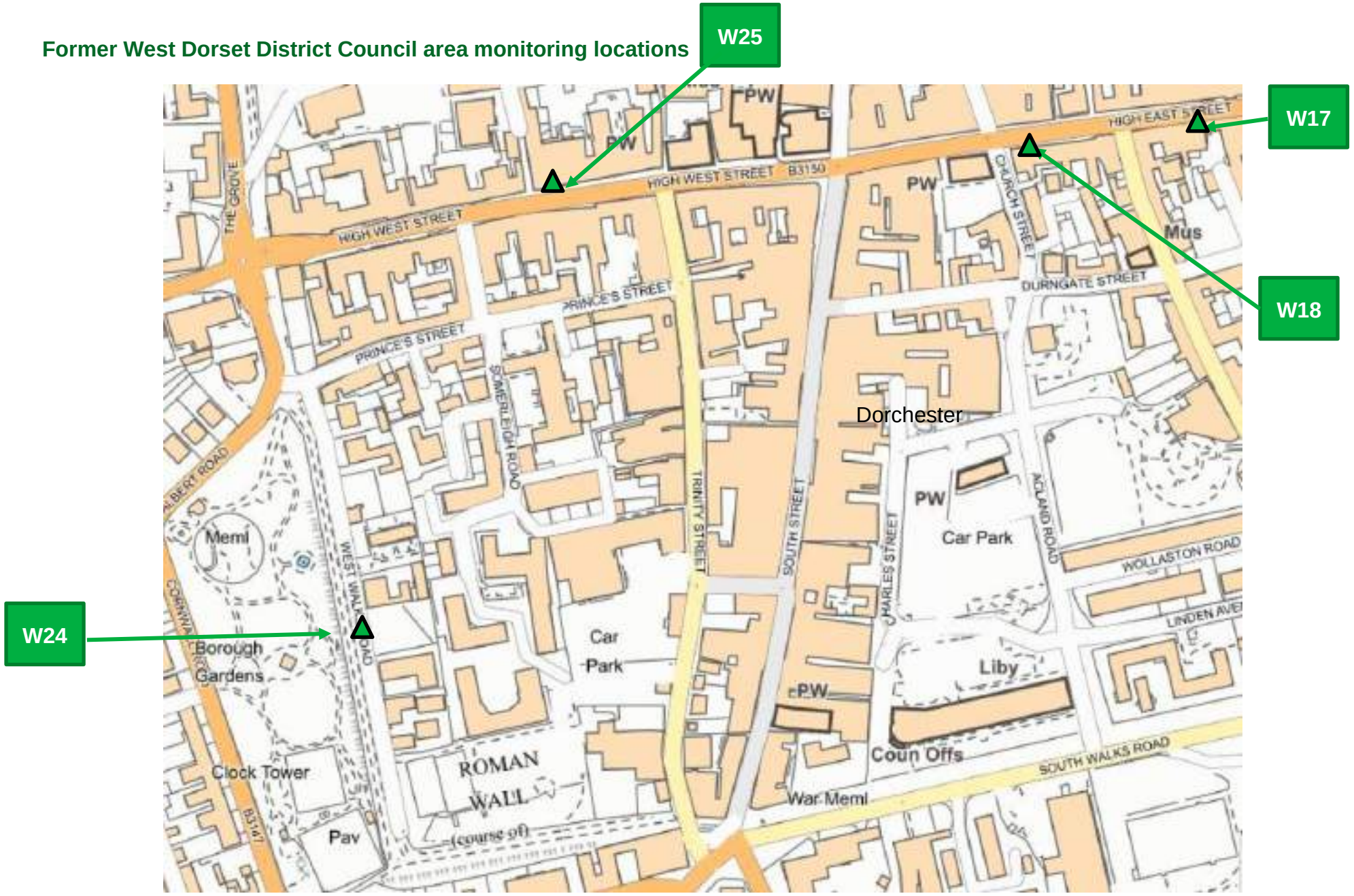
Former Weymouth and Portland Borough Council area monitoring locations

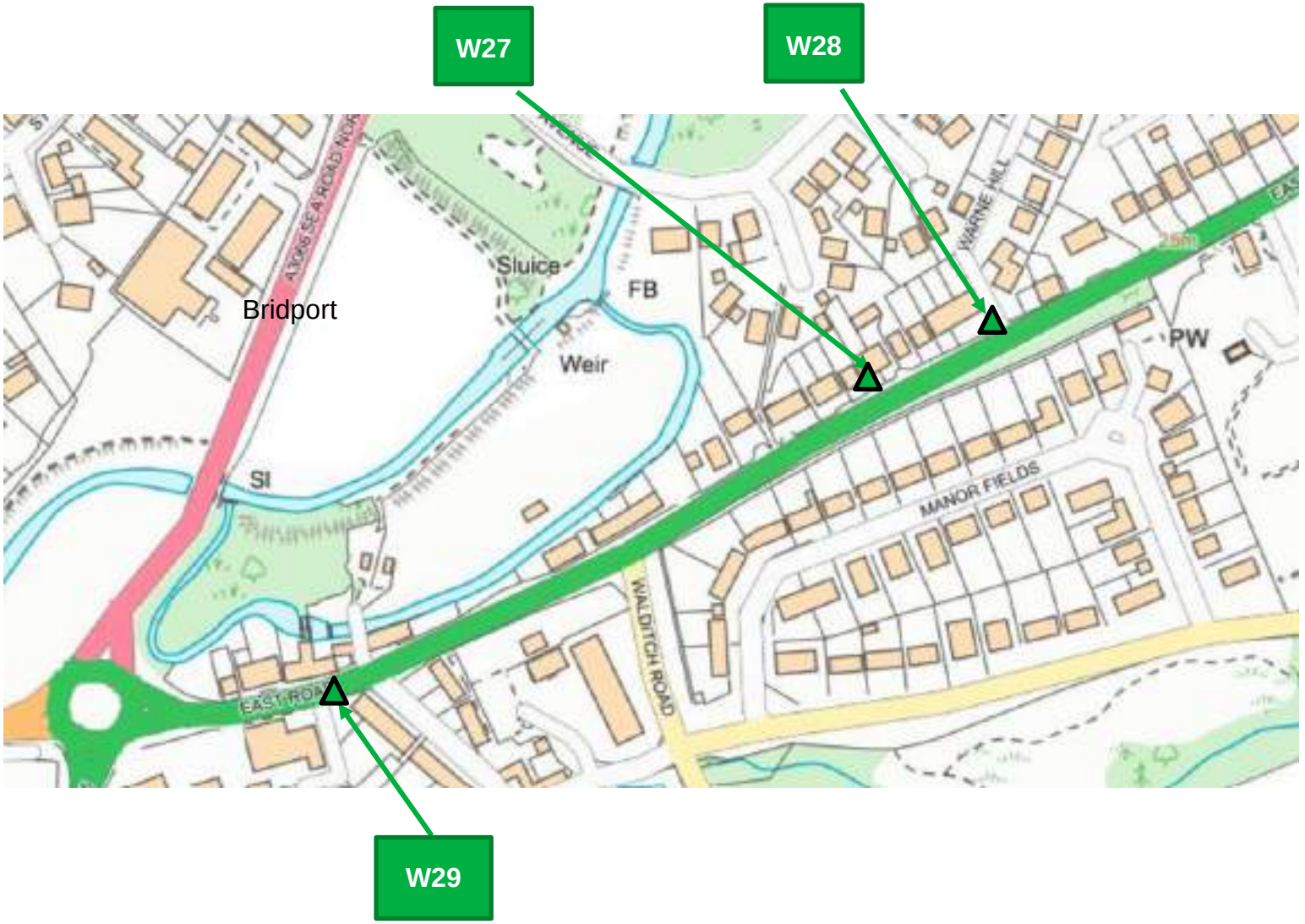



W12
W13
W2
Radipole Lake
Car Park
Mast
KING STREET B3155
Bus Depot
Subway
THE ESPLANADE
Slipway
BATH STREET
WESLEY STREET
GLOUCESTER MEWS
TURTON STREET
PARK STREET
GLOUCESTER STREET
COMMERCIAL ROAD
Slipway
War Meml
Slipway
The Swannery
Car Park
WEYMOUTH WAY B3155
A354
ALMA ROAD
Subways
ABBOTSBURY ROAD
WESTWEY ROAD
Westham Bridge
Pav
SI
FB
CORSCOMBE CLOSE
AVONDALE ROAD
PW
WESTHAM ROAD
PW
Melcombe Regis
Sand

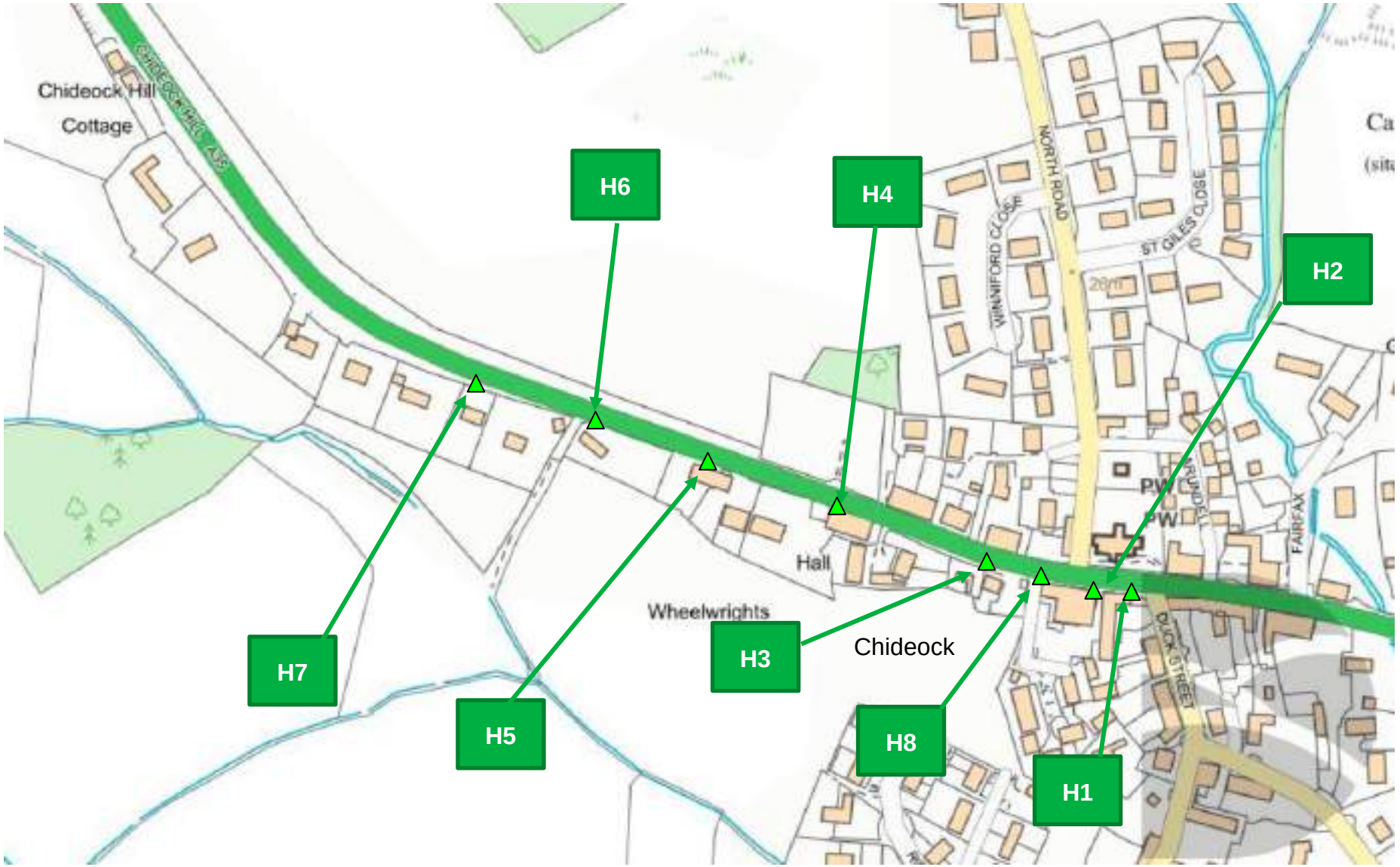

W6
W3
W10
W9
W5
Weymouth
Springfield Mews
RODWELL STREET

Former West Dorset District Council area monitoring locations




W27
W28
W29
Bridport
Sluice
FB
Weir
SI
PW
MANOR FIELDS
WALDITCH ROAD
WARNE HILL


W39
W37
W38
W33
W32
Chideock Hill
Cottage
Castle
(site of)
Greenways
Wheelwrights
Chideock
PW
PW
PO
W36
W34

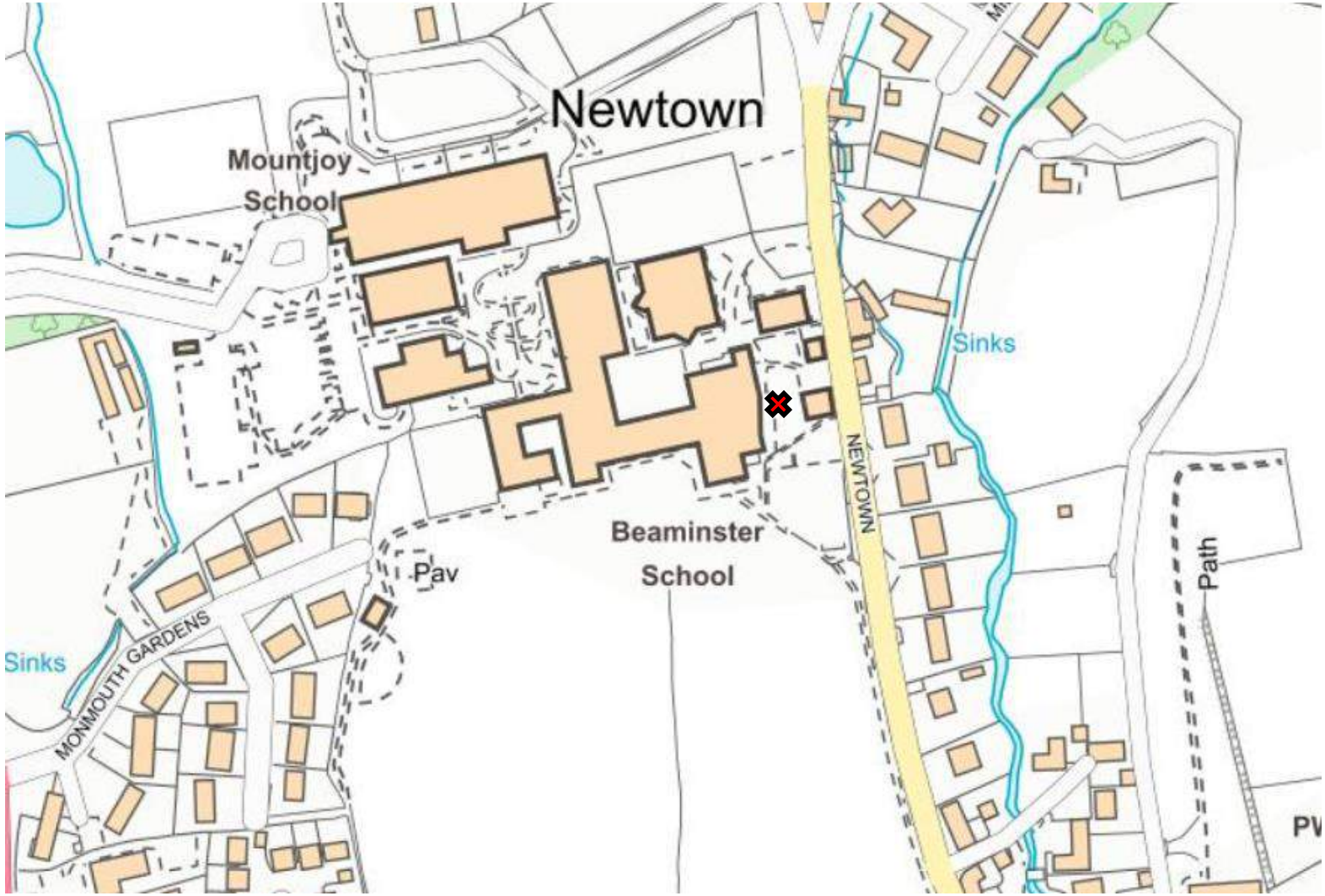

Chideock Hill
Cottage
H6
H4
H2
H7
H5
H3
H8
H1
Hall
Wheelwrights
Chideock
NORTH ROAD
ST GILES CLOSE
WINNIFORD CLOSE
FAIRFAX
DUCK STREET

Former North Dorset District Council area monitoring locations

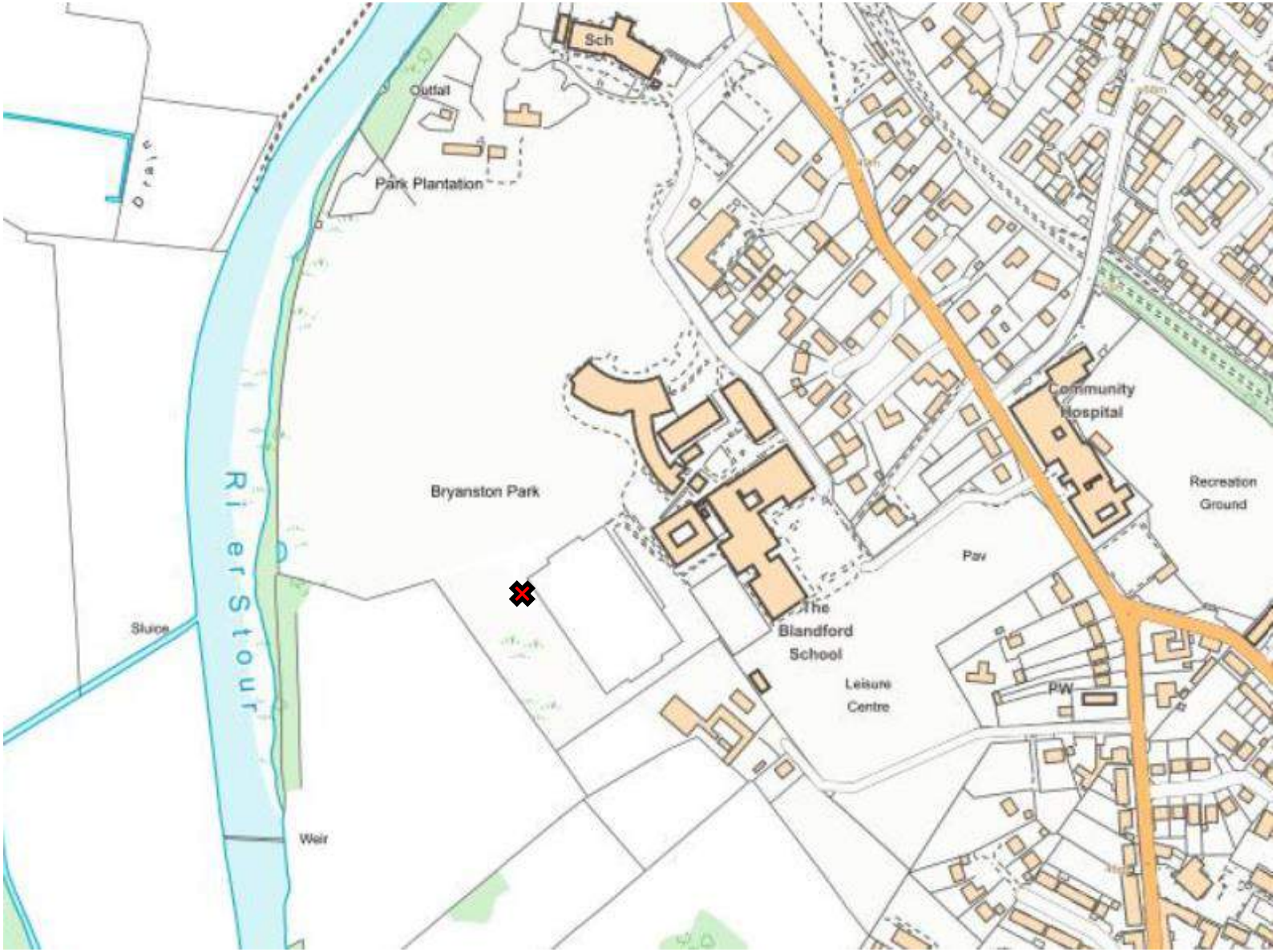

W42
FB
Pol
Liby
Sta
Mem
PO
B3092
Path
Bathing Island
Gotts Corner
Recreation
Ground
PW
PW
Sturminster
Newton
Sch
Track
Sewage

AQMesh continuous analyser positons

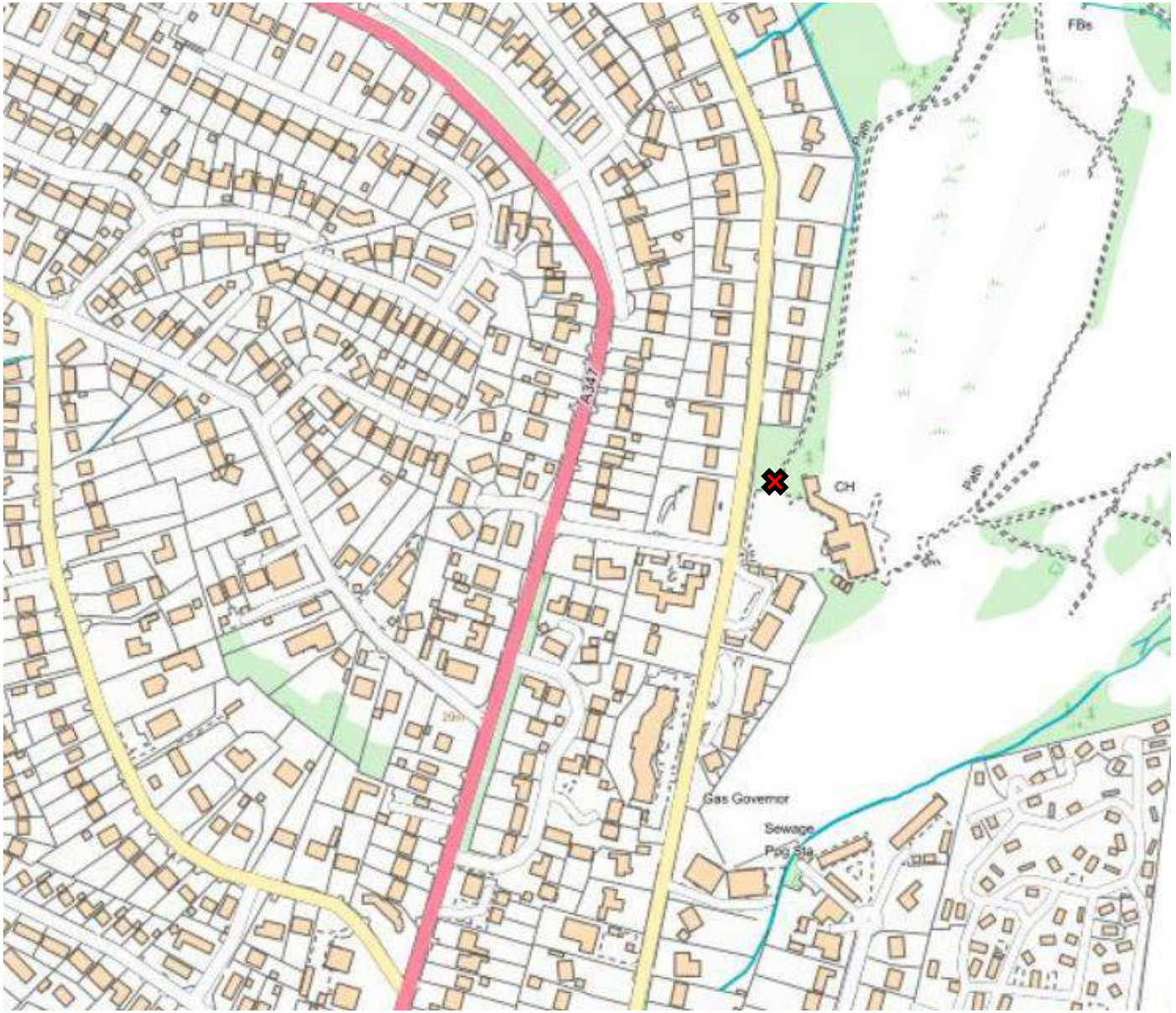
Beaminster



Blandford


Sch
Outfall
Park Plantation
Bryanston Park
Community Hospital
Recreation Ground
Pav
The Blandford School
Leisure Centre
PW
Sluice
Weir
River Stour

Ferndown

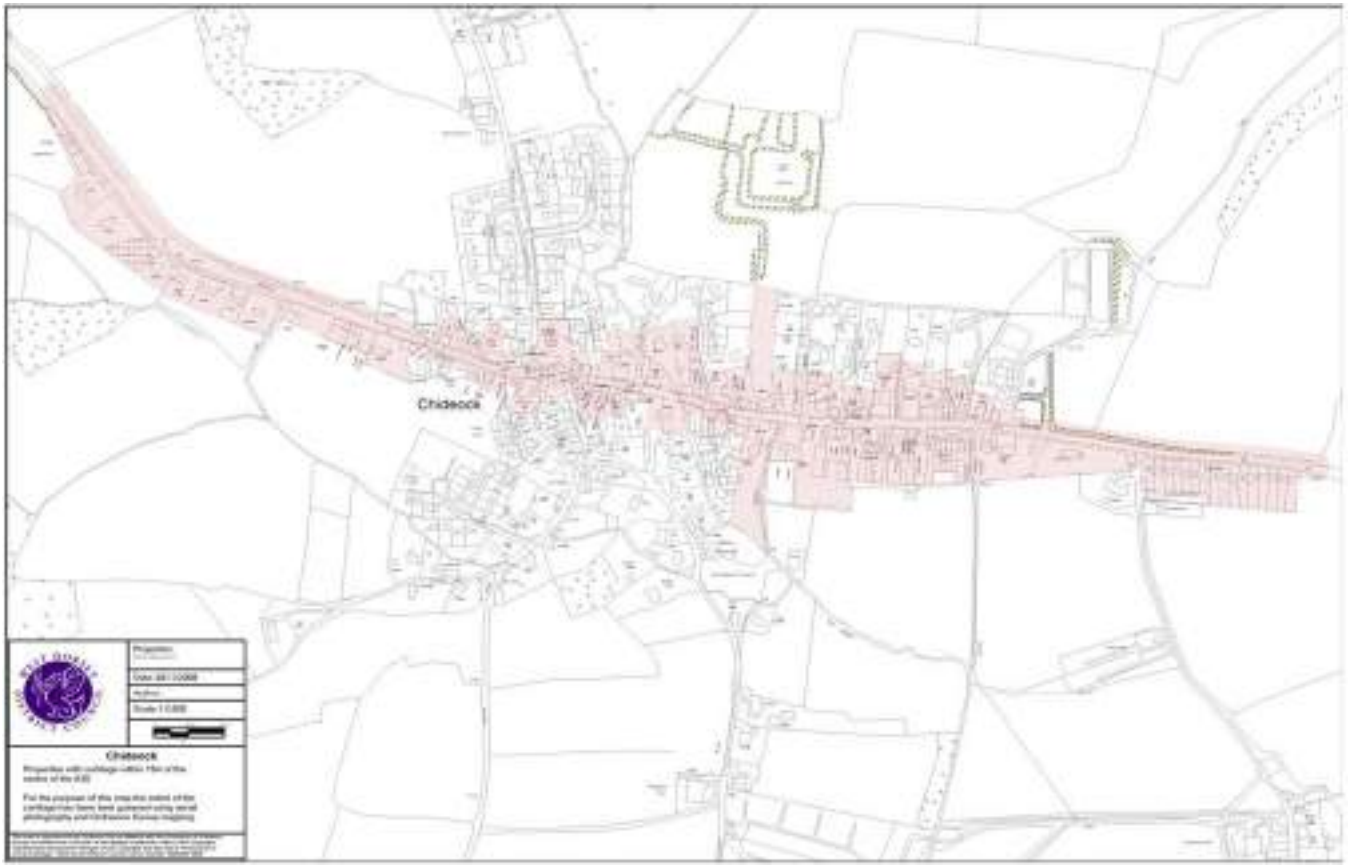


Sandford

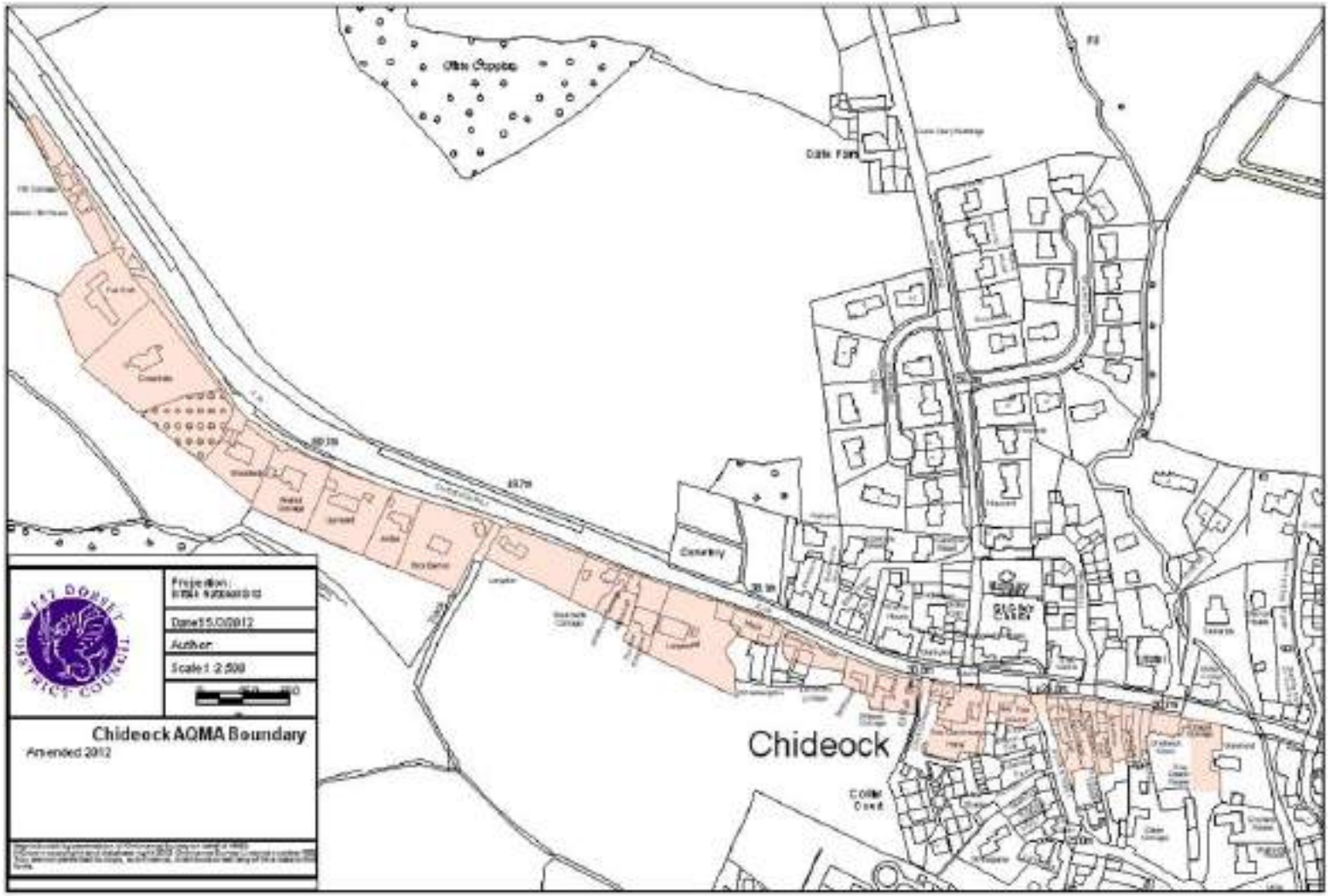

Sandford St Martin's
Church of England
Voluntary Aided
Primary School
War Memls
9m
Drain
A351
10m
Hall
CEDAR DRIVE
MAPLE CLOSE
WOODLANDS DRIVE

Figure D.2 – Map of AQMAs

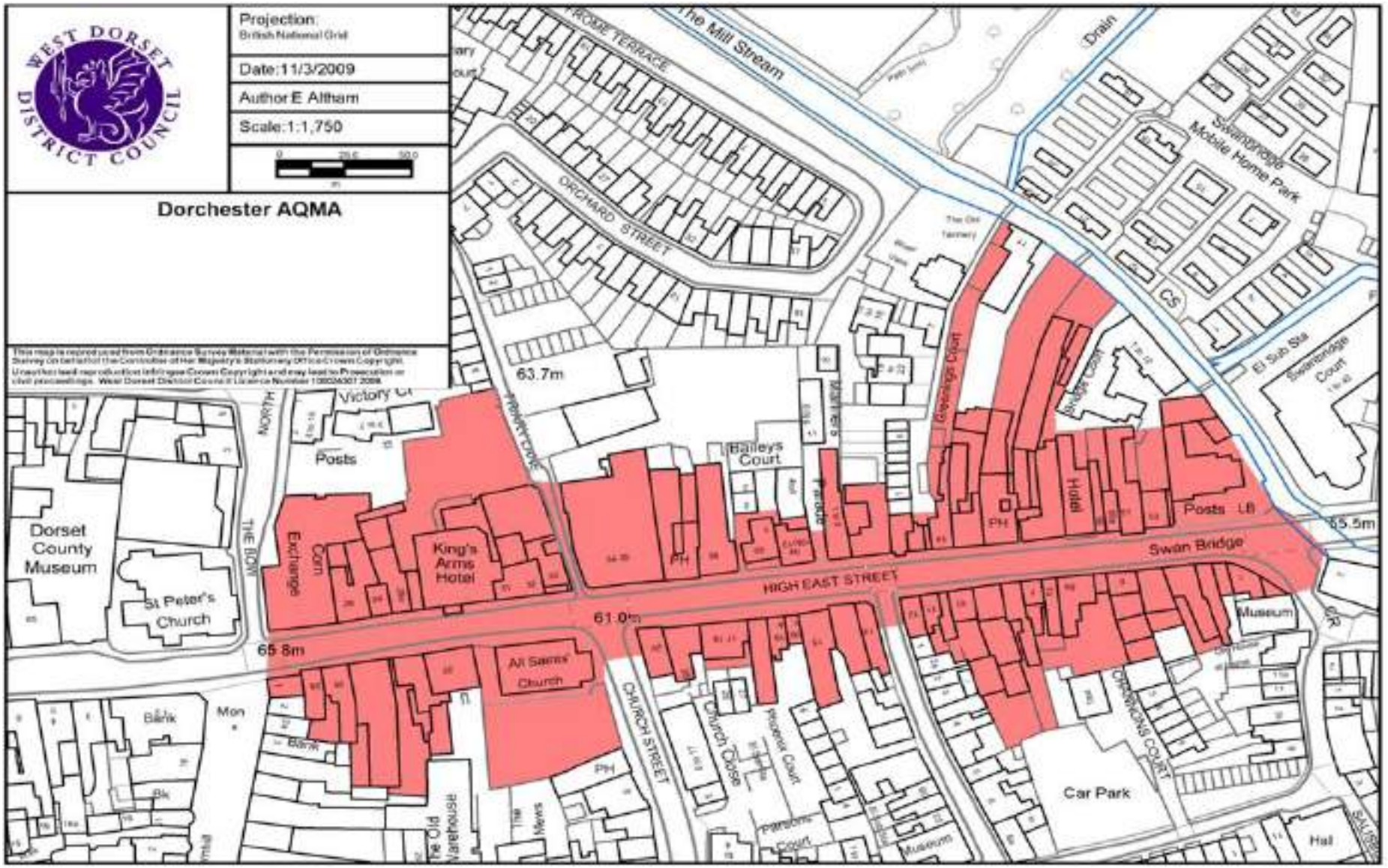
AQMA Chideock 2007 Boundary



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)	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/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.