Agenda Item: 11

Meeting of:	**Cabinet**
Date of Meeting:	**Thursday, 06 November 2025**
Relevant Scrutiny Committee:	Live Well Scrutiny Committee
Report Title:	Local Air Quality Management Annual Progress Report 2025
Purpose of Report:	To seek approval for the 2025 Local Air Quality Management Annual Progress Report (APR) on air quality monitoring conducted in 2024 to enable submission to Welsh Government no later than 31st December 2025.
Report Owner:	Cabinet Member for Community Engagement, Equalities and Regulatory Services
Responsible Officer:	Director of Environment and Housing Services
Elected Member and Officer Consultation:	Head of Service for Shared Regulatory Services Monitoring Officer/Head of Legal and Democratic Services Head of Finance/Section 151 Officer
Policy Framework:	This is a matter for Executive decision by Cabinet

Executive Summary:

- Under Section 82 of the Environment Act 1995 every Local Authority has an obligation to regularly review and assess air quality in their areas, and to determine whether air quality objectives are likely to be achieved.
- In pursuance of this, the Council produces an Annual Progress Report on Local Air Quality Management.
- The 2025 report satisfies the relevant legal requirements examining results of air quality monitoring undertaken across the Vale of Glamorgan during 2024.
- The Annual Progress Report needs to be approved and issued to Welsh Government no later than 31st December 2025.
- The report confirms that air quality within the Vale of Glamorgan continues to meet all the relevant air quality objectives.

Recommendations

1. That Cabinet notes the monitored results gathered in 2024.
2. That Cabinet approves the 2025 Annual Progress Report, attached at Appendix 1 to this report, for submission to Welsh Government for approval.

Reasons for Recommendations

1. The report fulfils the requirements of the statutory Local Air Quality Management (LAQM) process under Part IV of the Environment Act 1995, and the report contains results of air quality data captured in 2024.
2. As 1 above.

1. Background

1.1 The LAQM process places a statutory duty on all Local Authorities to regularly review and assess air quality in their areas and to determine whether the air quality objectives to protect health are likely to be achieved.

1.2 Welsh Government issues Statutory Guidance [1] to Local Authorities under Section 88 of the Environment Act 1995. The guidance requires Local Authorities to regularly review and assess air quality in their area and to adopt the five ways of working as set out in the Well-being of Future Generations (Wales) Act 2015, including a focus on Sustainable Development. The Statutory Guidance with which Local Authorities must have regard when carrying out their air quality functions under the Environment Act 1995, sets out that Authorities in Wales have to produce an Annual Progress Report in draft form by 30th September each year and publish it by 31st December at the latest.

1.3 The Annual Progress Report must include monitoring results for the previous calendar year, a progress report on action plan implementation and an update on any new policies or developments likely to affect local air quality.

1.4 Note that currently there are no Air Quality Management Areas (AQMAs) with the Vale of Glamorgan. The previously declared AQMA on Windsor Road, was revoked in January 2021, following consideration by Cabinet.

2. Key Issues for Consideration

2.1 In 2024 there were 41 specifically allocated non-automatic monitoring sites across the Vale of Glamorgan which monitored levels of nitrogen dioxide (NO_2). The non-automatic sites do not provide live data; instead, they consist of diffusion tubes which are placed at each of the sites, collected and replaced on a rolling monthly

[1] https://www.gov.wales/sites/default/files/publications/2019-04/local-air-quality-management-in-wales.pdf

basis. The results derived from the tube sampling are then averaged over the year to enable a comparison of the results against the annual average (40 µg/m3) and 1-hour (200 µg/m3 not to be exceeded > 18 times per year) air quality objectives for NO_2.

2.2 The Vale of Glamorgan Council undertook automatic (continuous) monitoring at 3 sites during 2024. The sensors were installed in September 2024. These sensors are indicative and provide data to enable a screening assessment of air quality to be undertaken

2.3 From the 41 locations monitored throughout the Vale of Glamorgan with the use of passive diffusion tubes, no sites breached the national NO_2 annual objective of 40 $\mu g/m^3$ or the NO_2 1-hour objective (200 $\mu g/m^3$, not to be exceeded more than 18 times per year).

2.4 Indicative monitoring results also display compliance with NO_2 40 µg/m3 and the NO2 1-hour objective (200 µg/m3, not to be exceeded more than 18 times per year), and PM_{10} objective limits 40 µg/m3 and the PM10 24-hour objective (50 µg/m3, not to be exceeded more than 18 times per year) during the period of monitoring from September to January 2025.

2.5 Overall, in the Vale of Glamorgan we have seen a downward trend in NO_2 levels since before the Covid-19 pandemic.

2.6 For existing monitoring sites, from the period of 2020 to 2024 annual average roadside NO_2 concentrations have decreased by 15% from 18µg/m^3 to 15.3µg/m^3. A decrease of 6.5% from 17.2µg/m^3 to 15.3µg/m^3 in annual average roadside NO_2 concentrations is also evident between 2023 and 2024. This displays an overall improving trend in NO_2 concentrations.

2.7 As all areas remain in compliance with Air Quality Objectives and the priority for 2025 is to ensure pollutant concentrations continue a downward trend. This will be achieved by continuing to promote the use of active travel and sustainable travel, and the transition to zero emission vehicles.

3. How do proposals evidence the Five Ways of Working and contribute to our Well-being Objectives?

3.1 The Well-Being of Future Generations (Wales) Act 2015 places a 'well-being duty' on public bodies aimed at achieving seven national well-being goals for Wales - a Wales that is prosperous, resilient, healthier, more equal, has cohesive communities, a vibrant culture and thriving Welsh language, and is globally responsible.

3.2 In discharging its duties under the 2015 Act, the Council has set, and published Well-being objectives designed to maximise its contribution to achieving the

national Well-being goals. The Well-being objectives are set out in Vale of Glamorgan Council's Well-being Objectives and Improvement Plan:

https://www.valepsb.wales/en/Our-Plan.aspx

3.3 When exercising its functions, the Council is required to take all reasonable steps to meet its Well-being objectives. This means that the decision makers should consider how the proposed decision will contribute towards meeting the Well-being objectives and must be satisfied that all reasonable steps have been taken to meet those objectives.

3.4 The Well-being duty also requires the Council to act in accordance with a 'sustainable development principle.' This principle requires the Council to act in a way which seeks to ensure that the needs of the present are met without compromising the ability of future generations to meet their own needs. Put simply, this means that Council decision makers must take account of the impact of their decisions on people living their lives in Wales in the future. In doing so, the Council must:

Look to the long term to

- Focus on prevention by understanding the root causes of problems.
- Deliver an integrated approach to achieving the seven national well-being goals.
- Work in collaboration with others to find shared sustainable solutions; and
- Involve people from all sections of the community in the decisions which affect them.

3.5 The Corporate Plan for the Vale of Glamorgan Council for 2020-2025, includes a Well-Being Outcome which is - An Environmentally Responsible and Prosperous Vale. A key part of this outcome states that The Vale of Glamorgan Council will look 'to protect our environment for future generations.'

3.6 The Annual Progress Report demonstrates that currently Air Quality within the Vale of Glamorgan meets air quality objectives set in Wales and exhibits that The Vale of Glamorgan Council is meeting its desired objectives and outcomes. Air Quality concentrations continue to show ongoing improvements across the Vale of Glamorgan.

4. Climate Change and Nature Implications

4.1 The Annual Progress Report provides the latest full data set of air quality monitoring data for the Vale of Glamorgan.

4.2 One of the key challenges identified in Project Zero is to achieve a modal shift away from cars to more sustainable forms of transport with an increase in walking, cycling and the use of less polluting transport.

4.3 Given that road transportation is one of the key contributors to air pollution the ongoing assessment of air quality data trends will assist the Council in assessing the impact of Project Zero and interventions to increase modal shift. By increasing modal shift to more sustainable forms of transport it is anticipated that further improvements to air quality will be achieved, and thus future air quality monitoring results will provide supporting evidence on the progression of Project Zero.

5. Resources and Legal Considerations

Financial

5.1 SRS has an existing budget to complete a programme of air quality monitoring across the Vale of Glamorgan.

Employment

5.2 There are no employment implications.

Legal (Including Equalities)

5.3 With regards to annual reporting requirements under the LAQM regime, Welsh Government issues Statutory Guidance to Local Authorities under Section 88 of the Environment Act 1995. The guidance requires Local Authorities to regularly review and assess air quality in their area and to adopt the five ways of working as set out in the Well-being of Future Generations (Wales) Act 2015, including a focus on Sustainable Development. The Statutory Guidance with which Local Authorities must have regard when carrying out their air quality functions under the Environment Act 1995, sets out that Authorities in Wales have to produce an Annual Progress Report in draft form by 30th September each year and publish it by 31st December at the latest

5.4 This must include monitoring results for the previous calendar year, a progress report on action plan implementation and an update on any new policies or developments likely to affect local air quality.

5.5 Section 82 of the Environment Act 1995 places a duty on all Local Authorities to review periodically air quality in their area. This includes assessment of compliance of present and likely future air quality to comply with the objectives of the Air Quality (Wales) Regulations 2010.

5.6 Where air quality is unlikely to meet the objectives Section 83 of the Environment Act 1995 requires that the Council declares an Air Quality Management Area.

5.7 Section 83B of the Environment Act 1995 places a duty on the Council to develop an Action Plan to address the situation.

5.8 The Authority has a statutory duty to produce and publish reports fulfilling the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and relevant Policy.

5.9 There are no equal opportunities implications from the publication of the report. Invitations to comment will be sent to all known stakeholders and interest groups to provide an opportunity for comments.

6. Background Papers

None.

APPENDIX 1

Vale of Glamorgan Council 2025 Air Quality Progress Report

In fulfilment of Part IV of the Environment Act 1995, as amended by the Environment Act 2021

Local Air Quality Management

Date: September 2025

Information	Vale of Glamorgan Council
Local Authority Officer	Adam Spear
Department	Shared Regulatory Services
Address	Civic Offices, Holton Road, Barry CF63 4RU
Telephone	0300 123 6696
E-mail	environment-srswales@valeofglamorgan.gov.uk
Report Reference Number	VOG/APR/2025
Date	September 2025

Executive Summary: Air Quality in Our Area

What has become distinctly apparent is that air Pollution is a local and national problem. Long-term exposure reduces life expectancy by increasing mortality, as well as increasing morbidity risks from heart disease and strokes, respiratory diseases, lung cancer and other effects.

What we know is that poor air quality in Wales poses a significant concern for Public Health and is regarded as the most significant environmental determinant of health. Its associated adverse risk to public health is particularly prevalent within urban areas and near major roads. The pollutants of concern for public health are particulate matter (PM_{10}, $PM_{2.5}$) and primary/ secondary derived nitrogen dioxide (NO_2). Both pollutants primarily originate from motor vehicles. Particulate matter can also be generated by industrial sources and forms of domestic solid fuel burning, such as wood burning stoves.

The UK expert Committee on the Medical Effects of Air Pollution (COMEAP) estimated that air pollution is responsible for "an effect equivalent of between 28,000 and 36,000 deaths (at typical ages) each year" in the UK. In 2022, the UK Health Security Agency updated this estimate; the burden range is now reported as the equivalent of between 29,000 and 43,000 deaths per year[1].

The burden range does not reflect 'actual' deaths from air pollution exposure but is an estimate of the 'equivalent' reduced life expectancy, when summed, which everyone experiences because of air pollution exposure (6-8 months on average but could range from days to years).

In Wales – based on modelled air pollution data pre-pandemic – Public Health Wales estimated the burden of long-term air pollution exposure to be around the equivalent of 1,000 to 1,400 deaths each year[2]. This estimate was calculated using a more accurate method that considers the combined effects of different pollutants, meaning that the overlapping effects of $PM_{2.5}$ and NO_2 are accounted for. Impact estimates are uncertain, however, which

[1] https://airquality.gov.wales/about-air-quality/health-advice

[2] https://phw.nhs.wales/services-and-teams/environmental-public-health/air-quality/air-pollution-and-health-fact-sheet/

is why they should always be presented as a range of values, rather than a single, central estimate.

Although estimating the burden of air pollution is difficult, there is clear and strong evidence that it does harm health. It is therefore important to take action to reduce air pollution and the harms that go with it.

Air Quality in the Vale of Glamorgan

Air pollution concentrations continue to meet the relevant Air Quality Objective limits within the Vale of Glamorgan.

The Vale of Glamorgan Council undertook non- automatic (passive) diffusion tube monitoring of NO_2 at 41 sites during 2024. A number of diffusion tubes were removed from the network in 2024 due to continued compliance well within the legal annual objective limit for NO_2 of 40µg/m^3, and concentrations within the World Health Organisation Guideline (WHO) limit of 10µg/m^3[3]. These locations were in the St Brides Major, Llantwit Major and rural areas of the Vale of Glamorgan which have displayed a continued improvement in air quality concentrations.

For existing monitoring sites, from the period of 2020 to 2024 annual average roadside NO_2 concentrations have decreased by 15% from 18µg/m^3 to 15.3µg/m^3. A decrease of 6.5% from 17.2µg/m^3 to 15.3µg/m^3 in annual average roadside NO_2 concentrations is also evident between 2023 and 2024. This displays an overall improving trend in NO_2 concentrations.

The highest concentration of monitored NO_2 is at diffusion tube site 79, located on the A4160 in Cogan. At a total of 26.7µg/m^3, the concentration of NO_2 at this site is still well within the annual objective limit of 40µg/m^3. However, this is a kerbside site and not representative of relevant exposure with regard to the annual objective limit.

From September 2024, monitoring was also undertaken with indicative automatic sensors at 3 locations in the Vale of Glamorgan. Results from this monitoring indicate NO_2 and PM_{10} concentrations within the annual and short-term objective limits.

[3] WHO global air quality guidelines: particulate matter (PM2.5 and PM10), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide

When assessing the data captured from the indicative automatic sensors in Dinas Powys, Barry and Cowbridge for 2024, there were a small number of pollution episodes and exceedances in the short-term objective limit of >50µg/m^3 for PM_{10} during bonfire night on the 5th of November and the surrounding dates. These exceedances were still within the short-term objective limit of 50µg/m^3 not to be exceeded more than 35 times a year. Meteorological conditions during this period may have prevented effective dispersion of particulate matter generated by fireworks and associated activities.

Actions to Improve Air Quality

In 2024, Vortex indicative automatic monitoring sensors were installed at three locations within the Vale of Glamorgan, in Cardiff Road, Dinas Powys, Dock View Road, Barry and Cardiff Road, Cowbridge. These sensors monitor NO_2, particulate matter (PM_{10} and $PM_{2.5}$).

These sensors were funded by the Welsh Government Local Air Quality Management (LAQM) support fund and will be in place until September 2026.

Figure 1 - Vortex Automatic Sensors

Dinas Powys and Cowbridge sensor sites were selected based on roadside NO_2 diffusion tube results and will allow a better understanding of the diurnal and temporal impacts on air quality from vehicular emissions. The Barry site was chosen to replace an existing indicative sensor which measures air quality impacts from nearby industrial processes. The sensors allow indicative screening assessments to be undertaken for pollutants.

Project Zero

The Vale of Glamorgan Council continues to support measures to reduce emissions as part of Project Zero[4], it's strategy to achieve net zero by 2030. Projects designed to reduce carbon emissions can have a positive effect on air quality and its related human health impacts.

Figure 2 - Project Zero Logo

Planning and Sustainable Development

All relevant planning applications are required to be accompanied by a travel plan to promote sustainable travel choices and prevent unnecessary car use. Since March 2019 at least 10% of car parking spaces on non-residential developments are required to have electric vehicle charging points infrastructure.

Carbon Net Zero Resurfacing Trial

In September 2024, our Highways Maintenance Team worked with Miles Macadam to resurface Skomer Road in Barry with net-zero road material. This is part of a trial to introduce long-term, sustainable highway maintenance programmes into the Vale of Glamorgan. The road was resurfaced using with Biopave™, a unique surfacing system designed to capture carbon within the road surface and prevent its release into the atmosphere. Biopave™ has provided the Council and local residents with a durable, sustainable surface which will significantly reduce the environmental impact of road construction and maintenance. The project also used Welsh steel slag aggregate, which greatly lowered the carbon footprint by eliminating the need to mine new materials.

[4] https://www.valeofglamorgan.gov.uk/en/living/Climate-Change/Project-Zero.aspx

Energy

The Council purchases 100% of electricity from renewable sources and has granted planning permission to a number of solar farms.

We have undertaken over 100 energy saving projects across council buildings including switching old inefficient lighting to LED lighting and the introduction of better energy controls.

Through 2023 - 2024 our Property team delivered energy efficiency and renewable energy projects to three community buildings, funded by the Assets Collaboration Programme Wales (ACPW3). The selected sites were, St Francis Millenium Centre in Barry, Rhoose Community Centre, and the CF61 centre in Llantwit Major. All three buildings benefited from new insulation on heating pipework and new smart boiler controls, enabling heating to be controlled remotely.

Further electricity savings will be made by using free solar generated electricity, with new PV arrays and battery storage installed in all three centres.

Electric Vehicles

The Council introduced its first fleet of electric vehicles in 2022 and plans to replace diesel-powered vehicles across its service areas. 12 new Hyundai Kona electric vehicles have replaced a number of diesel-powered pool cars. With over 4000 miles on each vehicle, the new EV cars have reduced the Council's CO_2 emissions by an estimated 13,554kg so far. They will continue to significantly reduce carbon emissions as 2030 draws nearer. Each Kona EV vehicle can travel up to 300 miles on a single charge and can be recharged in just one hour using a rapid charge point. With further plans to replace Council fleet vehicles with electric-powered alternatives, the Council has recently acquired a number of electric vans which are now in use. The vehicles are maintained by the Council's in-house Transport Services team in partnership with Clenergy EV, who monitor the EV charging stations at the Civic Offices in Barry and The Alps Depot in Wenvoe.

To support residents and visitors to the Vale who have made the switch to electric vehicles, a number of EV charging stations have been installed in public spaces across the County and are now available for public use

Beach Bus Service

With funding from Section 106 developer sustainable transport funding, we worked with First Cymru to offer free travel on the 303 Beach Bus service during the summer of 2024.

This was part of our Project Zero initiative to lower the number of vehicles using the roadways during peak times during the summer months.

The free bus route encouraged local residents and visitors to use public transport to enjoy the beaches during the summer. The route started at Llantwit Major and went via Southerndown, Ogmore-by-Sea and Bridgend.

Active Travel

In 2024, the new Eglwys Brewis Active Travel route linking Cowbridge Road, St Athan and the Northern Access Road opened. Funded by a Welsh Government Active Travel Grant, these improvements are designed to support the health and well-being of communities and encourage active methods of travel across Wales.

During the development of the scheme, we took special care to ensure that we remain sympathetic to the needs of the existing wildlife. We have retained the existing treeline and maintained the same level of lighting so that bat populations and other wildlife will not be negatively impacted by the new changes.

To increase the biodiversity in the area, our Parks Team have also planted 26 local species of trees, 1800m^2 of grassland, 140m^2 of various bulb planting areas and 740m^2 of low-level planting and shrub areas.

Local Priorities and Challenges

As all areas remain in compliance with Air Quality Objectives, the priority for 2025 is to ensure pollutant concentrations continue a downward trend. This will be achieved by continuing to promote active travel, sustainable travel, and the use of public transport.

How to Get Involved

The Vale of Glamorgan Council welcomes any correspondence relating to air quality enquiries or concerns. Shared Regulatory Services (SRS) Specialist Services Team

represents the Vale of Glamorgan Council for air quality management and therefore is contactable via the webpage www.srs.wales/en/Home.aspx.

Further information including previous Annual Progress Reports for Air Quality can be found at the following link https://www.srs.wales/en/Environmental-Health/Noise-and-Air-Pollution/Air-quality-and-pollution/Air-Quality-and-Pollution.aspx

Table of Contents

Tables

Figures

1 Actions to Improve Air Quality

1.1 Previous Work in Relation to Air Quality

First Round of Review and Assessment

Between 1999 and 2001, the Vale of Glamorgan Council published reports corresponding to stages 1, 2 and 3 of the first round of review and assessment of air quality. These assessments predicted no exceedances of any of the objectives but concluded that monitoring should continue for nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and particulate matter (PM_{10}).

Second Round of Review and Assessment

Following new technical and policy guidance issued by Defra, the Vale published its first Updating and Screening Assessment (USA) in June 2003. The USA concluded that no nitrogen dioxide or (PM_{10}) exceedances were likely but that monitoring should continue. However, it was suggested that there was a requirement to continue to a Detailed Assessment for the 15- minute limit of SO_2 in Rhoose.

The Council proceeded to publish Progress Reports in 2004 and 2005, which identified exceedances of the 15-minute SO_2 objectives in Rhoose. The Council therefore proceeded to publish a Detailed Assessment in 2005 which concluded that there was no need to declare an AQMA but to continue monitoring.

Third Round of Review and Assessment

The published its second USA in June 2006, which again concluded that there was no requirement to go onto the detailed stage. However, the USA did note that NO_2 concentrations were close to the limit at Penarth due to road works and recommend that a Detailed Assessment to be carried out if there was no change.

The Council published Progress Reports in 2007 and 2008, which identified that nitrogen dioxide concentrations continued to be close to the limit value at Penarth. A Detailed Assessment was recommended.

The Detailed Assessment of NO_2 in the Penarth area was published in June 2009. It concluded that there were no exceedances of either NO_2 limit but recommended continued monitoring.

Fourth Round of Review and Assessment

The Council published it third USA in June 2009. Nitrogen Dioxide, Sulphur Dioxide and Particulate Matter (PM_{10}) were being monitored in the area by both the Vale and RWENpower. There were no recorded nitrogen dioxide exceedances however; annual mean concentrations at Windsor Road in Penarth were close to the limit. There were no exceedances of SO_2 15-minute or 24-hour means. There were 6 exceedances of the PM_{10} daily mean concentration and no exceedances of the PM_{10} annual mean objective.

The 2010 Progress Report concluded that there were no exceedances of the relevant standards for any of the pollutants measured and that there was no need to proceed to a Detailed Assessment. The 2011 Progress Report concluded that there were no exceedances of the NO_2 or SO_2 objectives; however, NO_2 concentrations remain close to objectives in some places. Several exceedances of the 24-hour mean for PM_{10} were recorded in Fonmon and Penarth but remained within the permitted 35 exceedances per annum.

Fifth Round of Review and Assessment

The Vale of Glamorgan Council published its fourth USA in April 2012, which again concluded that some locations continued to be at or close to the annual mean NO_2 concentrations. Appendix D of the report contained a Detailed Assessment of the air quality in Cogan.

The Detailed Assessment identified several locations on Windsor Road in Penarth, where the annual mean NO_2 objective was likely to be exceeded and that no exceedances of the 1-hour mean were likely. It was therefore recommended that an Air Quality Management Area (AQMA) be declared to include, as a minimum the residential properties with concentrations ≥36 µg/m3. It was also recommended that the monitoring network be extended to include locations at the façade of properties on Windsor Road, the results of which could be used to inform a further assessment.

The 2013 Progress Report recommended that; diffusion tubes with consistently low, compliant concentrations, be re-deployed in new locations; additional tubes be placed at locations where the NO_2 concentrations are consistently close to the annual mean objective with relevant exposure; Penarth's automatic monitor be relocated to within the proposed AQMA; and that the indicative PM_{10} monitor be replaced with a gravimetric equivalence monitor.

The 2014 Progress Report concluded that there was no need to proceed to a Detailed Assessment for any of the pollutants monitored. An AQMA was declared on 1st August 2013 for a section of Windsor Road, Penarth with respect to the annual mean objective NO_2. NO_2 concentrations were high due to congested traffic moving through a partial 'street canyon' with residential exposure along the western flank.

Sixth Round of Review and Assessment

The Council published its fifth USA in May 2015 which confirmed that air quality within the Vale of Glamorgan continued to meet the relevant air quality objectives, including within the existing Air Quality Management Area (Windsor Road, Penarth). 2015's USA also highlighted the need for further investigations with regards to three biomass boiler installations.

The 2016 Annual Progress Report

The 2016 APR confirmed that air quality within the Vale of Glamorgan continued to meet the relevant air quality objectives, including within the existing Air Quality Management Area (Windsor Road, Penarth). It was highlighted that it would be decided following the examination of the 2016 dataset whether to revoke the Windsor Road, Penarth AQMA. Three biomass boiler installations were investigated, and it was ascertained that emissions would not breach targeted emission thresholds.

The 2017 Annual Progress Report

The 2017 APR confirmed that air quality within the Vale of Glamorgan continued to meet the relevant air quality objectives, including within the existing Air Quality Management Area (AQMA) on Windsor Road, Penarth.

Following a review of the 2016 NO_2 diffusion tube network, it was agreed to assign and relocate new monitoring locations. The new locations have been allocated based on known areas of particularly elevated traffic flows and foreseeable development, all with nearby relevant exposure. These newly monitored areas for 2017 are Llantwit Major, Gileston, St Athan, Rhoose (Fonmon), Barry Docks and Saint Brides Major.

The 2018 Annual Progress Report

The 2018 APR confirmed that air quality within the Vale of Glamorgan continued to meet the relevant air quality objectives, including within the existing Air Quality Management Area (AQMA) on Windsor Road, Penarth.

The 2019 Annual Progress Report

The 2019 APR confirmed that air quality within the Vale of Glamorgan continued to meet the relevant air quality objectives, including within the existing Air Quality Management Area (AQMA) on Windsor Road, Penarth. It was made a priority that the decision to revoke the Windsor Road, Cogan, Penarth AQMA was supported by a detailed assessment and a public consultation was undertaken to review the supporting assessment prior to submission to Welsh Government to formalise the revocation of the AQMA Order.

The 2020 Annual Progress Report

The 2020 APR confirmed that air quality within the Vale of Glamorgan continued to meet the relevant air quality objectives, including within the existing Air Quality Management Area (AQMA) on Windsor Road, Penarth. The revocation order for the Windsor Road, Cogan, Penarth AQMA came into force on 1st January 2021.

The 2021 Annual Progress Report

The 2021 APR confirmed that air quality within the Vale of Glamorgan continued to meet the relevant air quality objectives. The Covid-19 pandemic and associated restrictions had a considerable impact on air quality during the period of 2020. In 2020 an average reduction of 19% in NO_2 annual mean concentrations was experienced at all roadside diffusion tube monitoring sites relative to 2019. The automatic monitor located at Windsor Road; Penarth showed a reduction in NO_2 daily mean concentrations of 41% for the months of April to June

2020 relative to the previous months of January to March 2020. A total reduction of 22% in NO_2 annual mean concentration was also experienced at Windsor Road, Penarth monitoring station compared to 2019.

The 2022 and 2023 Annual Progress Reports

APRs published in 2022 and 2023 confirmed that air quality within the Vale of Glamorgan continued to meet the relevant air quality objectives. Measured air pollutant concentrations remain lower than pre-pandemic levels at most monitoring locations.

The 2024 Annual Progress Report

The 2024 APR confirmed that there were no breaches in the NO_2 annual objective limit at any monitoring site in the Vale of Glamorgan. The highest concentration of monitored NO_2 is at diffusion tube site 79, in Cogan. However, this is a kerbside site and not representative of relevant exposure related to the annual objective for NO_2. The Vale of Glamorgan Council undertook non- automatic (passive) monitoring of NO_2 at 52 sites during 2023. From the period of 2019 to 2023, annual average roadside NO_2 concentrations have decreased by 21.4% from 20.1µg/m3 to 15.8µg/m3. A decrease of 6.5% from 16.9µg/m3 to 15.8µg/m3 in annual average roadside NO_2 concentrations evident between 2022 and 2023. This shows an overall improving trend in NO_2 concentrations.

1.2 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when air quality is close to or above an acceptable level of pollution (known as the air quality objective (Please see Appendix A)). After declaring an AQMA the authority must prepare an Air Quality Action Plan (AQAP) within 18 months setting out measures it intends to put in place to improve air quality to at least the air quality objectives, if not even better. AQMA(s) are seen by local authorities as the focal points to channel resources into the most pressing areas of pollution as a priority.

The Vale of Glamorgan currently does not have any AQMAs.

2 Air Quality Monitoring Data and Comparison with Air Quality Objectives

2.1 Summary of Monitoring Undertaken in 2024

2.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how results compare with the objectives.

The Vale of Glamorgan Council undertook automatic (continuous) monitoring at 3 sites during 2024. The sensors were installed in September 2024. Table 1 presents the details of the sites. These sensors are indicative and provide data to enable a screening assessment of air quality to be undertaken.

Maps showing the location of the monitoring sites are provided in Figure 3 to Figure 5 Further details on how the monitors are calibrated are included in Appendix C.

2.1.2 Non-Automating Monitoring Sites

The Vale of Glamorgan Council undertook non- automatic (passive) monitoring of NO_2 at 41 sites during 2024. Table 2 presents the details of the sites.

Maps showing the location of the monitoring sites are provided in Figure 6 to Figure 18. Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

Table 1 - Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA ?	Which AQMA ? (1)	Monitoring Technique	Distance from monitor to nearest relevant exposure (m) (2)	Distance from Kerb to Monitor (m)	Inlet Height (m)	Distance from Kerb to Nearest Relevant Exposure (m)
SN-2044	Cardiff Road, Dinas Powys	Roadside	316444	171949	NO_2, PM_{10}, $PM_{2.5}$, O_3	No	N/A	Electrochemical / Optical particle sensor	0	1.5	3.0	1.5
SN-2056	Dock-view Road Barry	Urban Industrial	312402	167948	NO_2, PM_{10}, $PM_{2.5}$, O_3	No	N/A	Electrochemical / Optical particle sensor	2	1.5	3.0	3.5
SN-2032	Cardiff Road, Cowbridge	Roadside	299939	174319	NO_2, PM_{10}, $PM_{2.5}$, O_3	No	N/A	Electrochemical / Optical particle sensor	4	1.5	3.0	5.5

Notes:

(1) N/A if not applicable

(2) 0m indicates that the sited monitor represents exposure and as such no distance calculation is required.

Figure 3 - Automatic Monitoring Site Dinas Powys

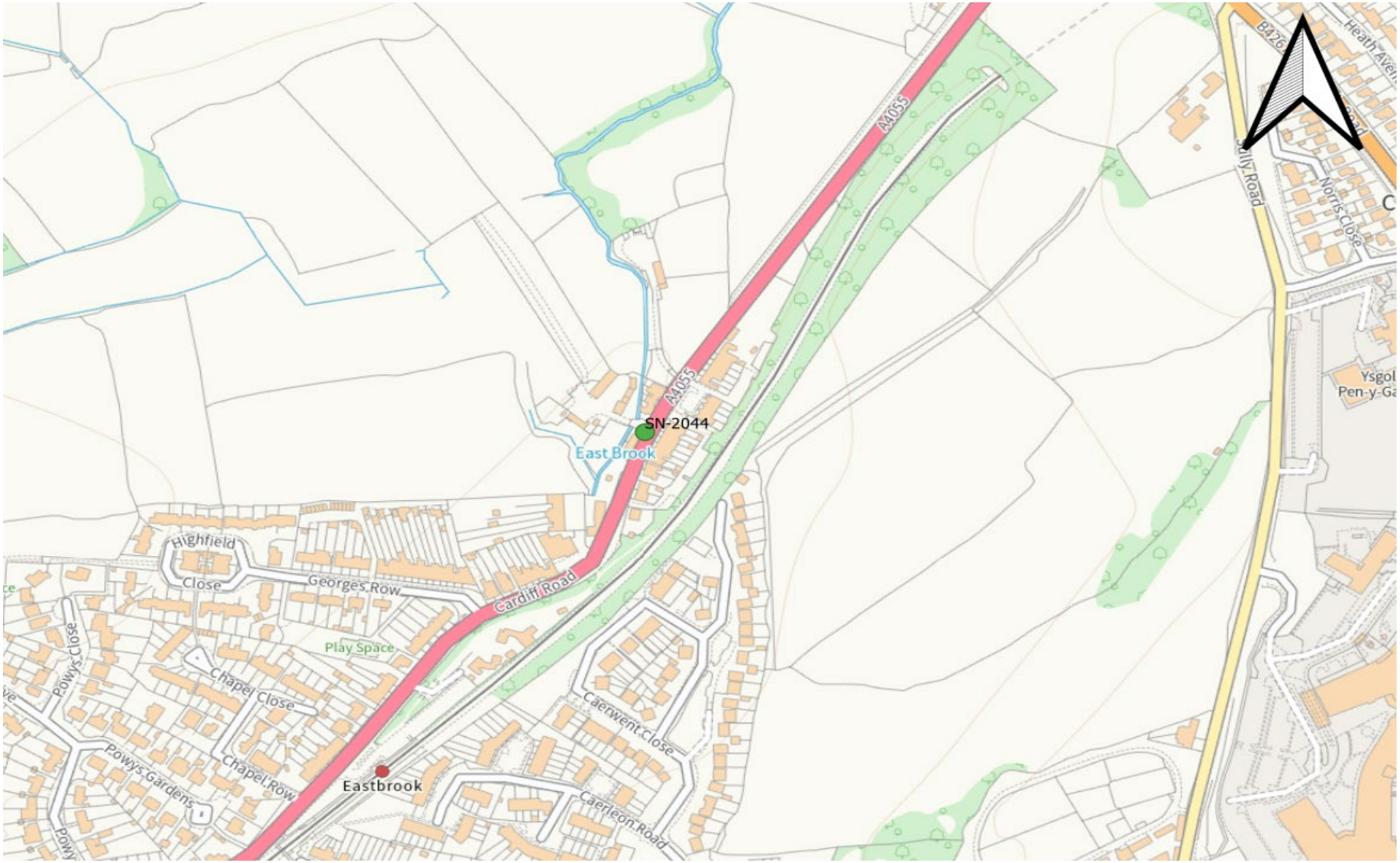


Figure 4 - Automatic Monitoring Site Barry

Figure 5 - Automatic Monitoring Site Cowbridge

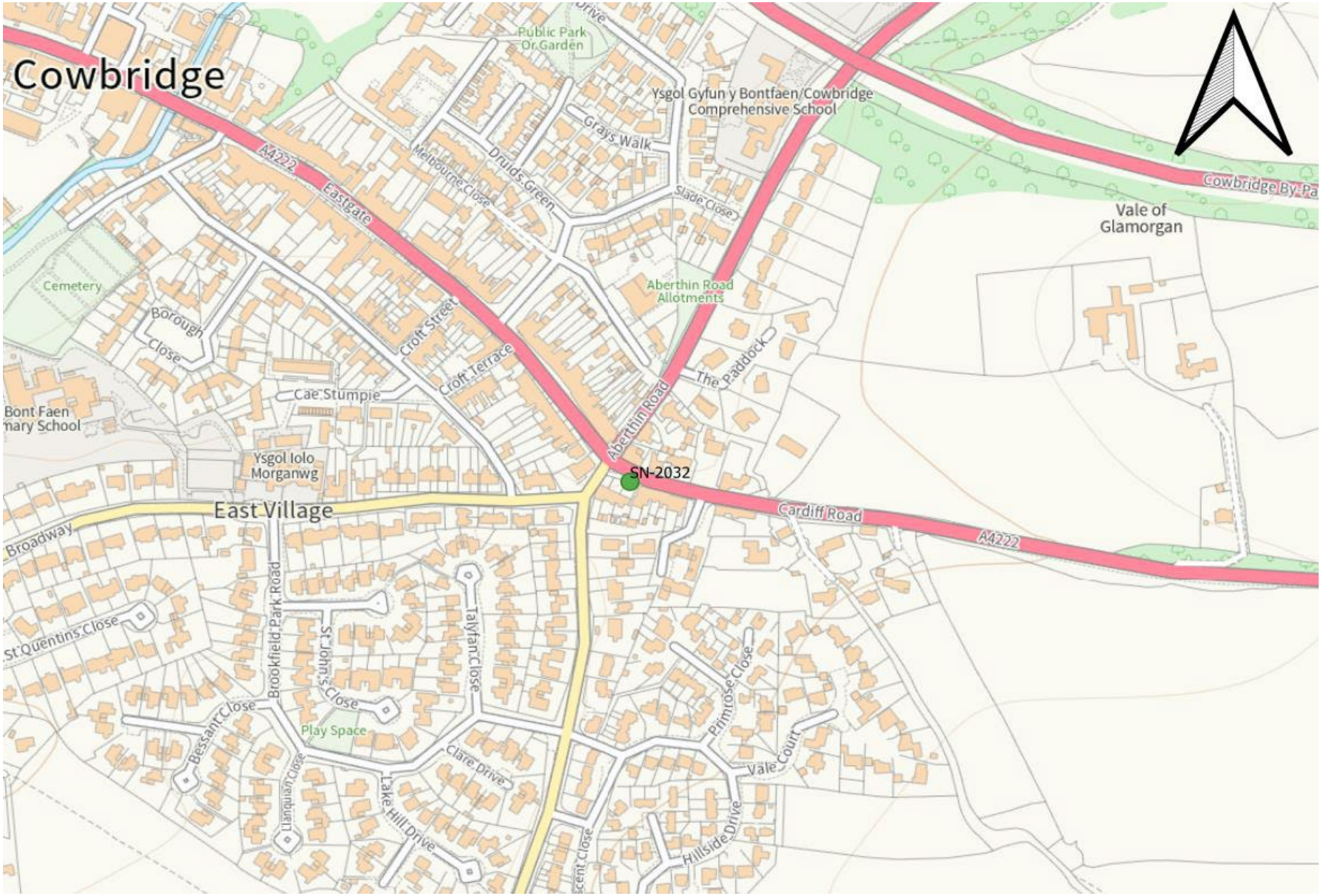


Table 2 - Details of Non-Automatic Monitoring Sites

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Height (m)
46	46 Cardiff Road, Dinas Powys	Roadside	315747	171369	NO_2	0.0	5.0	1.5
110	103 Cardiff Rd, Dinas Powys	Roadside	315846	171556	NO_2	0.0	6.5	1.5
72a	Dinas Powys Infant School	Roadside	315841	171527	NO_2	0.0	7.0	1.5
61	Railway Terrace, Dinas Powys	Roadside	316433	171932	NO_2	0.0	2.0	1.5
67	2 Matthew Terrace, Dinas Powys	Roadside	316488	172004	NO_2	0.0	2.5	1.5
92	9 Wayside Terrace, Dinas Powys	Roadside	316447	171963	NO_2	0.0	3.0	1.5
91	16 Railway Terrace, Dinas Powys	Roadside	316453	171945	NO_2	0.0	3.0	1.5
70	Ty Isaf, Penarth	Roadside	316731	172391	NO_2	0.0	2.0	1.5
121	Buttrills Road, Barry	Roadside	311270	168363	NO_2	2.5	0.5	1.5
123	Murch Road, Dinas Powys	Roadside	315803	171492	NO_2	4.0	1.0	1.5
112	Cogan Elizabeth Flats, Penarth	Roadside	317434	172729	NO_2	0.0	10.0	1.5
56	134 Andrew Road, Penarth	Roadside	316821	172428	NO_2	0.0	10.0	1.5
90	159 Windsor Road, Penarth	Roadside	317597	172433	NO_2	0.0	2.0	1.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Height (m)
53	160 Windsor Road, Penarth	Roadside	317589	172411	NO_2	0.0	5.0	1.5
62	154 Windsor Road, Penarth	Roadside	317633	172357	NO_2	0.0	2.0	1.5
55	134 Windsor Road, Penarth	Roadside	317668	172312	NO_2	0.0	3.5	1.5
74	114 Windsor Road, Penarth	Roadside	317708	172259	NO_2	0.0	2.5	1.5
141	141 Plassey St, Penarth	Roadside	317968	172105	NO_2	0.0	4.5	1.5
79	Snowdrop Cogan, Penarth	Kerbside	317549	172572	NO_2	2.5	1.0	1.5
113	03 Plassey street, Penarth	Roadside	317999	172067	NO_2	0.0	3.0	1.5
82	98B Windsor Road, Penarth	Roadside	318061	171944	NO_2	0.0	4.0	1.5
22	Stanwell Road, Penarth	Kerbside	318505	171496	NO_2	8.0	1.0	1.5
38	2 Horseshoes, Culverhouse Cross	Roadside	311892	174513	NO_2	0.0	6.0	1.5
8	Tynewydd Road, Barry	Roadside	311797	168503	NO_2	0.0	1.0	1.5
120	Cross Common Road, Dinas Powys	Roadside	315445	170577	NO_2	0.0	0.5	1.5
127	Red Lion A48, Bonvilston	Roadside	306644	174049	NO_2	0.0	4.0	1.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Height (m)
126	186 Colcott Road, Barry	Roadside	310879	169481	NO_2	0.0	12.0	1.5
119	Dock View Road, Barry	Kerbside	312405	167951	NO_2	2.5	1.0	1.5
66	17 Churchill Terrace, Barry	Roadside	313342	168823	NO_2	0.0	1.5	1.5
117	Riverside Place, Barry	Roadside	313612	168807	NO_2	0.0	1.0	1.5
102	53 Fford Y Mileniwm (Powell Dyffryn), Barry	Roadside	311115	167041	NO_2	0.0	1.0	1.5
115	Barry Road, Cadoxton	Roadside	312681	169051	NO_2	0.0	2.0	1.5
64	Holton Road, Barry	Roadside	311690	168042	NO_2	2.0	3.0	1.5
116	Ffod Y Mileniwm, Barry	Roadside	311666	167628	NO_2	0.0	5.0	1.5
108	4 Cardiff Road, Cowbridge	Roadside	299967	174311	NO_2	0.0	0.8	1.5
65	1 Riverside Mews	Roadside	299614	174592	NO_2	0.0	3.0	1.5
89	160 Windsor Road	Roadside	317627	172371	NO_2	0.0	2.5	1.5
104	Greengate Cottage	Roadside	289455	174664	NO_2	0.0	1.0	1.5
101	37 Westgate House	Roadside	298903	174907	NO_2	0.0	0.8	1.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Height (m)
128	Penarth Portway	Kerbside	318367	172342	NO_2	3.0	2.0	1.5
129	Penarth Esplanade	Kerbside	318864	171109	NO_2	3.0	5.0	1.5

Notes:

(1) 0m indicates that the sited monitor represents exposure and as such no distance calculation is required.

(2) N/A if not applicable.

Figure 6 - Map 1 of Non-Automatic NO_2 Diffusion Tube Sites in Barry

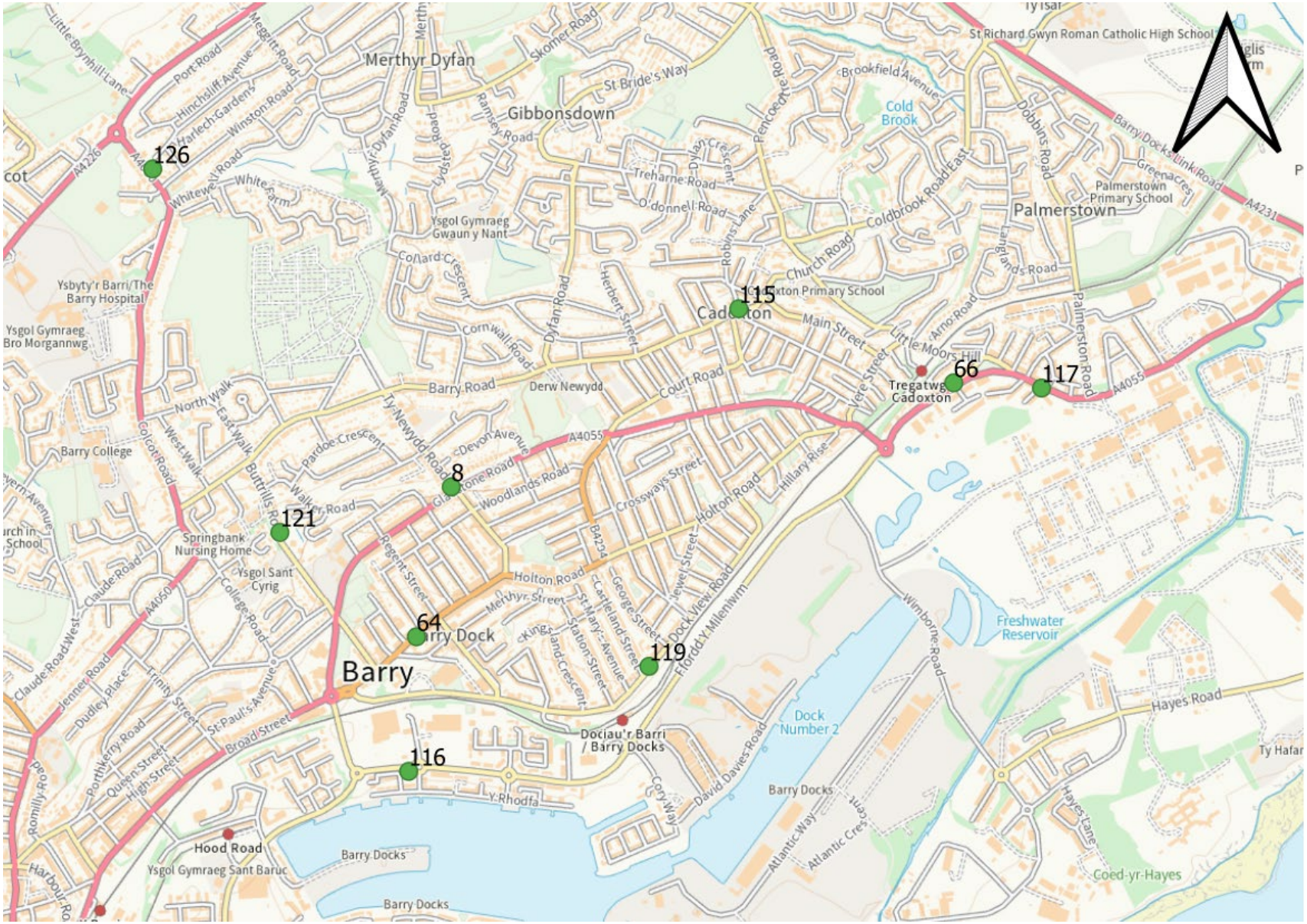


Figure 7 – Map 2 of Non-Automatic NO_2 Diffusion Tube Sites in Barry

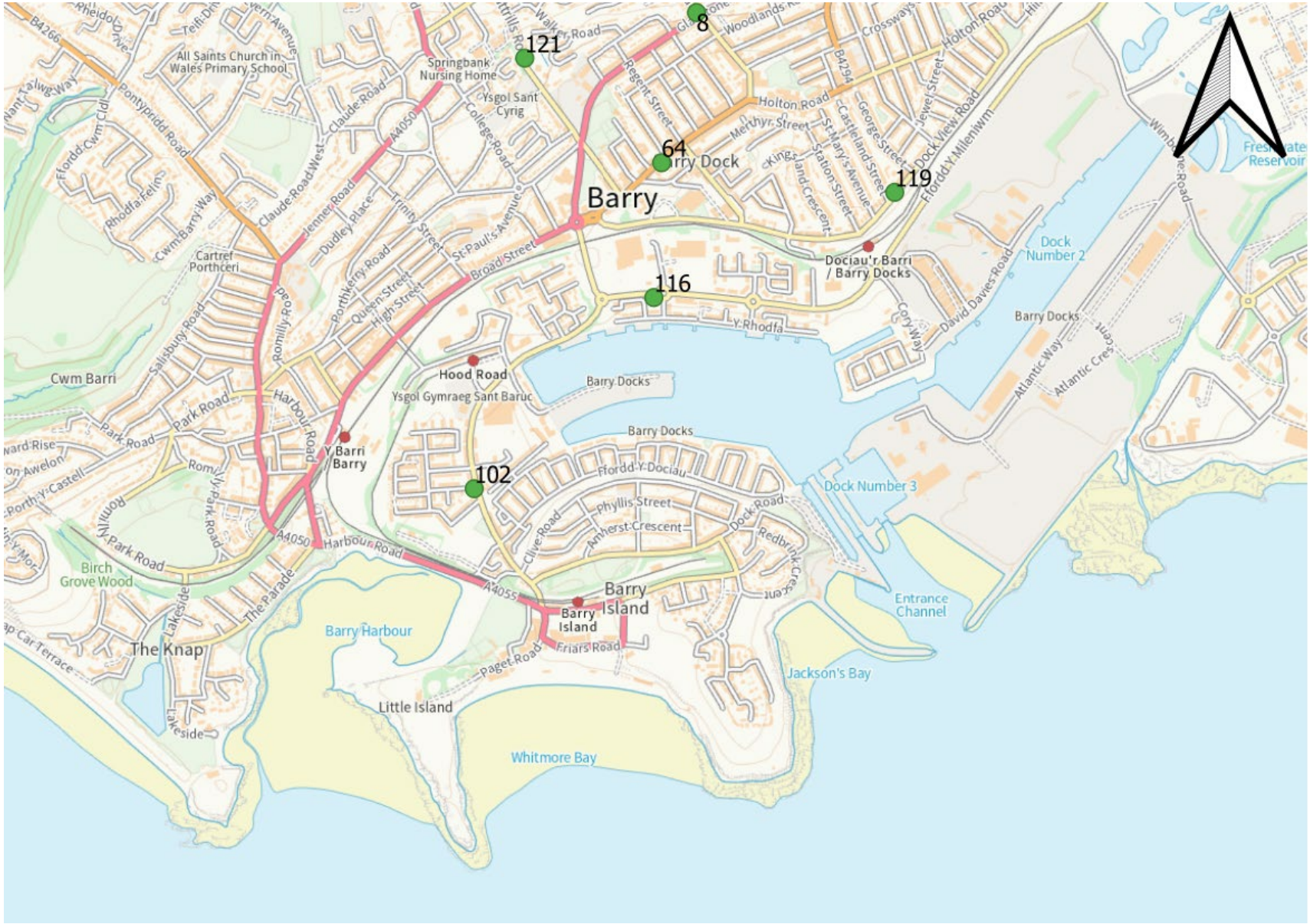


Figure 8 - Map 1 of Non-Automatic NO_2 Diffusion Tube Sites in Dinas Powys

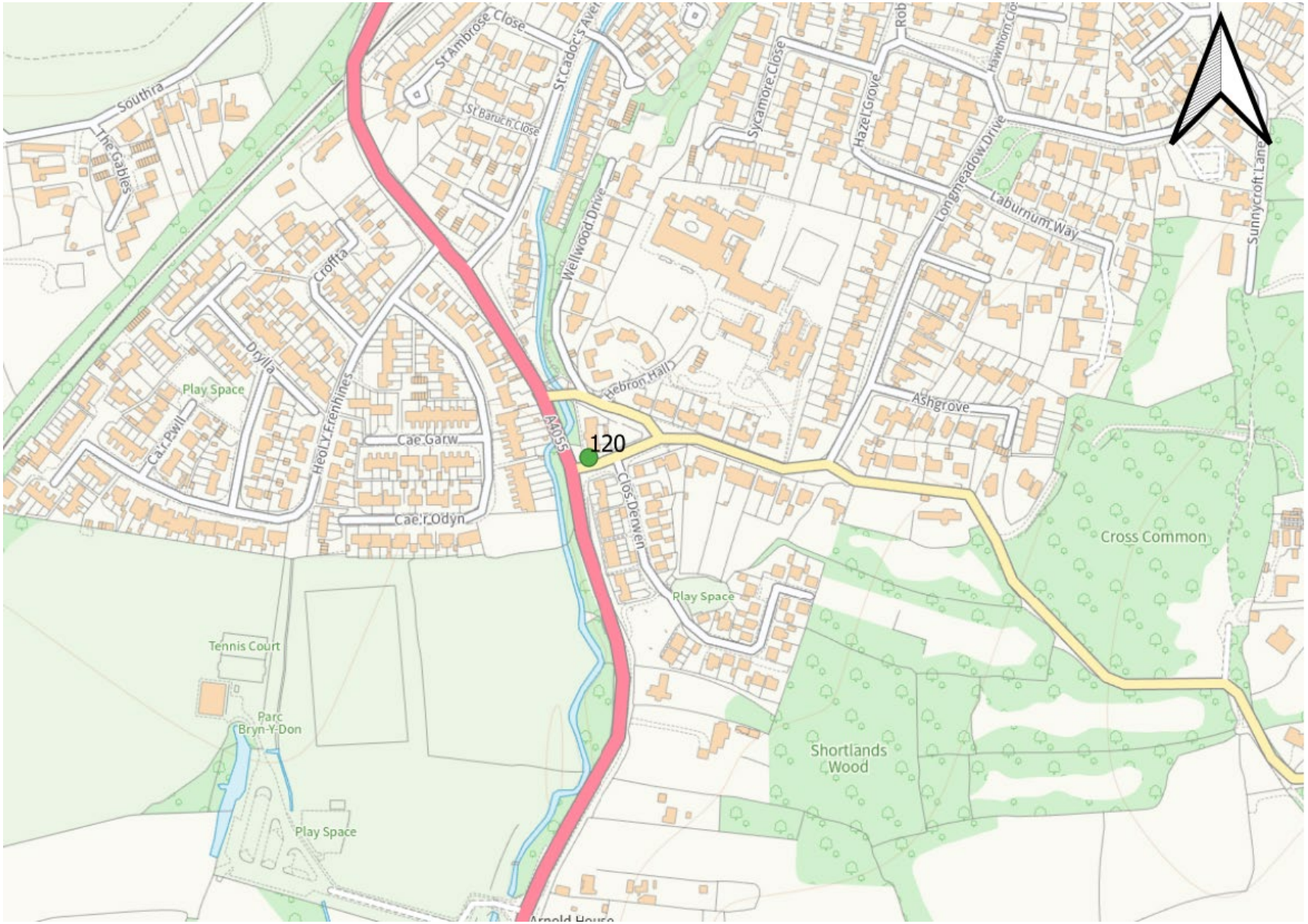


Figure 9 - Map 2 of Non-Automatic NO_2 Diffusion Tube Sites in Dinas Powys

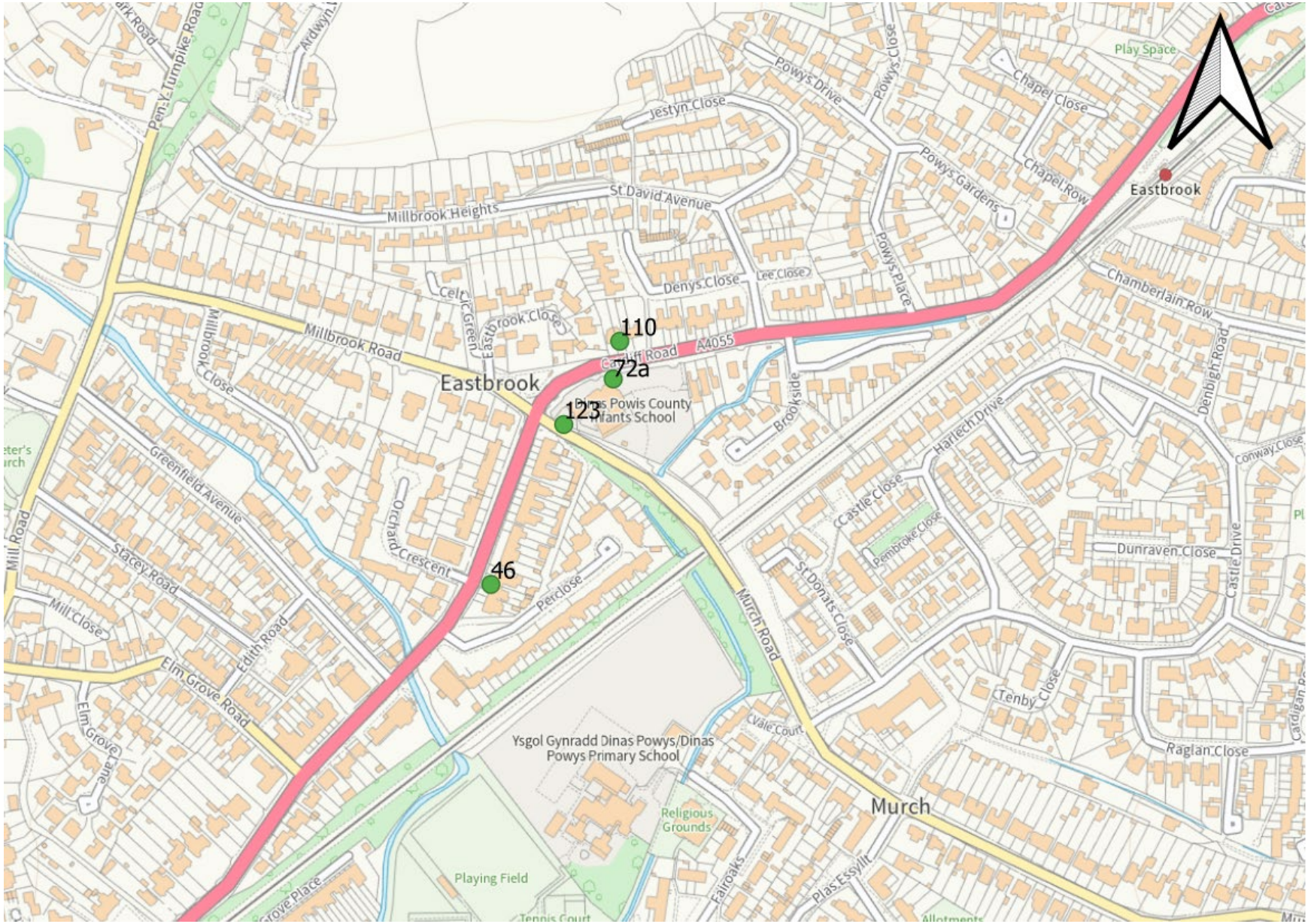


Figure 10 – Map 3 of Non-Automatic NO_2 Diffusion Tube Sites in Dinas Powys

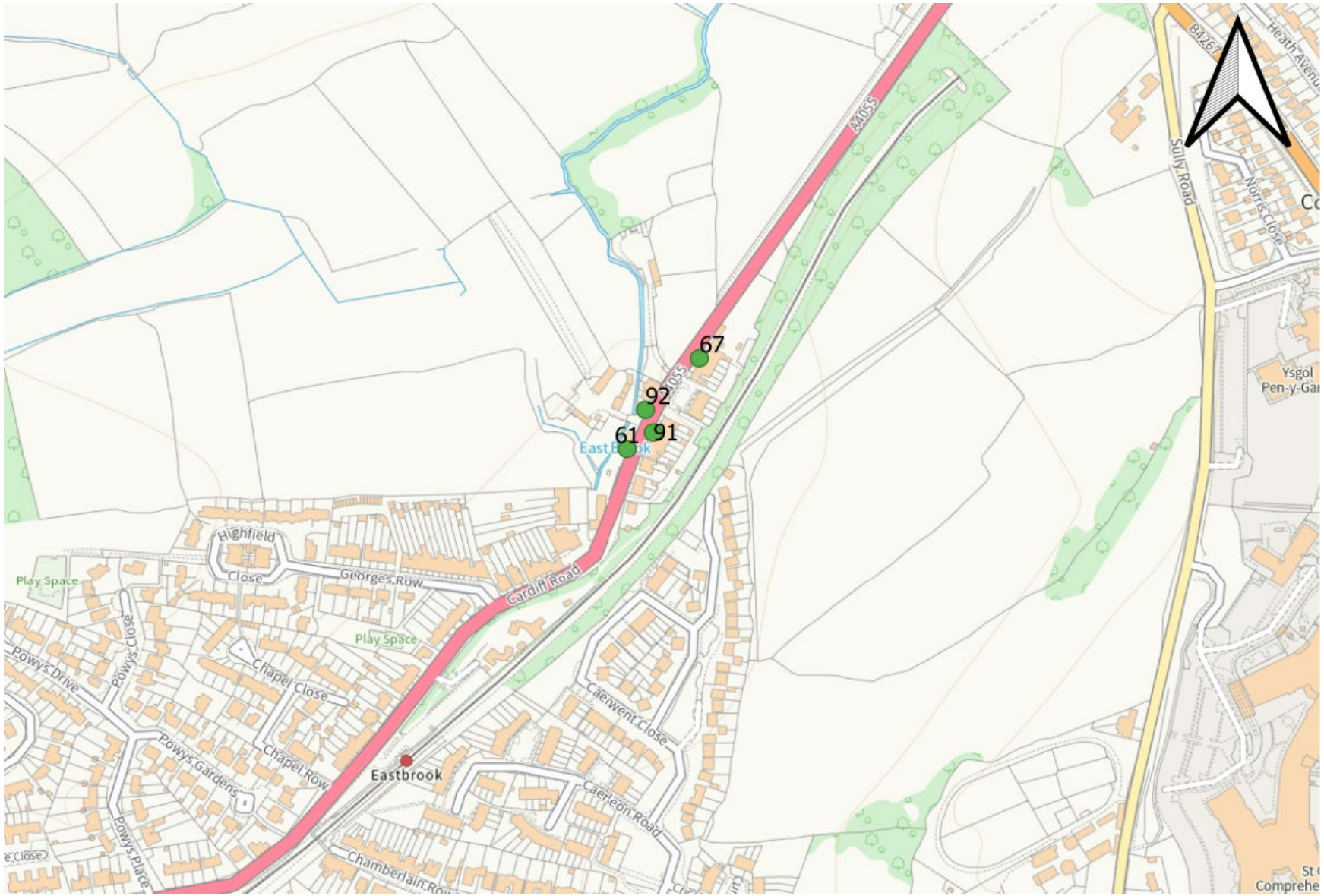


Figure 11 - Map 1 of Non-Automatic NO_2 Diffusion Tube Sites in Penarth

Figure 12 - Map 2 of Non-Automatic NO_2 Diffusion Tube Sites in Penarth

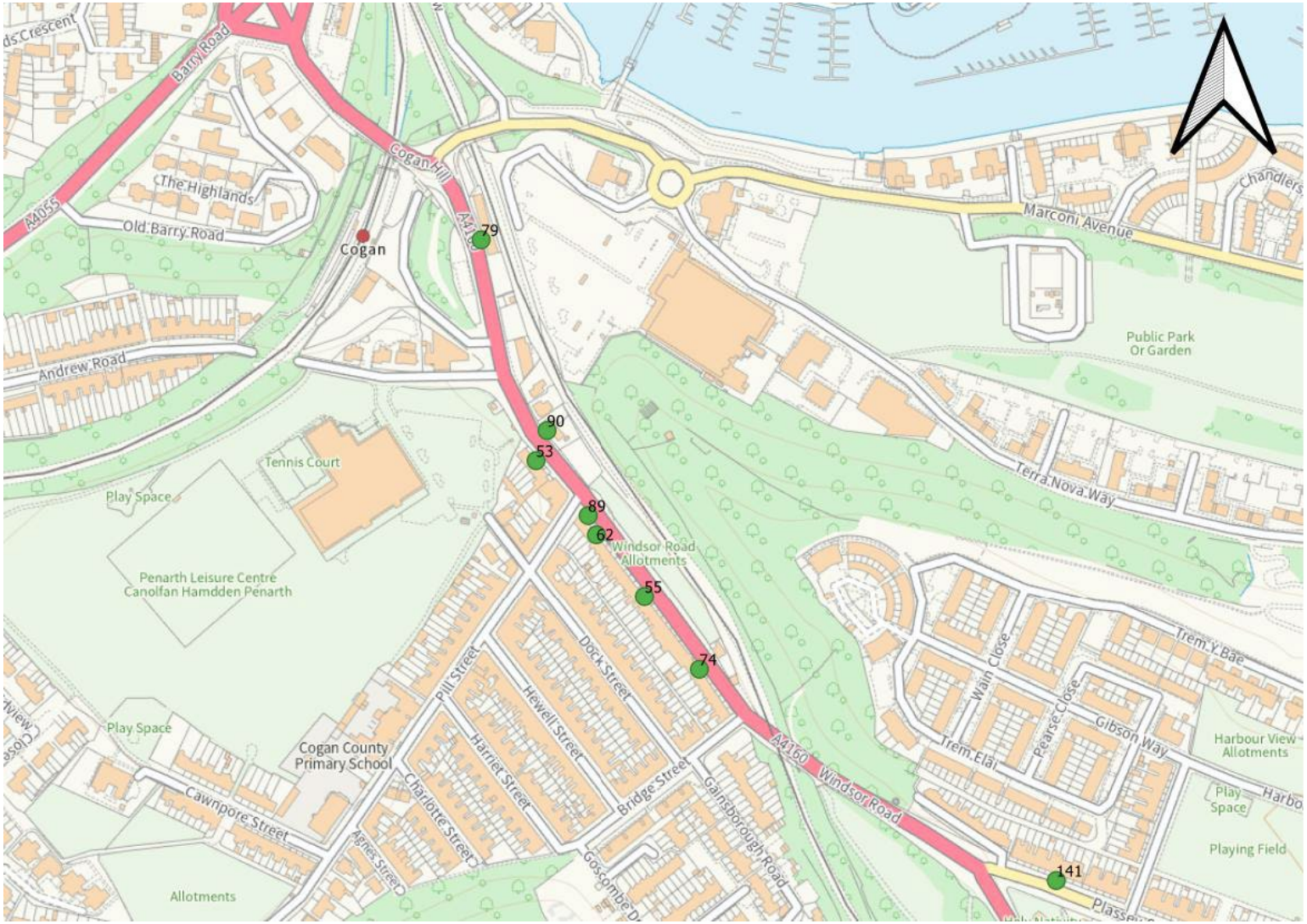


Figure 13 - Map 3 of Non-Automatic NO_2 Diffusion Tube Sites in Penarth

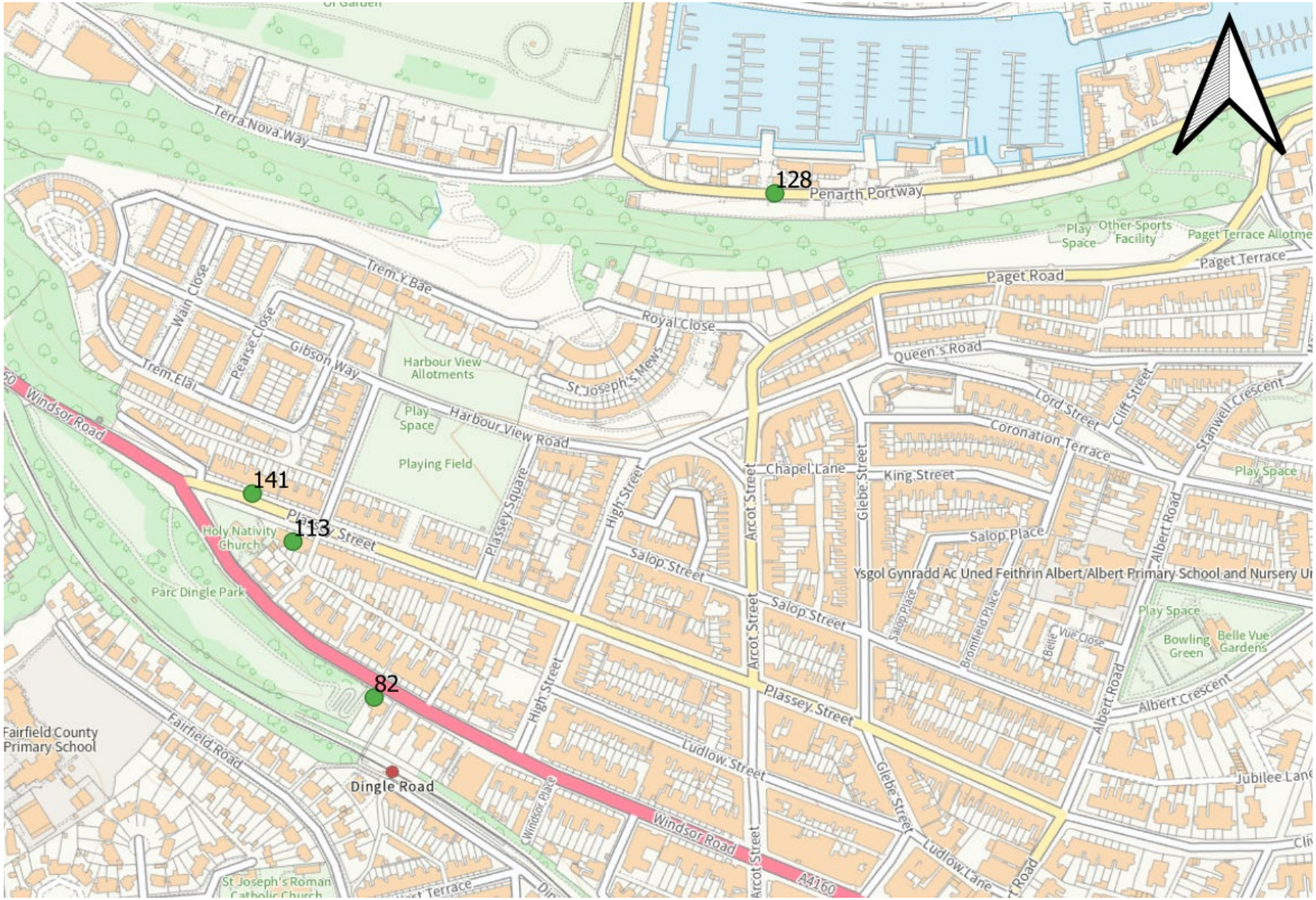


Figure 14 - Map 4 of Non-Automatic Diffusion tube sites in Penarth

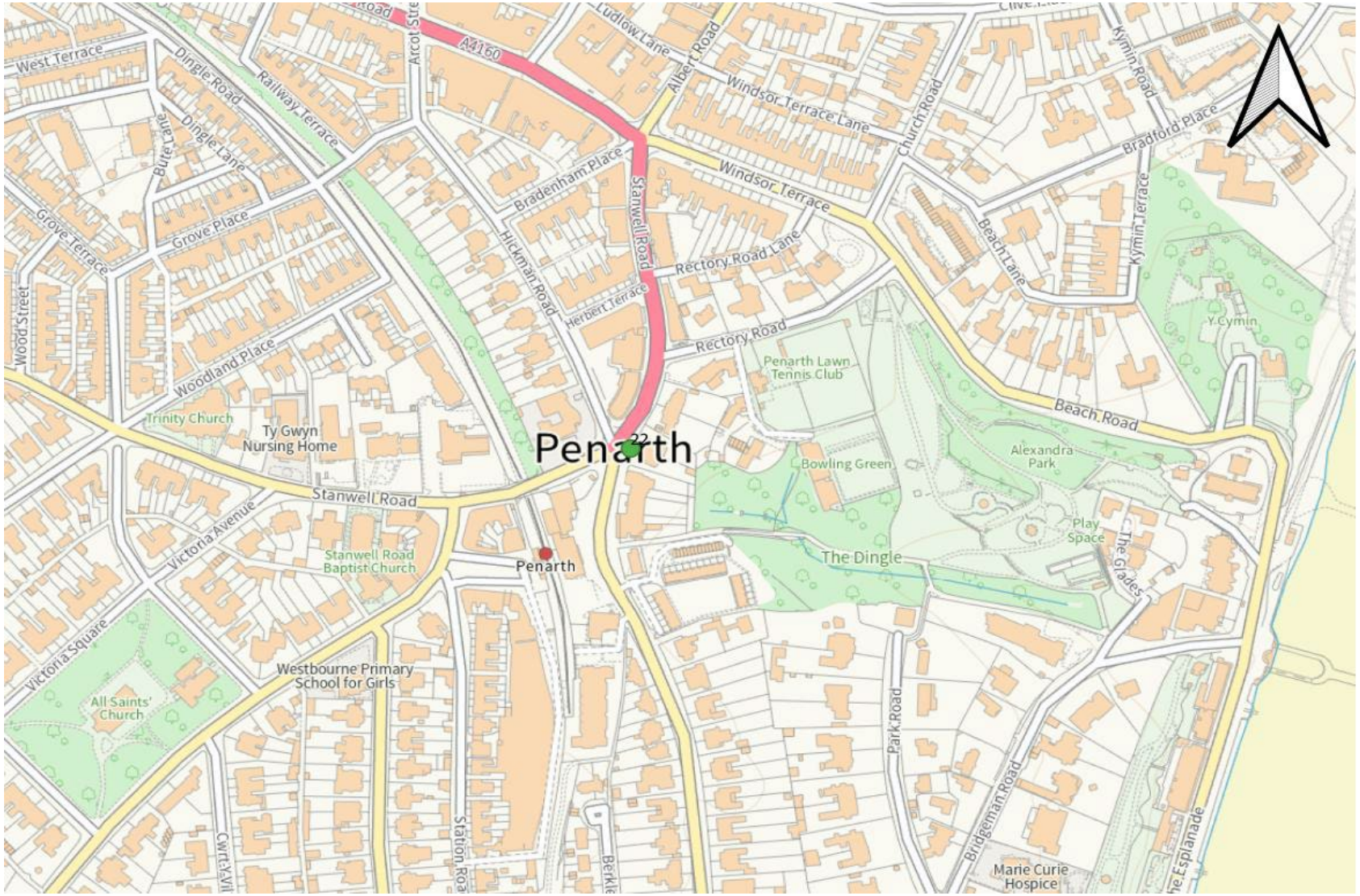


Figure 15 - Map of Non-Automatic NO_2 Diffusion Tube Sites in Culverhouse Cross

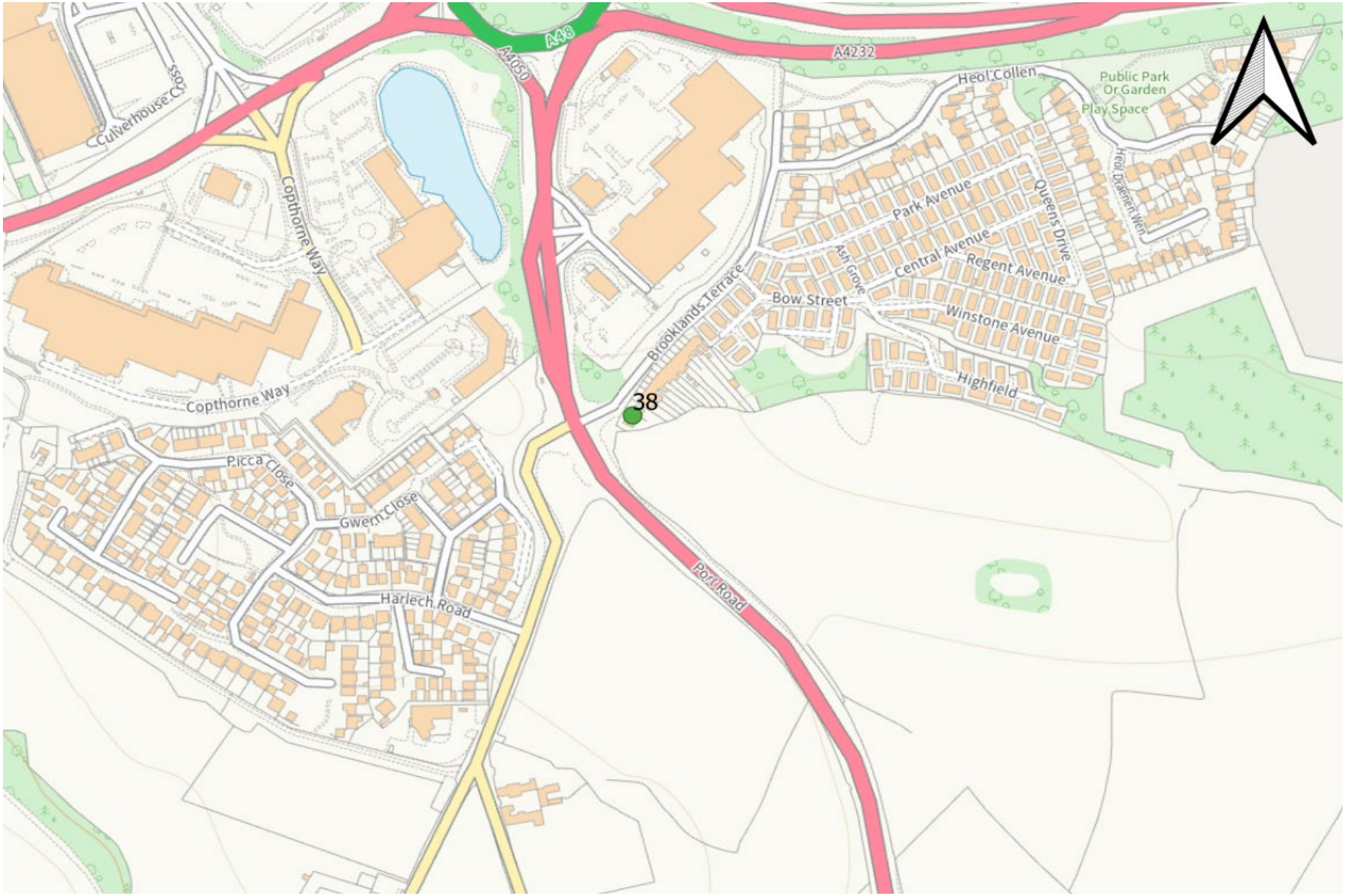


Figure 16 - Map of Non-Automatic NO_2 Diffusion Tube Sites in Bonvilston, A48

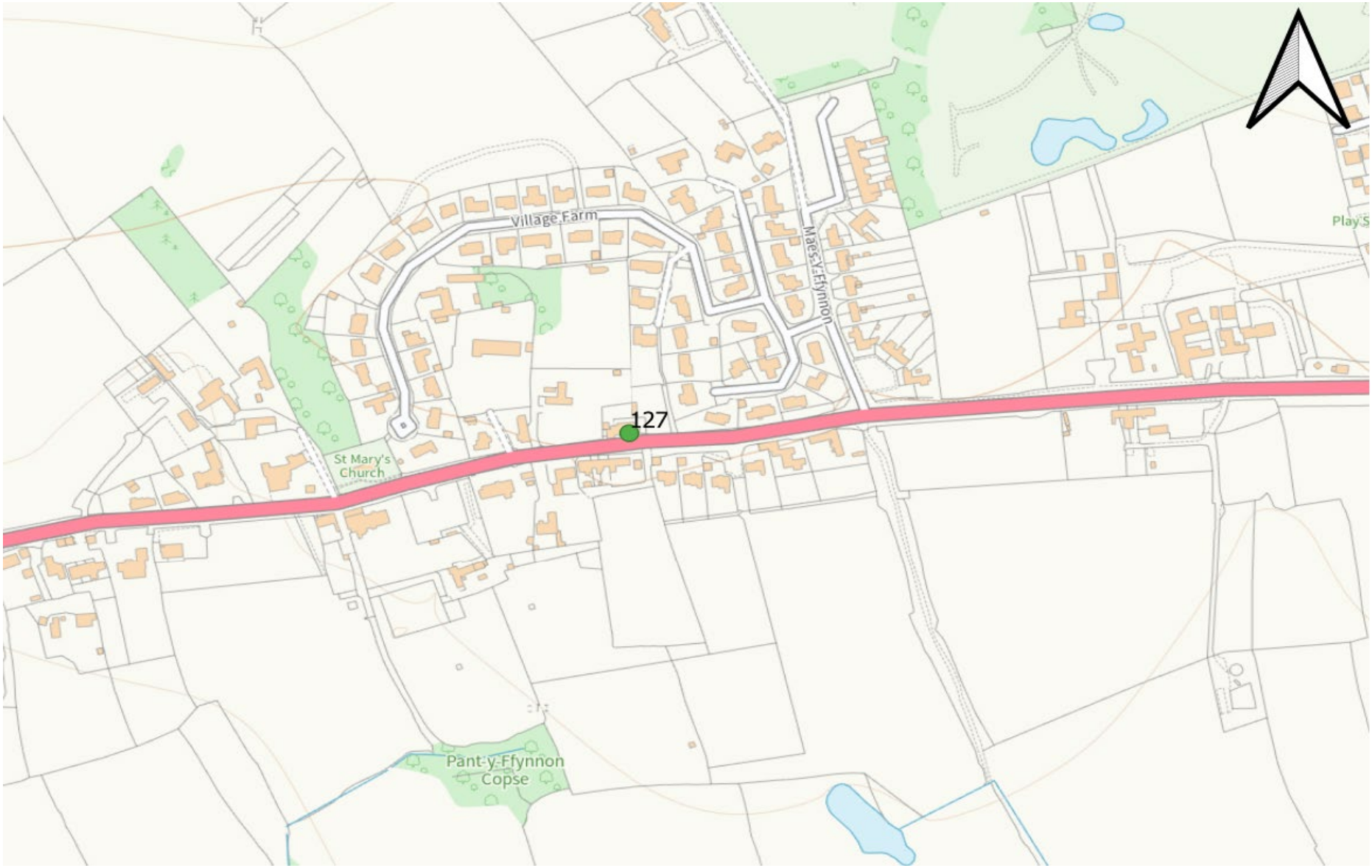
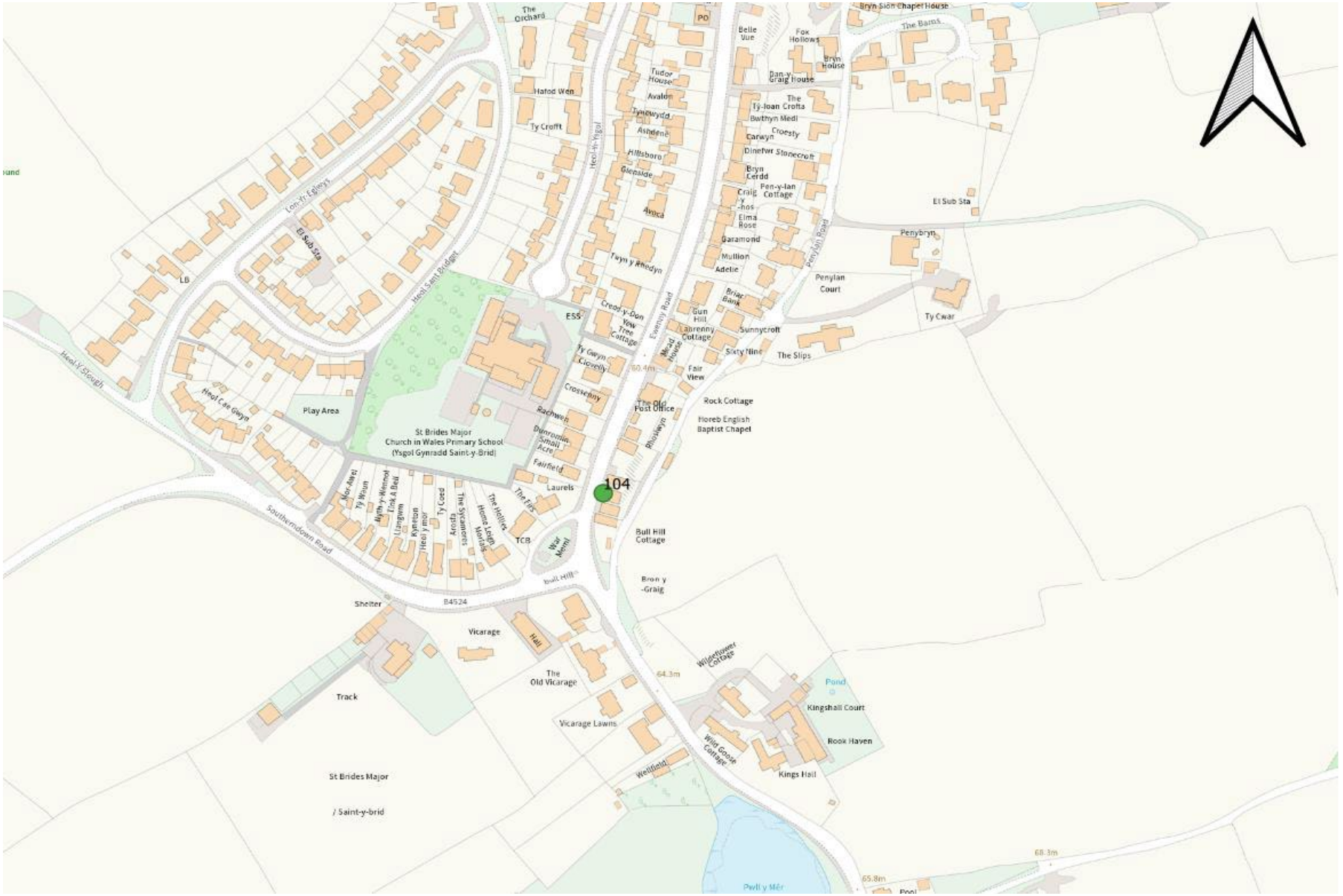


Figure 17 - Map of Non-Automatic NO_2 Diffusion Tube Sites in Cowbridge

Figure 18 - Map of Non-Automatic NO_2 Diffusion Tube Sites in Saint Brides Major



2.2 2024 Air Quality Monitoring Results

Table 3 – Indicative Sensors 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 2024 (%) (2)	2024
SN-2044	316444	171949	Roadside	100	28.4	10.3
SN-2056	312402	167948	Urban Industrial	100	30.7	11.1
SN-2032	299939	174319	Roadside	100	28.4	9.4

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.**

(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 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 2024 (%)	NO_2 Annual Mean Concentration (µg/m^3)				
					2020	2021	2022	2023	2024
46	315747	171369	Roadside	90	11.6	15.1	14.6	14.0	11.2
110	315846	171556	Roadside	100	16.8	18.2	17.5	18.7	14.3
72a	315841	171527	Roadside	100	15.1	14.1	14.3	14.6	13.4
61	316433	171932	Roadside	92	26.5	20.7	27.6	23.7	20.7
67	316488	172004	Roadside	82	18.1	20.7	19.4	19.9	13.5
92	316447	171963	Roadside	100	21.7	20.2	24.0	20.4	17.7
91	316453	171945	Roadside	100	15.8	23.8	17.1	16.8	12.7
70	316731	172391	Roadside	100	15.8	18.2	17.9	21.0	12.9
121	311270	168363	Roadside	86	-	22.4	23.3	24.4	19.8
123	315803	171492	Roadside	90	-	-	19.9	19.3	15.7
112	317434	172729	Roadside	100	15.9	17.4	17.4	16.7	14.6
56	316821	172428	Roadside	82	17.1	17.1	17.4	14.7	14.3

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture 2024 (%)	NO_2 Annual Mean Concentration (µg/m^3)				
					2020	2021	2022	2023	2024
90	317597	172433	Roadside	65	18.1	-	18.9	18.7	18.6
53	317589	172411	Roadside	83.	24.4	22.6	22.5	22.4	21.4
62	317633	172357	Roadside	100	22.2	24.5	24.4	22.1	20.8
55	317668	172312	Roadside	100	15.9	22.3	22.5	22.4	20.1
74	317708	172259	Roadside	100	27.5	21.1	20.7	20.9	17.4
100	317968	172105	Roadside	100	17.6	17.2	18.2	17.8	12.6
79	317549	172572	Kerbside	100	27.5	30.9	31.5	28.4	26.7
113	317999	172067	Roadside	100	17.6	19.3	17.8	15.0	14.1
82	318061	171944	Roadside	100	17.1	13.6	13.9	13.1	11.1
22	318505	171496	Kerbside	100	15.8	17.2	14.7	14.4	13.1
38	311892	174513	Roadside	100	14.4	14.6	14.3	13.9	12.1
8	311797	168503	Roadside	82	22.9	24.1	25.0	24.1	21.2
120	315445	170577	Roadside	90	13.2	14.8	14.8	14.0	12.1

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture 2024 (%)	NO_2 Annual Mean Concentration (µg/m^3)				
					2020	2021	2022	2023	2024
127	306644	174049	Roadside	75	-	-	-	18.3	18.3
126	310879	169481	Roadside	100	-	-	-	10.5	8.7
119	312405	167951	Kerbside	69	18.9	15.4	15.7	13.3	10.5
66	313342	168823	Roadside	100	23.8	24.4	22.4	22.7	19.9
117	313612	168807	Roadside	92	21.9	22.2	22.3	19.5	18.5
102	311115	167041	Roadside	90	14.6	15.6	15.4	14.3	12.5
115	312681	169051	Roadside	81	21.9	23.0	23.2	19.2	17.9
64	311690	168042	Roadside	100	12.8	14.7	13.7	12.5	12.0
116	311666	167628	Roadside	93	15.3	16.7	14.6	13.4	11.8
108	299967	174311	Roadside	100	23.3	18.5	17.9	16.4	14.0
65	299614	174592	Roadside	91	11.6	11.5	12.1	10.5	8.9
89	317627	172371	Roadside	100	11.8	24.0	23.6	22.7	20.1
104	289455	174664	Roadside	100	8.3	9.3	8.7	8.6	6.5

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture 2024 (%)	NO_2 Annual Mean Concentration (µg/m^3)				
					2020	2021	2022	2023	2024
101	298903	174907	Roadside	100	15.9	13.1	12.8	12.2	10.5
128	318367	172342	Kerbside	100	-	-	-	10.8	10.0
129	318864	171109	Kerbside	90	-	-	-	9.0	9.4

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**.

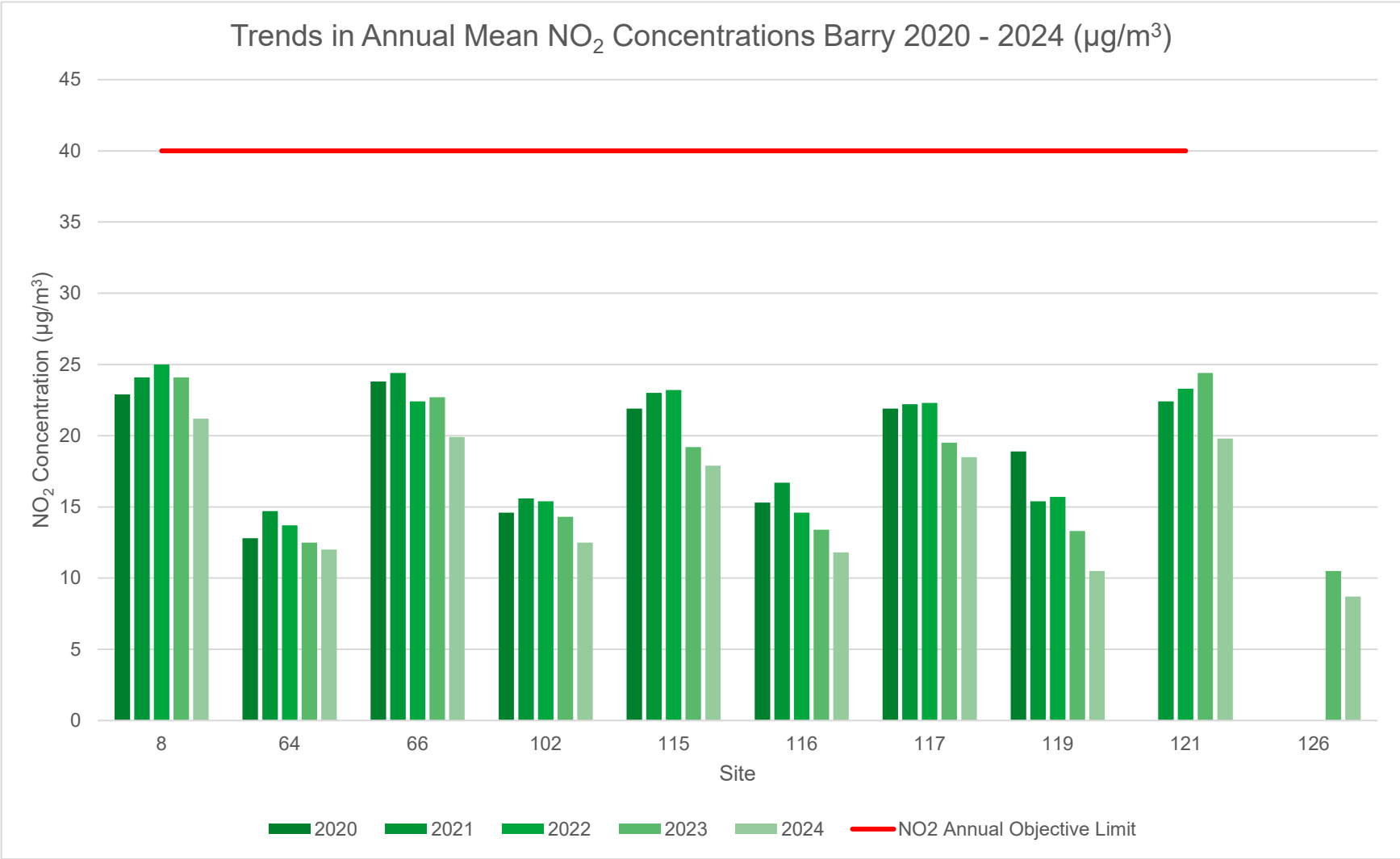
Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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.

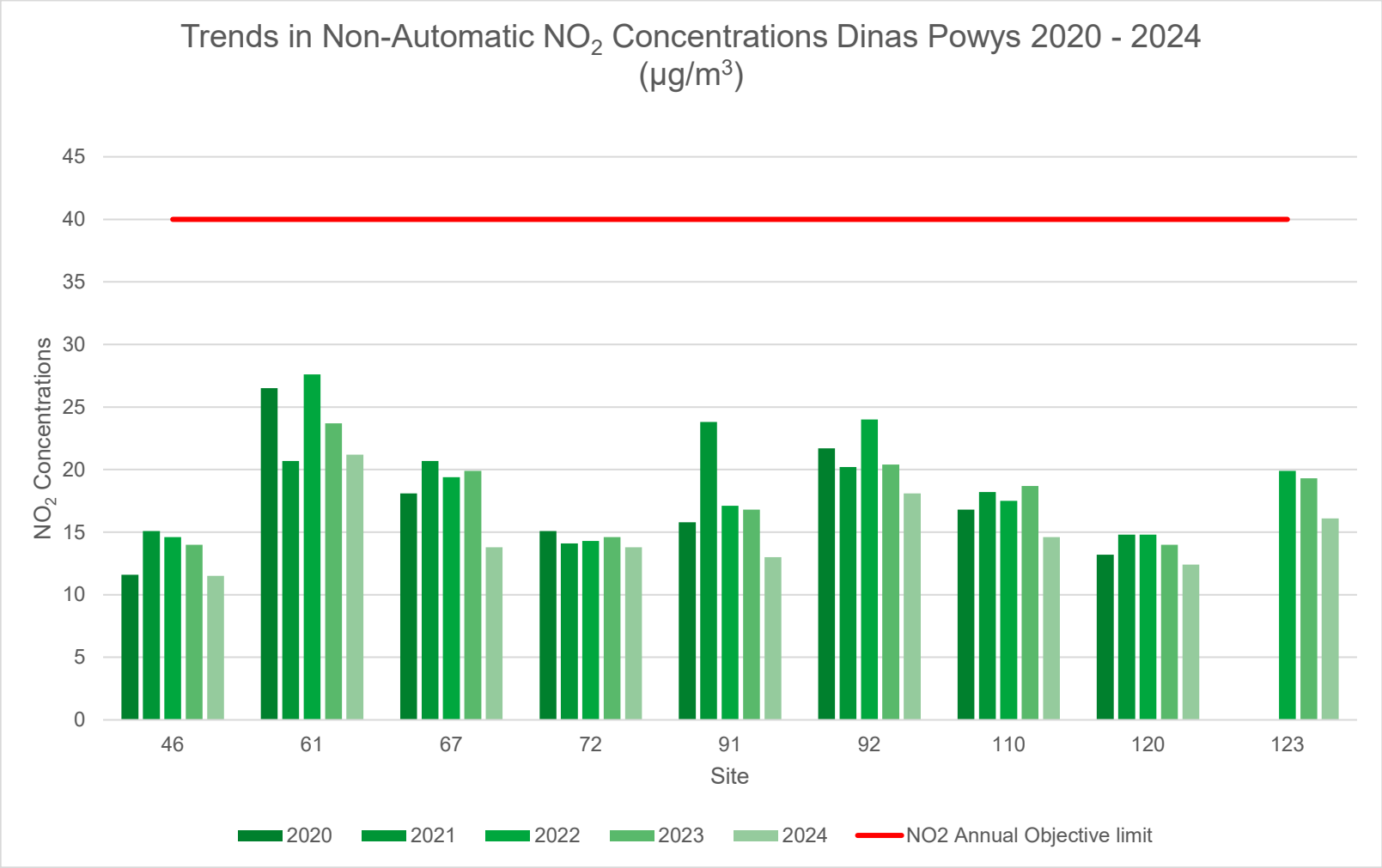
(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Figure 19 – Trends in non-automatic NO_2 Concentration Barry 2020 - 2024 (µg/m^3)



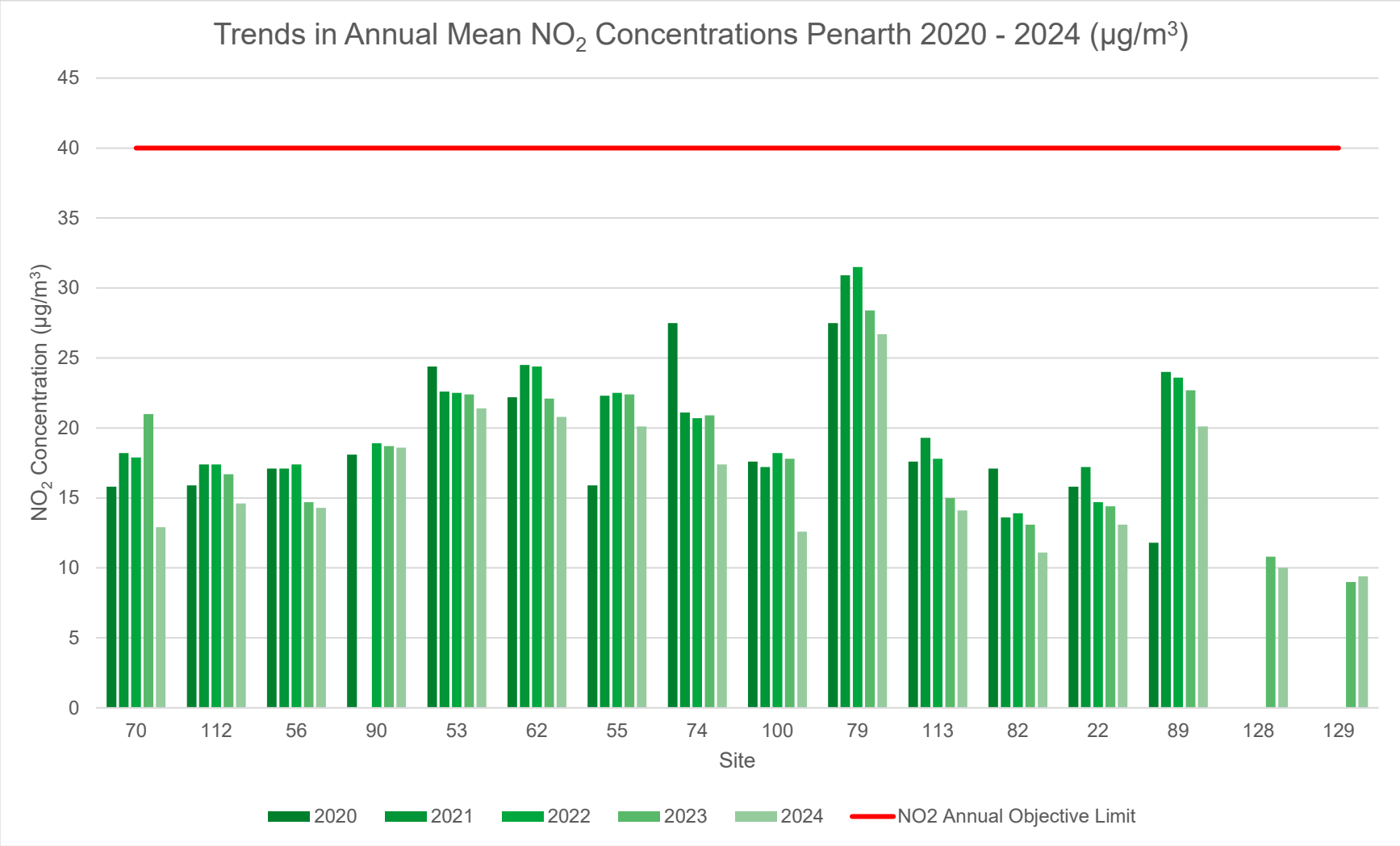
All sites in Barry are compliant with the NO_2 annual objective limit and show an improving trend since 2020.

Figure 20 - Trends in Non-Automatic NO_2 Concentration Dinas Powys 2020 - 2024 ($\mu g/m^3$)



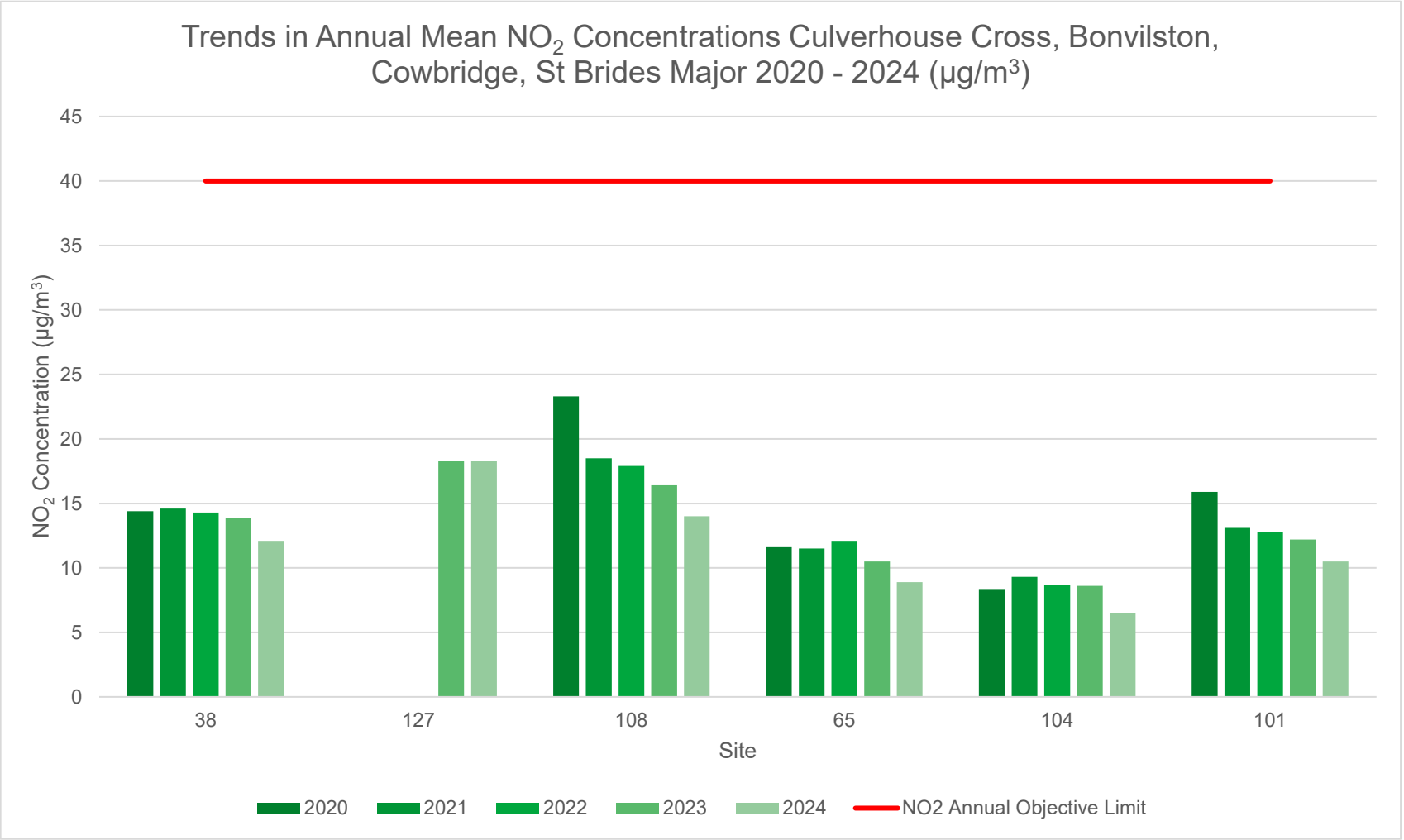
All sites in Dinas Powys are compliant with the NO_2 annual objective limit and show an improving trend since 2020.

Figure 21 - Trends in Non-Automatic NO_2 Concentrations Penarth 2020 - 2024 (µg/m³)



All sites in Penarth are compliant with the NO_2 annual objective limit and show an improving trend at a majority of monitoring locations since 2020.

Figure 22 - Trends in Non-Automatic NO_2 Concentration Culverhouse Cross, Bonvilston, Cowbridge, St Brides Major 2020 - 2024 ($\mu g/m^3$)



All sites in Culverhouse Cross, Bonvilston, Cowbridge and St Brides Major are compliant with the NO_2 annual objective limit and show an improving trend at a majority of monitoring locations since 2020.

Table 5 - Indicative Sensors 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 2024 (%) (2)	2024
SN-2044	316444	171949	Roadside	100	28.4	0
SN-2056	312402	167948	Urban Industrial	100	30.7	0
SN-2032	299939	174319	Roadside	100	28.4	0

Notes:

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**.

(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 6 – Indicative Sensor 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 2024 (%) (2)	2024
SN-2044	316444	171949	Roadside	100	28.4	14.8
SN-2056	312402	167948	Urban Industrial	100	30.7	12.3
SN-2032	299939	174319	Roadside	100	28.4	13.9

Notes:

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

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

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

Table 7 – Indicative Sensor 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 2024 (%) (2)	2024
SN-2044	316444	171949	Roadside	100	28.4	3
SN-2056	312402	167948	Urban Industrial	100	30.7	1
SN-2032	299939	174319	Roadside	100	28.4	2

Notes:

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**.

(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 8 - Indicative Sensor $PM_{2.5}$ 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 2024 (%) [2]	2024
SN-2044	316444	171949	Roadside	100	28.4	5.0
SN-2056	312402	167948	Urban Industrial	100	30.7	3.3
SN-2032	299939	174319	Roadside	100	28.4	5.8

Notes:

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

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

2.3 Comparison of 2024 Monitoring Results with Previous Years and the Air Quality Objectives

2.3.1 Nitrogen Dioxide (NO_2)

The Vale of Glamorgan Council undertook non- automatic (passive) monitoring of NO_2 at 41 sites during 2024. For existing monitoring sites from the period of 2020 to 2024, annual average roadside NO_2 concentrations have decreased by 15% from 18µg/m^3 to 15.3µg/m^3. A decrease of 6.5% from 17.2µg/m^3 to 15.3µg/m^3 in annual average roadside NO_2 concentrations is also evident between 2023 and 2024. This displays an overall improving trend in NO_2 concentrations.

From September 2024, monitoring was also undertaken with indicative automatic sensors at 3 locations in the Vale of Glamorgan. Results from this monitoring indicate NO_2 concentrations within the annual and short-term objective limits.

There are no breaches in the NO_2 annual objective limit at any monitoring site in the Vale of Glamorgan. The highest concentration of monitored NO_2 is at diffusion tube site 79. However, this is a kerbside site and not representative of relevant exposure related to the annual objective for NO_2.

2.3.2 Particulate Matter (PM_{10})

From September 2024, indicative automatic monitoring was undertaken at 3 locations in the Vale of Glamorgan. Concentrations of PM_{10} indicate compliance with the annual objective limit and the short-term limit during this period.

However, there were a small number of pollution episodes and exceedances in the short-term objective limit of >50µg/m^3 for PM_{10} related to bonfire night on the 5th of November, and the surrounding dates. These exceedances were still within the short-term objective limit of 50µg/m^3 not to be exceeded more than 35 times a year. Meteorological conditions during this period may have also prevented effective dispersion of particulate matter generated by fireworks and associated activities.

The increase in PM_{10} recorded by the indicative automatic sensors can be viewed in the graphs below.

Figure 23 - Indicative Sensor Cardiff Road, Dinas Powys PM_{10} Concentrations due to bonfire night

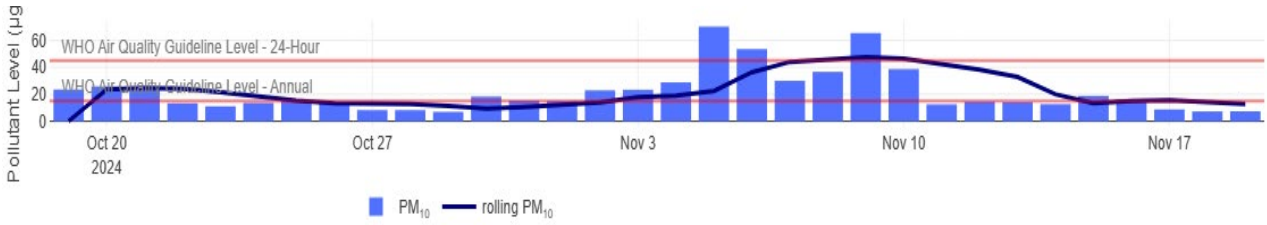


Figure 24 - Indicative Sensor Dock View Road, Barry PM_{10} Concentrations due to bonfire night

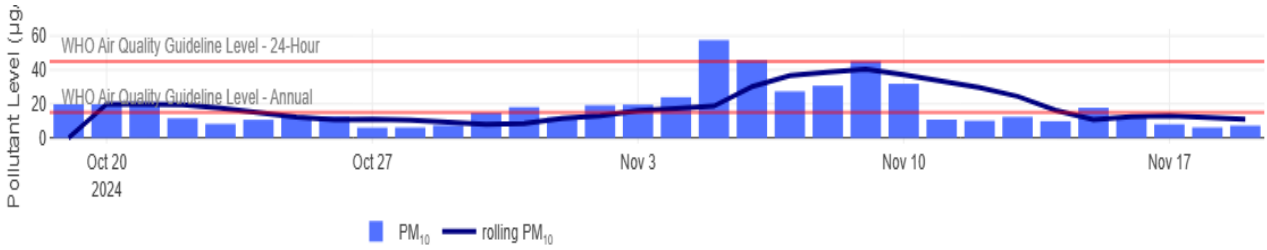
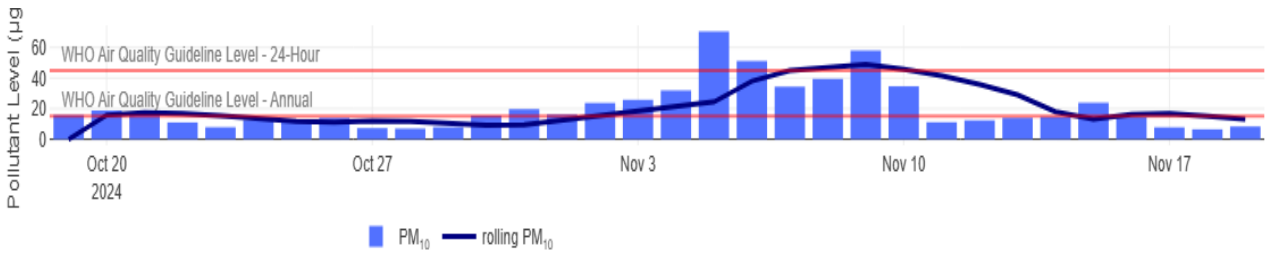


Figure 25 - Indicative Sensor Cardiff Road, Cowbridge PM_{10} Concentrations due to bonfire night



2.3.3 Particulate Matter ($PM_{2.5}$)

Monitoring for $PM_{2.5}$ was undertaken using 3 indicative automatic sensors. Concentrations of $PM_{2.5}$ measured by these sensors indicate concentrations within or close to the World Health Organisation (WHO) annual average recommended limit of 5µg/m^3.

As with PM_{10}, an increase in $PM_{2.5}$ was recorded by the indicative monitoring sensors in the days surrounding bonfire night on the 5th of November, as shown in the graphs below.

Figure 26 - Indicative Sensor Cardiff Road, Dinas Powys $PM_{2.5}$ Concentrations due to bonfire night

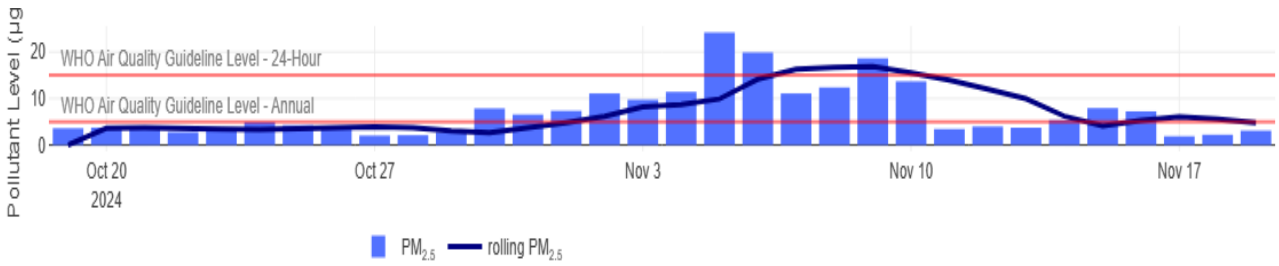


Figure 27 - Indicative Sensor Dock View Road, Barry $PM_{2.5}$ Concentrations due to bonfire night

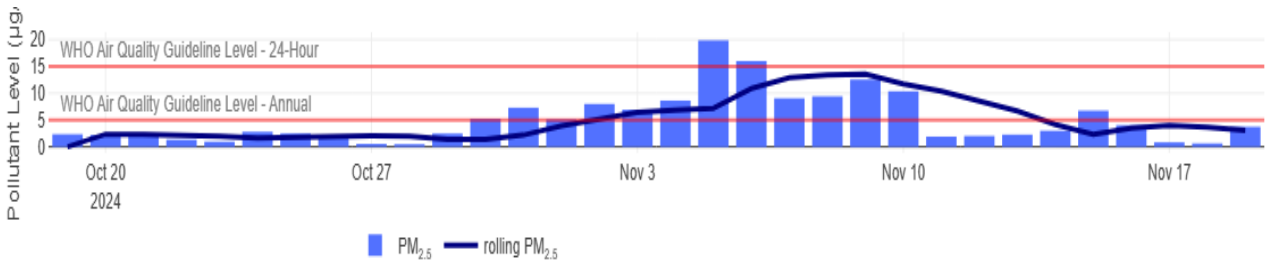
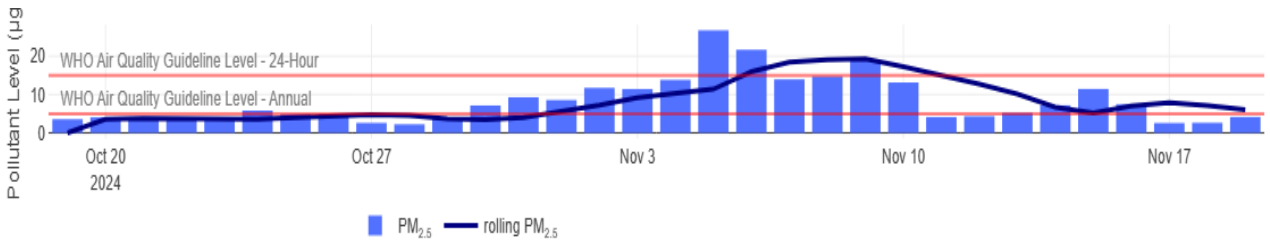


Figure 28 - Indicative Sensor Cardiff Road, Cowbridge $PM_{2.5}$ Concentrations due to bonfire night



2.4 Summary of Compliance with AQS Objectives as of 2024

Shared Regulatory Services have examined the results from monitoring in the Vale of Glamorgan. Concentrations are all below the Objectives, therefore no further action is required.

Extensive non-automatic monitoring will continue throughout all areas in the Vale of Glamorgan and will be reviewed on an annual basis. Indicative automatic monitoring will continue at the current locations until September 2026.

3 New Local Developments

Shared Regulatory Services on behalf of the Vale of Glamorgan Council review all planning applications regarding air quality in line with local and national planning policy. Technical guidance related to air quality and planning applications is obtained by using IAQM Guidance[5] 'Guidance on land use planning and development control', and 'assessment of dust from demolition and construction'.

Replacement Local Development Plan

Local Development Plans (LDPs) need to be reviewed at least every four years to make sure they are up to date.

We reviewed our LDP in June 2021 and published an LDP Review Report. The report recommended an RLDP be prepared for the period 2021 to 2036. We also published an RLDP Delivery Agreement which sets out the processes, resources and timescales involved in preparing the RLDP. You can view these documents online, or view a hard copy at the Civic Offices or libraries managed by the Vale of Glamorgan.

We are now working on the RLDP which will help shape the Vale of Glamorgan for the next 15 years. It will help us decide what developments will and will not be permitted at different locations and highlight areas that we need to protect. [6]

Air quality impacts will be considered and assessed with regard to LDP locations. Air Quality Assessments will be carried out where necessary and mitigation measures recommended to ensure that the air quality impacts of new developments will not cause any adverse effects to new and existing residents.

3.1 Road Traffic Sources (and Other Transport)

There were no new road traffic sources that require consideration with regard to air quality impacts.

[5] https://iaqm.co.uk/guidance/

[6] Replacement Local Development Plan (valeofglamorgan.gov.uk)

3.2 Industrial / Fugitive or Uncontrolled Sources / Commercial Sources

Lower Greenway Farm Biomass 2024/00343/FUL

The application included the installation of two Froling TX250kW biomass boilers within an existing structure on the site. Emissions will be released via two 6m high flues positioned on the western building façade. Virgin wood chips will be used for fuel.

Dispersion modelling has been carried out to ascertain the impact of emissions on various local receptors. The Air Quality Assessment submitted in support of the application predicted that air quality impacts at all receptors for all pollutants will be negligible, and the overall effect of the biomass emissions are not significant.

The Shared Regulatory Services Air Quality Officer offered no objections or further concerns regarding the air quality impacts related to this development. However, the importance of using the correct approved fuels throughout the operation of the biomass boilers to ensure the impact on air quality is not significant and prevent nuisance related risks such as odours was emphasised.

Pant Wilkin Stables Biomass 2024/00900/FUL

The application included installation of one Froling TM 500kW biomass boiler within a new structure on the site. Emissions from the plant will be discharged to atmosphere at a height of 6.1m via a dedicated flue.

Dispersion modelling has been carried out to ascertain the impact of emissions on various local receptors. Predicted pollutant concentrations as result of emissions from the biomass boiler was below the relevant Air Quality Objectives and Air Quality Limit Values at all locations within the vicinity of the site for all modelled meteorological data sets;

- Impacts on annual mean and 1-hour mean NO_2 concentrations as a result of emissions from the biomass boilers were predicted to be negligible at all sensitive receptors;
- Impacts on annual mean and 24-hour mean PM_{10} concentrations as a result of emissions from the biomass boilers were predicted to be negligible at all sensitive receptors;

- Impacts on annual mean $PM_{2.5}$ concentrations as a result of emissions from the biomass boilers were predicted to be negligible at all sensitive receptors;
- Overall effects at human receptors were considered to be not significant in accordance with the IAQM guidance;
- Impacts at relevant ecological sites were predicted to be not significant.

3.3 Other Sources

Previous reports have confirmed that there are no known areas in The Vale of Glamorgan where coal or solid fuel burning provides a significant level or primary household heating. Nothing has changed in this regard since the 2024 APR, despite the potential for increasing popularity of solid fuel heating with increased fossil-fuel prices, and there is no need to consider this further at this time.

It should be noted that the Council receives several enquiries each year from residents in respect of national or local requirements where they to wish to install log-burners or similar appliances in their homes. There are no smoke control areas in the Vale and hence no legal requirements regarding appliances that may be installed. However, residents are always reminded of the legislation in respect of statutory smoke nuisance and, where they can't be persuaded otherwise for reasons of air quality and health, recommended to seek out a Defra approved appliance certified for use in a smoke control area.

Shared Regulatory Services on behalf of the Vale of Glamorgan Council can confirm that there are no areas of significant domestic fuel use in the Local Authority area

4 Policies and Strategies Affecting Airborne Pollution

4.1 Local / Regional Air Quality Strategy

The Vale of Glamorgan Council does not currently have an Air Quality Strategy. As a long-term measure, SRS would recommend that the Vale of Glamorgan Council consider developing an Air Quality Strategy with its main objective to improve air quality and protect public health, whilst considering the sustainable development and future growth within the authority.

4.2 Local Transport Plans and Strategies

The Vale of Glamorgan authority is part of the Capital Region which comprises of Cardiff and the nine south east unitary authorities. The implementation of this policy was carried out to support Welsh Government's vision in the future development of the Capital Region and commitment to a low carbon future.

The Capital Region is committed to a low carbon future, which has a transport network and mobility culture that positively contributes to a thriving economy and the health and wellbeing of its citizens and where sustainable travel is the option of choice.

The LTP looks to tackle growing traffic levels (and hence air quality impacts) by providing strategies which focus upon providing efficient and effective transport networks. In order to be successful, the plans need a collaborative approach for the future development of the Capital Region's transport needs, therefore providing improved mobility for both residents and visitors, enhanced accessibility to jobs and services and fundamentally sustainable economic growth.

This Local Transport Plan (LTP) seeks to identify the sustainable transport measures required to ensure the Vale of Glamorgan Council adheres to current requirements and good practices to allow for a sustainable transport environment for the period 2015 to 2020 as well as looking forward to 2030.

The LTP policy recognises the Council's objective to achieving sustainable travel (alternatives to using cars) and reducing negative impacts on the environment. The policy suggests that through improved transport infrastructure and transport services this can be achieved.

Further information can be found at the following link https://www.valeofglamorgan.gov.uk/Documents/Living/Planning/Policy/LTP/Local-Transport-Plan.pdf.

4.3 Active Travel Plans and Strategies

Active travel means walking and cycling (including the use of mobility scooters) for everyday journeys. This includes journeys to school, to work to the shops or to access services e.g. health or leisure centres. Active travel does not include walking and cycling for recreational or social reasons.

In September 2014, the Welsh Government introduced the Active Travel (Wales) Act 2013 which makes it a legal requirement for local authorities in Wales to map and plan for suitable routes for active travel within certain settlements, as specified by Welsh Government.

The Council submitted their Integrated Network Maps in November 2017 which set out the Authority's aspirations for improving active travel routes across the County over the next 15 years.

They included routes that were currently used but may not have met the standard of Active Travel routes, or they were routes that did not exist but were identified within other strategic plans or identified through the consultation process.

Section 4 of the Act requires that the next edition of the INM should be submitted by local authorities three years following the previous edition, or no later than a date specified by the Welsh Ministers. In view of the Covid-19 pandemic, Ministers considered it appropriate to extend the submission of the next round of integrated networks maps and updated existing routes maps to 31 December 2021.

The Vale of Glamorgan Council held extensive consultation with the public throughout 2021, and the new Active Travel Network Map was approved by Welsh Government in August 2022.

Eglwys Brewis Active Travel Route

In 2024, the new Eglwys Brewis Active Travel route linking Cowbridge Road, St Athan and the Northern Access Road opened. Funded by a Welsh Government Active Travel Grant, these improvements are designed to support the health and well-being of communities and encourage active methods of travel across Wales.

During the development of the scheme, we took special care to ensure that we remain sympathetic to the needs of the existing wildlife. We have retained the existing treeline and maintained the same level of lighting so that bat populations and other wildlife will not be negatively impacted by the new changes.

To increase the biodiversity in the area, our Parks Team have also planted 26 local species of trees, 1800m^2 of grassland, 140m^2 of various bulb planting areas and 740m^2 of low-level planting and shrub areas.

Romilly Primary School

Romilly Primary School is amongst 300 schools in Wales to implement improvements that help pupils to travel actively to school.

Following a call to action from Welsh Government for schools to create their own Active Travel School Plan (ATSP), Romilly Primary have made enhancements to road safety, encouraged physical activity, and given families more options for school transport.

Some highlights of Romilly's success include the implementation of a new eco-friendly bike shelter, and improvements to pavements outside the school. Romilly's development may also grant access to funding, through schemes like Welsh Government's Safe Routes in Communities.

Active travel school plans are important to us in the Vale, and Romilly's hard work has resulted in children and adults having safer and more sustainable ways to travel to school.

Further information can be found at the following link.

https://www.valeofglamorgan.gov.uk/en/living/transportation/Active-Travel.aspx

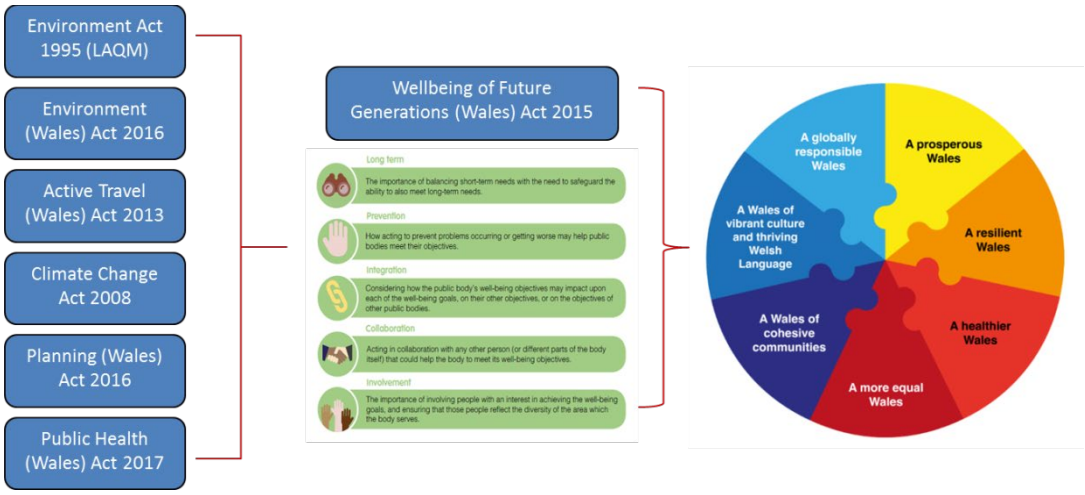
4.4 Local Authorities Well-being Objectives

SRS/ VoGC adopts the principles of The Well-being of Future Generations (Wales) Act 2015. The Act is a significant enabler to improve air quality as it calls for sustainable cross-sector action based on the principles of long-term, prevention-focused integration, collaboration, and involvement. It intends to improve economic, social, environmental, and cultural well-being in Wales to ensure the needs of the present are met without compromising the ability of future generations to meet their own needs. The Act places responsibilities on public bodies in Wales to work in new ways (including via Public Services

Boards) towards national Well-being goals. Progress is measured against a suite of well-being and Public Health Outcomes Framework indicators; there is one specifically concerned with air pollution.

As Figure 11 illustrates below, the Act is the legislative vehicle for "Health in all Policies in Wales" and provides the underpinning principles for all policy and decision making, including economic development, in Wales. Reducing air pollution, health risks and inequalities can help contribute to most, if not all, of the well-being goals. As such, the Act presents excellent opportunities to change policy and practice to enhance air quality management arrangements across The Vale (and wider).

Figure 29 – Wellbeing of Future Generations Act



Welsh Government, Clean Air Plan for Wales, Healthy Air Healthy Wales

Welsh Government has published its latest plan which underpins its commitment and long-term ambition to improve air quality in Wales. The plan sets out WG's policy direction and proposed actions to reduce air pollution to support improvement in public health and the natural environment. Actions are proposed across four thematic themes, examined as People, Environment, Prosperity, and Place.

The plan and its proposed actions are available at the following link.

https://gov.wales/sites/default/files/publications/2020-08/clean-air-plan-for-wales-healthy-air-healthy-wales.pdf

4.5 Climate Change Strategies

Project Zero

Planning and Sustainable Development

All relevant planning applications are required to be accompanied by a travel plan to promote sustainable travel choices and prevent unnecessary car use. Since March 2019 at least 10% of car parking spaces on non-residential developments are required to have electric vehicle charging points infrastructure.

Carbon Net Zero Resurfacing Trial

In September 2024, our Highways Maintenance Team worked with Miles Macadam to resurface Skomer Road in Barry with net-zero road material. This is part of a trial to introduce long-term, sustainable highway maintenance programmes into the Vale of Glamorgan. The road was resurfaced using with Biopave™, a unique surfacing system designed to capture carbon within the road surface and prevent its release into the atmosphere. Biopave™ has provided the Council and local residents with a durable, sustainable surface which will significantly reduce the environmental impact of road construction and maintenance. The project also used Welsh steel slag aggregate, which greatly lowered the carbon footprint by eliminating the need to mine new materials.

Energy

The Council purchases 100% of electricity from renewable sources and has granted planning permission to a number of solar farms.

We have undertaken over 100 energy saving projects across council buildings including switching old inefficient lighting to LED lighting and the introduction of better energy controls.

Through 2023 - 2024 our Property team delivered energy efficiency and renewable energy projects to three community buildings, funded by the Assets Collaboration Programme Wales (ACPW3). The selected sites were, St Francis Millenium Centre in Barry, Rhoose Community Centre, and the CF61 centre in Llantwit Major. All three buildings benefited from new insulation on heating pipework and new smart boiler controls, enabling heating to be controlled remotely.

Further electricity savings will be made by using free solar generated electricity, with new PV arrays and battery storage installed in all three centres.

Electric Vehicles

The Council introduced its first fleet of electric vehicles in 2022 and plans to replace diesel-powered vehicles across its service areas. 12 new Hyundai Kona electric vehicles have replaced a number of diesel-powered pool cars. With over 4000 miles on each vehicle, the new EV cars have reduced the Council's CO_2 emissions by an estimated 13,554kg so far. They will continue to significantly reduce carbon emissions as 2030 draws nearer. Each Kona EV vehicle can travel up to 300 miles on a single charge and can be recharged in just one hour using a rapid charge point. With further plans to replace Council fleet vehicles with electric-powered alternatives, the Council has recently acquired a number of electric vans which are now in use. The vehicles are maintained by the Council's in-house Transport Services team in partnership with Clenergy EV, who monitor the EV charging stations at the Civic Offices in Barry and The Alps Depot in Wenvoe.

To support residents and visitors to the Vale who have made the switch to electric vehicles, a number of EV charging stations have been installed in public spaces across the County and are now available for public use.

Beach Bus Service

With funding from Section 106 developer sustainable transport funding, we worked with First Cymru to offer free travel on the 303 Beach Bus service during the summer of 2024.

This was part of our Project Zero initiative to lower the number of vehicles using the roadways during peak times during the summer months.

The free bus route encouraged local residents and visitors to use public transport to enjoy the beaches during the summer. The route started at Llantwit Major and went via Southerndown, Ogmore-by-Sea and Bridgend.

5 Conclusion and Proposed Actions

5.1 Conclusions from New Monitoring Data

Shared Regulatory Services on behalf of the Vale of Glamorgan Council have examined the results from monitoring undertaking in 2024. There were no exceedances of any pollutant objective.

5.2 Proposed Actions

The Specialist Services Team of SRS will work with representatives from Highways & Transport and Planning Department, and outline measures which have been undertaken, the effectiveness of these measures and future commitments/initiatives that the Council may need to consider to be implemented in the area to ensure compliance is maintained and improved upon.

As a long-term measure, SRS would recommend that the Vale of Glamorgan Council consider developing a Clean Air Strategy with its main objective to improve air quality and protect public health, whilst considering the sustainable development and future growth within the authority.

References

Air Quality Annual Progress Reports (APRs) https://www.srs.wales/en/Environmental-Health/Noise-and-Air-Pollution/Air-quality-and-pollution/Air-Quality-and-Pollution.aspx

Air Quality Health Advice https://airquality.gov.wales/about-air-quality/health-advice

IAQM Planning Guidance https://iaqm.co.uk/guidance/

Local Air Quality Management Technical Guidance (TG22) https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf

Project Zero https://participate.valeofglamorgan.gov.uk/plans

UK National Air Quality Archive LAQM http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html

Vale of Glamorgan Local Development Plan 2011- 2026 http://www.valeofglamorgan.gov.uk/Documents/Living/Planning/Policy/LDP/LDP-Adoption/Adopted-LDP-Written-Statement-June-2017-final-interactive-web-version.pdf

Vale of Glamorgan the Local Transport Plan (2015- 2030) https://www.valeofglamorgan.gov.uk/en/living/planning_and_building_control/Planning/planning_policy/Local-Transport-Plan.aspx

Vale of Glamorgan Active Travel https://www.valeofglamorgan.gov.uk/en/living/transportation/Active-Travel.aspx

Welsh Government Clean Air Plan https://gov.wales/sites/default/files/publications/2020-08/clean-air-plan-for-wales-healthy-air-healthy-wales.pdf

WHO air quality guidelines - WHO global air quality guidelines: particulate matter (PM2.5 and PM10), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide

Appendices

Appendix A: Monthly Diffusion Tube Monitoring Results

Appendix B: A Summary of Local Air Quality Management

Appendix C: Air Quality Monitoring Data QA/QC

Appendix D: AQMA Boundary Maps

Appendix A: Quality Assurance / Quality Control (QA/QC) Data

Table A.1 – Full Monthly Diffusion Tube Results for 2024 (µg/m³)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m³)												Time Weighted Annual Mean (µg/m³)		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.78) and Annualised	Distance Corrected to Nearest Exposure
46	315747	171369	10.0	20.7	15.9	13.3	14.9	9.6	5.1	10.2	19.2	17.1	20.8		14.4	11.2	-
110	315846	171556	23.2	23.6	19.4	15.7	16.6	14.6	13.9	14.2	16.4	18.9	22.7	18.5	18.3	14.3	-
72a	315841	171527	22.5	19.0	16.5	14.4	13.9	11.9	10.5	16.9	22.0	19.8	21.7	16.5	17.2	13.4	-
61	316433	171932	28.3	29.6	26.5	25.0	23.8		18.9	23.1	29.6	25.2	32.9	28.5	26.5	20.7	-
67	316488	172004	25.9	20.8	21.4	18.1	22.3	14.7	11.7	15.7	18.3			6.0	17.3	13.5	-
92	316447	171963	29.3	24.1	20.9	22.2	22.0	16.8	16.2	19.0	23.9	26.3	29.6	21.3	22.6	17.7	-
91	316453	171945	23.6	15.8	17.9	12.4	17.7	11.3	10.1	11.8	17.5	19.5	23.5	13.9	16.3	12.7	-
70	316731	172391	17.1	20.6	18.5	16.2	17.4	10.3	10.0	13.3	11.0	16.2	27.7	17.8	16.5	12.9	-
121	311270	168363	29.9	27.9	29.5		23.0	20.2		21.1	23.3	24.7	29.4	24.3	25.3	19.8	-
123	315803	171492	27.4	23.2	21.2	21.6	20.0	15.7	15.0	11.4	14.2		28.1	23.5	20.1	15.7	-
112	317434	172729	24.8	21.8	18.6	18.1	17.0	13.9	12.4	14.4	19.1	19.7	23.3	20.4	18.7	14.6	-
56	316821	172428	21.5	23.6	20.4	15.8	16.9	15.3	14.5	15.8	17.2			19.9	18.3	14.3	-
90	317597	172433	30.4	18.9	23.8	28.2	23.5	16.4	15.9	15.5					21.2	18.6	-
53	317589	172411	20.0	33.5	26.9	26.2	26.4	22.6	35.7	20.4			33.1	29.0	27.4	21.4	-
62	317633	172357	33.4	33.4	27.8	27.1	25.6	22.0	20.9	21.3	27.0	26.0	29.0	26.4	26.7	20.8	-
55	317668	172312	32.9	32.2	25.6	26.6	26.5	22.6	19.3	22.6	27.0	23.2	31.1	21.2	25.8	20.1	-
74	317708	172259	29.7	21.0	21.3	22.2	23.2	20.6	17.6	19.2	23.6	22.4	28.8	19.9	22.3	17.4	-

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m³)												Time Weighted Annual Mean (µg/m³)		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.78) and Annualised	Distance Corrected to Nearest Exposure
100	317968	172105	5.8	19.4	14.9	15.1	14.3	13.5	13.5	15.4	24.1	23.1	28.6	6.7	16.1	12.6	-
79	317549	172572	36.9	35.4	30.9	33.8	39.6	27.2	24.9	30.2	39.5	36.6	42.1		34.3	26.7	-
113	317999	172067	26.0	23.2	16.0	18.8	22.1	12.7	13.3	12.7	12.5	20.7	24.5	13.9	18.0	14.1	-
82	318061	171944	18.4	15.4	13.5	12.0	12.8	11.0	9.8	10.5	14.3	16.5	22.2	14.5	14.3	11.1	-
22	318505	171496	22.8	19.6	13.1	15.0	19.6	14.7	7.7	14.3	19.9	18.7	25.6	11.6	16.8	13.1	-
38	311892	174513	18.5	15.8	16.3	16.2	14.7	14.3	13.1	12.9	14.0	14.6	20.2	16.0	15.5	12.1	-
8	311797	168503	26.9		25.6	29.5		24.5	23.5	23.6	29.2	26.4	34.0	29.3	27.1	21.2	-
120	315445	170577	22.5	18.5	13.9	14.7	14.3	12.3	9.6	12.4	17.3		17.4	16.9	15.5	12.1	-
127	306644	174049	29.3				25.4	24.2	19.6	14.7	25.9	21.8	31.7	21.5	23.5	18.3	-
126	310879	169481	12.2	12.2	11.6	9.7	10.7	7.7	7.6	9.6	9.5	13.1	17.2	11.6	11.2	8.7	-
119	312405	167951		9.6				10.5	11.3	5.5	13.2	19.2	22.2	16.2	13.4	10.5	-
66	313342	168823	29.2	28.1	27.0	24.6	24.2	22.0	21.0	21.7	22.4	27.8	28.8	27.4	25.5	19.9	-
117	313612	168807		28.4	26.3	24.6	25.0	19.4	21.7	20.4	25.6	23.8	32.7	14.6	23.7	18.5	-
102	311115	167041	21.3	16.0	15.0	17.3	15.6	13.7	0.8		11.2	18.7	24.7	19.1	16.0	12.5	-
115	312681	169051	26.9	23.2		25.4	25.6	21.2	19.7	18.7	25.6		25.4	20.5	23.0	17.9	-
64	311690	168042	22.0	18.4	17.8	14.7	15.1	8.1	9.2	10.3	12.0	19.0	21.1	15.5	15.4	12.0	-
116	311666	167628	21.7	17.2	17.9	9.0	12.7	22.1	9.3	10.6		9.9	21.6	15.0	15.2	11.8	-
108	299967	174311	22.6	20.1	19.0	17.1	18.2	16.1	13.0	14.5	16.0	19.7	19.1	18.4	17.9	14.0	-
65	299614	174592	16.1	12.2	12.1	10.4		9.3	6.9	7.4	9.2	13.9	17.0	11.1	11.5	8.9	-
89	317627	172371	34.7	32.6	27.5	29.6	25.1	17.9	19.7	21.8	22.3	27.7	30.6	19.5	25.7	20.1	-

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m³)												Time Weighted Annual Mean (µg/m³)		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.78) and Annualised	Distance Corrected to Nearest Exposure
104	289455	174664	12.2	7.7	9.3	8.6	8.8	6.3	5.2	6.4	3.3	9.5	13.2	8.2	8.3	6.5	-
101	298903	174907	18.4	12.2	13.6	13.3	12.0	11.4	10.1	10.3	12.9	14.5	18.8	14.3	13.5	10.5	-
128	318367	172342	17.6	15.5	11.5	9.0	10.5	7.5	7.4	8.4	11.0	16.0	19.3	16.8	12.8	10.0	-
129	318864	171109	16.8	15.3	10.6	10.1	9.9	9.4	7.7	10.5	11.5	12.5	17.3		12.1	9.4	-

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m³ are shown in **bold**.

NO_2 annual means exceeding 60µg/m³, 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 B: A Summary of Local Air Quality Management

5.3 Purpose of an Annual Progress Report

This report fulfils the requirements of the Local Air Quality Management (LAQM) process as set out in the Environment Act 1995, as amended by the Environment Act 2021, and associated government guidance. 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 being achieved. Where exceedances occur, or are likely to occur, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) within 18 months of declaration setting out the measures it intends to put in place in pursuit of the objectives. Action plans must then be reviewed and updated no later than every five years; or if a local authority considers there is a need for further or different measures to be taken in order to achieve air quality standards; or if significant changes to sources occur within your local area.

For Local Authorities in Wales, an Annual Progress Report replaces all other formal reporting requirements and have a very clear purpose of updating the general public on air quality, including what ongoing actions are being taken locally to improve it if necessary.

5.4 Air Quality Objectives

The air quality objectives applicable to LAQM in Wales are set out in the Air Quality (Wales) Regulations 2000, No. 1940 (Wales 138), Air Quality (Amendment) (Wales) Regulations 2002, No 3182 (Wales 298), and are shown in Table B.1.

The table shows the objectives in units of micrograms per cubic metre μg/m^3 (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedances in each year that are permitted (where applicable).

Table B.1 – Air Quality Objectives Included in Regulations for the Purpose of LAQM in Wales

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as	Date to be achieved by
Nitrogen Dioxide (NO_2)	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
Nitrogen Dioxide (NO_2)	40µg/m^3	Annual mean	31.12.2005
Particulate Matter (PM_{10})	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2010
Particulate Matter (PM_{10})	40µg/m^3	Annual mean	31.12.2010
Sulphur dioxide (SO_2)	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
Sulphur dioxide (SO_2)	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
Sulphur dioxide (SO_2)	266µg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005
Benzene	16.25µg/m^3	Running annual mean	31.12.2003
Benzene	5µg/m^3	Annual mean	31 12 2010
1,3 Butadiene	2.25µg/m^3	Running annual mean	31.12.2003
Carbon Monoxide	10.0mg/m^3	Maximum Daily Running 8-Hour mean	31.12.2003
Lead	0.25µg/m^3	Annual Mean	31.12.2008

Appendix C: Air Quality Monitoring Data QA/QC

5.5 QA/QC of Diffusion Tube Monitoring

A database of bias adjustment factors determined from Local Authority co-location studies throughout the UK has been collated by the LAQM Helpdesk. The National Diffusion Tube Bias Adjustment Factor Spreadsheet (Version 03/25) was used to obtain an overall adjustment factor of 0.80 from the input data shown in the following screenshot. This overall factor is based on 35 co-location studies where the tube preparation method and analysis laboratory used were the same as those used by VoGC.

Discussion of Choice of Factor to use

The bias adjustment factor applied to all 2024 data is 0.78. The applied bias adjustment factor has been calculated using the national diffusion tube bias adjustment factor spreadsheet version 06/25.

QA/QC of Diffusion Tube Monitoring

The diffusion tubes are supplied and analysed by Socotec UK Ltd Didcot, using the 50% triethanolamine (TEA) in water method. Socotec UK Ltd Didcot participates in the Annual Field Inter-Comparison Exercise and Workplace Analysis Scheme for Proficiency (WASP) inter-comparison scheme for nitrogen dioxide diffusion tube analysis. From April 2014 the WASP Scheme was combined with the STACKS scheme to form the new AIR scheme, which Socotec UK Ltd Didcot participates in. The AIR scheme is an independent analytical proficiency testing scheme operated by LGC Standards and supported by the Health and Safety Laboratory (HSL).

The laboratory Socotec UK Ltd Didcot is regarded ranked as the highest rank of satisfactory in relation to the WASP intercomparison scheme for spiked nitrogen dioxide diffusion tubes. Information regarding tube precision can be obtained via http://laqm.defra.gov.uk/diffusion-tubes/precision.html Information regarding WASP results can be obtained via http://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html

Table 9 - Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2024	National	06/25	0.78
2023	National	09/24	0.78
2022	National	03/23	0.76
2021	National	03/22	0.78
2020	National	09/20	0.76

Diffusion Tube Annualisation

In 2023, 2 non-automatic monitoring sites required annualisation. Details are shown in

Table 10 - Annualised Diffusion Tube Sites

Diffusion Tube ID	Annualisation Factor Cardiff City Centre	Annualisation Factor Newport St Julians	Average Annualisation Factor	Raw Data Time Weighted Annual Mean (µg/m³)	Annualised Data Time Weighted Annual Mean (µg/m³)
90	1.1176	1.1316	1.1246	21.2	23.8
119	1.0098	0.9943	1.0021	13.4	13.4

No diffusion tube NO_2 monitoring locations within the Vale of Glamorgan required distance correction during 2024.

5.6 QA/QC of Automatic Monitoring

Three indicative monitors were used in the Vale of Glamorgan in 2024. These monitors do not form part of the regulated Welsh automated monitoring network, but as specified they are an indicative form of monitoring and a useful tool to look at datasets on a high-resolution basis. Prior to deployment, all candidate devices undergo a two week burn-in period on our calibration rig. Data is compared against gold-standard devices, which are routinely sent to be co-located at a local AURN site and calibrated accordingly. Once a deployment is

complete, an internal review of the data is performed after a standard two-week bedding in period to ensure all the devices are working correctly. An AI model is used to correct for calibration drift whilst a device is co-located with a local AURN site for reference and to highlight drift issues.

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the LA 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
APR	Air quality Annual Progress Report
AURN	Automatic Urban and Rural Network (UK air quality monitoring network)
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
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 10 µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5 µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide