2017 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the
Environment Act 1995
Local Air Quality Management

June 2018

Teignbridge District Council

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Executive Summary: Air Quality in Our Area

Air Quality in Teignbridge District Council

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

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion[3].

Within the District of Teignbridge local air quality is generally very good. However there are locations where air pollution levels are high – typically along busy congested roads, with the highest levels being experienced where the roads are either narrow and/or have a steep incline and/or have street canyons (ie roads with properties close to the side of the road on both sides). The pollutant of specific concern in these locations is Nitrogen Dioxide. The review and assessment process commenced in 2005 resulting in four Air Quality Management Areas (AQMA's) being declared because it was predicated that the National Air Quality Objective would not be met for Nitrogen Dioxide (NO_2). The original four AQMA's were:-

- Dawlish (Iddesleigh Terrace)

- Teignmouth (A379 along Bitton Park Road)

- Kingskerswell (old A380)

- Newton Abbot (Town Centre)

In 2008 a Detailed Assessment was carried out which resulted in the boundary of the Newton Abbot Town Centre AQMA being revised and expanded to include Wolborough Street, and in Kingsteignton, Newton Road and Gestridge Road. In 2017 the geography of the four AQMA's remains unaltered. The four AQMA's to date are:-

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[1] Environmental equity, air quality, socioeconomic status and respiratory health, 2010
[2] Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006
[3] Defra. Abatement cost guidance for valuing changes in air quality, May 2013

- Dawlish (Iddesleigh Terrace)

- Teignmouth (A379 along Bitton Park Road)

- Kingskerswell (old A380)

- Newton Abbot & Kingsteignton

Two main monitoring techniques are used, these being Nitrogen Dioxide diffusion tubes and continuous monitoring stations. Another indicative monitoring technique is used for measuring PM_{10} , in the form of an Osiris, light scattering technique. Monitoring has been undertaken for NO_2 and PM_{10} both within the AQMA's and outside.

Further details of the Air Quality Management Area, and the Council's Action Plan are available online at https://www.teignbridge.gov.uk/environmental-health-and-wellbeing/land-air-and-water-pollution/air-quality/

The latest ratified data shows that, despite significant housing and commercial development taking place, there is a year on year trend of NO_2 and PM_{10} levels reducing across the AQMA's. However, there still remains small numbers of hot spots where levels of Nitrogen Dioxide are above government objectives. In 2017 there were 12 diffusion tube results out of 69 monitored locations with the Teignbridge District that exceeded the National Air Quality Objective for Nitrogen Dioxide. These locations are found in the Newton Abbot & Kingsteignton AQMA (7) and the Teignmouth AQMA (5).

Newton Abbot and Kingsteignton

In the course of 2017 we monitored 39 tube locations. Of these:-

- 21 locations got worse but still remained below the national objective.

- 7 locations exceeded the National Objective.

    Of these 7 locations, there were 3 sites that exceeded in 2016 and again in 2017, 2 new exceeding sites, and 2 new locations. It should be noted that with the 2 new exceeding locations, they are not relevant exposure but provide informative data and have been positioned to describe the anticipated changes in traffic flow as a result of the A382 upgrade.

- 7 locations got worse and are now within 10% of the National Objective.

- 4 locations are well below the National objective and/or improved in 2017.

With reference to continuous data, 6 months' data has been collected (July – Dec) which shows an annualised mean of 18.51 thereby not exceeding the National Objective for either a daily mean or a 1 hour mean.

Teignmouth

In the course of 2017 we continued to maintain 10 monitoring tube locations. Of these:-

- 2 tubes showed a small reduction. However, the two locations that exceeded in 2016, continue to exceed in 2017. Indeed they got worse.

- 3 locations have also now exceeded the National Objective.

This shows that Teignbridge now has 5 exceeding locations out of 10 in 2017.

With reference to continuous data, 6 months' data has been collected (July – Dec) which shows an annualised mean of 11.39 thereby not exceeding the National Objective for either a daily mean or a 1 hour mean.

Kingskerswell

In the course of 2017 we continued to maintain 14 monitoring tube locations. Of these:-

- 8 monitoring tubes got slightly worse, but still remain well below the National objective.

- 5 monitoring tubes improved

- 1 monitoring tube remained the same.

It should be noted that all monitoring tubes are again below the 10% National Objective. If this remains the case for 2018 data, then the Council will be able to revoke this AQMA in 2019.

Dawlish

In the course of 2017 we continued to maintain 4 monitoring tube locations. Of these 4 locations, All locations remained well below the National Objective. From looking

back through the past 3 years of monitoring it is evident that the levels are not deteriorating and are remaining well below the 10% National Objective. It is therefore Teignbridge District Council's in 2018 to revoke the Dawlish AQMA.

Actions to Improve Air Quality

Teignbridge District Council took forward a number of measures during 2017 in pursuit of improving local air quality. Key completed measures are:-

- Projects to Increase electric vehicles/Low Emission Vehicle Strategy/Clean Air Strategy

In the early part of 2017 Teignbridge District Council joined the Greater Exeter Ultra Low Emission Vehicle Partnership in a bid led by Devon County Council to the European Regional Development Fund (ERDF). After completing several bidding rounds the partnership bid formed the Devon and Exeter Low carbon Energy and Transport Technology (DELETTI). The outline application was successful and a deadline has been given of the 23rd March 2018 to submit the full application. Therefore officers will be meeting with other local partners to discuss the finer details which include match funding. If the bid is successful in March 2018, leadership and delivery of the project will be delivered by Devon County Council. For Teignbridge the funding will provide a total of four dual electric vehicle rapid charge points.

- Teignbridge District Council Ten Year Strategy 2016 – 2025.

Air Quality features highly in the Teignbridge Ten and in particular within two super projects – "Moving up a Gear" (to improve travel options) and "Health at the Heart" (to improve health and wellbeing). Involvement in these projects has been taking place during 2017 and projects are progressing well. Specific details of projects and actions relating to these projects can be found in Chapter 2.2 and table 2.2.

- Assessing all planning application in the District, either within an AQMA or ones that could have a significant impact on an AQMA.

- Continuation of ensuring specific air quality projects are included in The Teignbridge District Council Ten Year Strategy (2016 – 2025).

- Data Collection

Previous issues with regard to the Authority's collection of data have now been resolved. However due to only commencing this data collection mid-year, it will not

be possible to submit full collection results in this ASR for 2017. It should be noted therefore that full year's data collection will be reported in the ASR 2018.

- Air Quality Plan for Nitrogen Dioxide (NO_2) in UK (2017)

Following consultation and publication of this document, a report to our Committee members took place to advise them of the contents and to confirm that this document did not affect Teignbridge District Council's current Air Quality Status.

- Old Newton Road, Heathfield – In the vicinity of British Ceramic Tiles

For some time now, this Authority has not received dust complaints arising from the site. This coincides with improved working practices and investment in infrastructure by the company. Despite the above, and having now overcome the data capture issues, we find the perceived improvement is not being supported by the reliable data that we now have.

Reliable data commenced in July 2017 so at present we are not in a position to make any definitive decisions until we have a full year's worth of reliable data. However, from the data we have received thus far there is every prospect that the annual hourly objective for PM_{10} will be exceeded at this location.

Teignbridge District Council also expects the following measures to be completed over the course of the next reporting year:-

- Consultation and publication of the draft new AQAP.

- Projects to increase electric vehicles and charge points across Teignbridge and other neighbouring authorities.

- Be continue with being a stakeholder within the Greater Exeter Strategic Plan.

- Revoke the Dawlish AQMA.

- Conclusion of Data Capture to enable assessment to be made as to whether the National Objectives for PM_{10} are being exceeded in the vicinity of Old Newton Road, Heathfield.

- Staff Car Sharing Scheme.

- Workplace Travel Plan.

Conclusions and Priorities

Unfortunately in 2017 progress on the Action Plan has been slower than expected. It is therefore the main priority for Teignbridge District Council in 2018 to ensure that the Action Plan is approved. This would then allow us to pursue what will be a more targeted set of actions within this plan. However, whilst this work is being undertaken, we continue to use our existing Air Quality Action Plan approved in March 2010 to continue to deliver air quality improvements within the District.

There were a number of circumstances in 2017 that have delayed the approval of our emerging Air Quality Action Plan. :-

UK National Air Quality Plan for Nitrogen Dioxide (NO2 in 2017).

Due to the consultation process on the Government's plan to improve air quality with a specific focus on Nitrogen Dioxide Teignbridge did not release the revised AQAP as we wanted to ensure the contents did not affect our current method of monitoring.

From the plan there were 29 Local Authorities required to take additional steps and develop specific local plans to ensure that they meet the legal limits within the next 3 – 4 years. Teignbridge District Council is not one of these authorities.

However there are measures detailed in the national plan that could be used within Teignbridge to shorten the time for compliance. Officers are currently revising our draft Air Quality Action Plan to include these measures.

Greater Exeter Strategic Plan – Joint Air Quality Action Plan

Discussions and meetings took place to consider the appropriateness of a joint Air quality action plan. Following these meetings and discussions, it was identified that whilst the challenges to the individual authorities were very different it was better for each authority to pursue its own individual action plan.

With regard to data collection, now that data issues have been resolved, it is a priority in 2018 to ensure that a complete years' worth is data is achieved.

As with other local Authorities, one principal challenge and barrier is the scale of local growth in houses, and finding source of funding for measures such as Electric Vehicle Charging Points.

Seek funding for Electric Vehicles charging points. If applications are successful, it will be a key priority to implement these programmes. Further information will be provided in the new AQAP.

To revoke the Dawlish AQMA.

Local Engagement and How to get involved

Public participation in Air Quality issues are vital to maintaining standards within the objectives. Everyone in Teignbridge can make small changes to their daily routine to improve air quality including:-

- Walking or cycling more

- Using public transport

- Car Sharing

- Not leaving your vehicles idling

- Checking your vehicle is as economic and green as possible. (sources of information are available on the Council's website for improving air quality. (https://www.teignbridge.gov.uk/environmental-health-and-wellbeing/land-air-and-water-pollution/air-quality))

Regular involvement takes place with Elected Councillors regarding current air quality issues and members from the Air Quality Team also attend Council Committee Meetings regarding Air Quality.

The Council also does a lot of interacting with the public by means of social media (facebook & twitter), advising them of Air Quality Issues.

In 2017 we also dealt with 30 service requests relating to either planning applications having an impact on air quality or concerns from the public regarding the current air quality levels.

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1 Local Air Quality Management

This report provides an overview of air quality in Teignbridge District Council during 2017. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) 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 pursuit of the objectives. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Teignbridge District Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England can be found in Table E.1 in Appendix E.

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 must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

A summary of AQMAs declared by Teignbridge District Council can be found in Table 2.1. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at https://www.teignbridge.gov.uk/environmental-health-and-wellbeing/land-air-and-water-pollution/air-quality .

In 2017 we propose to revoke Dawlish AQMA. (see monitoring section).

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)				Action Plan		
						At Declaration		Now		Name	Date of Publication	Link
Iddesleigh Terrace, Dawlish	2005	NO2 annual mean	Dawlish	Small section of road. It is a winding road and forms a street canyon.	No Devon County Council	42.34	µg/m3	35.74	µg/m3	Air Quality Action Plan	2010	https://www.teignbridge.gov.uk/environmental-health-and-wellbeing/land-air-and-water-pollution/air-quality/
Kingskerswell	2005	NO2 annual mean	Kingskerswell	Main route into Torbay and experiences very high traffic flows. A congested route with slow moving traffic.	No Devon County Council	50.88	µg/m3	27.03	µg/m3	Air Quality Action Plan	2010	https://www.teignbridge.gov.uk/environmental-health-and-wellbeing/land-air-and-water-pollution/air-quality/

Newton Abbot & Kingsteignton	2005 amended 2008	NO2 annual mean	Newton Abbot	Congested streets and narrow in places with residential properties within metres of the edge of the roads. The AQMA was further extended in 2008 following a Detailed Assessment.	No Devon County Council	48.82	µg/m3	52.84	µg/m3	Air Quality Action Plan	2010	https://www.teignbridge.gov.uk/environmental-health-and-wellbeing/land-air-and-water-pollution/air-quality/
Teignmouth	2005	NO2 annual mean	Teignmouth	Primary route and main thoroughfare for HGV traffic.	No Devon County Council	56.83	µg/m3	57.99	µg/m3	Air Quality Action Plan	2010	https://www.teignbridge.gov.uk/environmental-health-and-wellbeing/land-air-and-water-pollution/air-quality/

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

2.2 Progress and Impact of Measures to address Air Quality in Teignbridge District Council

Defra's appraisal of last year's ASR concluded that the report was well structured, detailed and provided the information specified in the Guidance. It welcomed the submission of the new AQAP. Unfortunately progress on this matter has been slower than expected and the Council is now looking to submit the AQAP in 2018.

It also welcomed the plans for the revocation of the Kingskerswell AQMA (2019) following its construction in 2015, and the Dawlish AQMA. Results of monitoring figures for 2017 indicate that levels have reduced significantly following the opening of the bypass and the Council should therefore still be in a position in 2019 to revoke the Kingskerswell AQMA. Following a full set of data for the Dawlish AQMA these results also indicate that levels do not meet the current air quality objectives and it is therefore our intention in 2018 to revoke the Dawlish AQMA.

As our AQAP is developed, it will be important to consider the links between $PM_{2.5}$ and public health. On this basis, the Action Plan needs to reconsider the $PM_{2.5}$ linkage.

Data collection was an issue in 2016, however significant progress has been made and a new data collection system has been operational in 2016. Unfortunately due to timings of the setup it has not been possible in this report to submit a whole year's worth of data. It is therefore our intention in 2018 that a full data set will be submitted. This will then allow assessment as to whether or not current National Objectives are being breached at Old Newton Road in the vicinity of British Ceramic Tile Factory.

Teignbridge District Council has taken forward a number of direct measures during the current reporting year of 2017 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2.

Key completed measures are:

Rail Station at Marsh Barton

To support a new rail station at Marsh Barton – Having already secured a contribution to this measure, unfortunately Teignbridge's contribution to the overall cost cannot be increased without the District Council's approval. Therefore a bid has been made for a consultancy budge to consider an Exminster Railway Station feasibility but this has yet

to be agreed through the budget process. Also, specification changes applied by Network Rail mean that the new rail station at Marsh Barton has been procedurally delayed.

Heathfield Branch Line

The Health Rail Link group has agreed a lease of the Heathfield Line with Network Rail, and will be considering what actions they need to take to bring forward rail operation on that line. Once submitted, Teignbridge District Council will need to look at the details of any business case but consider this a positive step in the right direction.

Widening of the A382

Consultation took place on a planning application for the widening of the A382 (the Newton Abbot to Bovey Tracey road). This application was subsequently approved in June 2017. Included within this application is the provision for a Park and Change site in the Forches Cross area of this road and cycle links. This park and ride has been incorporated into a development proposal at Houghton Barton. Connections between the site and Newton Abbot will be easier to achieve and now more reliable once the enhancements to the A382 Bovey Tracey Road have been implemented.

Encourage a cycling revolution

A recent cycle scheme delivery has included complex sections of the Teign Estuary trail between Dawlish and Dawlish Warren. Teignbridge District Council's next steps will include design, funding bids and delivery between Dawlish and Teignmouth. New cycle hire and electric bike facilities are coming forward at Dawlish Warren.

Innovative transport schemes

A car club facility opened at Newton Abbot Railway Station in 2017.

Health Interventions to local communities

In 2017 Teignbridge continued to develop new projects and interventions aimed at helping the Teignbridge residents and staff to move more. A new free healthy lifestyle service called OneSmallStep which delivers motivational, informative and guided small steps towards a happier and healthier lifestyle was encouraged by the Council. The Council will also work with Devon County Council, Public Health England and One Small Step to adopt the Make Every Contact Count (MECC), approach to healthy

lifestyles. This will apply where the Council has contact with the public or staff where there are health inequalities.

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

- Approval of Air Quality Action Plan

- Implement a Low Emission Vehicle Strategy

- Revoke Dawlish AQMA.

- Continuation of involvement within Air Quality projects within the Teignbridge Council Ten Year Strategy 2016 - 2025

Teignbridge District Council's priorities for the coming year are

- Approval of Air Quality Action Plan

The principal challenges and barriers to implementation that Teignbridge District Council anticipates facing are :-

Air Quality Action Plan.

As detailed previously, progress was slower than expected in 2017 with approval of the AQAP. It is therefore anticipated that in 2018 this will be approved. However it is likely due to the delay in submission, previous measures listed will have evolved and therefore measures may need to be amended. It is also likely that there will be keen public and Councillor scrutiny, and this may mean that plans and measures take longer than expected.

Funding.

The outcome of the current bid with DELITTI will be known in 2018. Should the authorities be successful then careful corporate consideration will be given to match funding and relevant locations. If the bid is unsuccessful the political opinion will need to be sought with regard to funding.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1	Teignbridge District Council Ten Year Strategy 2016 - 2025	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Teignbridge District Council (TDC)	ongoing	ongoing	TDC Ten Year Strategy 2016 - 2025		ongoing	ongoing with a completion date of 2025	N/A
2	Air Quality Action Plan	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	TDC	ongoing	ongoing	Reduction below the National Air Quality Objective	Revocation of AQMA	Drafted and awaiting approval	Jun-18	N/A
3	Planning Applications	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	TDC	ongoing	ongoing	Local Plan 2013 - 2033	N/A	ongoing	ongoing with a completion date of 2025	funding
4	Greater Exeter Strategic Plan (GESP)	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Teignbridge District Council, Exeter City Council, Devon County Council, Mid Devon District Council	ongoing	ongoing	Local Plan 2013 - 2033	N/A	ongoing	ongoing	funding
5	To support a New Rail Station at Marsh Barton	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	TDC	ongoing	ongoing	TDC Ten Year Strategy 2016 - 2025	N/A	bid submitted	subject to funding	Network Rail Design barriers
6	Investigate improved use of Heathfield Branch Line	Alternatives to private vehicle use	Other	TDC, DCC, Network Rail	Bid submitted	awaiting funding	TDC Ten Year Strategy 2016 - 2025	N/A			

7	Widening of the A382	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	TDC, DCC,	ongoing		TDC Ten Year Strategy 2016 - 2025	N/A	land assembly commenced	works not due to commence until 2019	
8	Encourage a cycling revolution	Alternatives to private vehicle use	Other	TDC	ongoing	ongoing	TDC Ten Year Strategy 2016 - 2025	N/A	submitting funding bids	subject to funding	funding
9	Innovative Transport Schemes	Promoting Travel Alternatives	Personalised Travel Planning	TDC	ongoing	ongoing	TDC Ten Year Strategy 2016 - 2025	N/A	ongoing	N/A	N/A
10	Health Interventions to Local Communities	Public Information	Other	TDC	ongoing	ongoing	TDC Ten Year Strategy 2016 - 2025	N/A	ongoing	N/A	N/A

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.

Currently there is no actual direct monitoring of PM$_{2.5}$ Teignbridge. It is possible however to estimate concentrations based upon local PM$_{10}$ data using the correction figure in Technical Guidance (16). This method suggest that PM$_{2.5}$ concentrations within the District of Teignbridge are no more than 18.89 µg/m^3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance

2.4 Summary of Monitoring Undertaken

2.4.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how it compares with objectives.

Teignbridge District Council undertook automatic (continuous) monitoring at 8 sites during 2017. Table A.1 in Appendix A shows the details of the sites. National monitoring results are available at https://uk-air.defra.gov.uk

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

Teignbridge District Council only undertakes monitoring for NO$_2$ and Pm$_{10}$ in our administrative area. NO$_2$ monitoring has been undertaken utilising diffusion tubes and two continuous analysers. PM$_{10}$ has been monitoring at various locations using Osiris (indicative monitors) and a BAM (Beta Attenuation Monitor) monitors and it is noted that the Osiris purely used as a screening tool option.

2.4.2 Non-Automatic Monitoring Sites

Teignbridge District Council undertook non- automatic (passive) monitoring of NO$_2$ at 67 sites during 2017. Table A.2 in Appendix A shows the details of the 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.

2.5 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, "annualisation" and distance correction. Further details on adjustments are provided in Appendix C.

2.5.1 Nitrogen Dioxide (NO₂)

Table A.3 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past 5 years with the air quality objective of $40\mu g/m^3$.

For diffusion tubes, the full 2017 dataset of monthly mean values is provided in Appendix B.

Table A.4 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past 5 years with the air quality objective of $200\mu g/m^3$, not to be exceeded more than 18 times per year.

The data from 2017 shows that there were 12 roadside locations with the Teignbridge District Council that exceeded the annual National Air Quality Objective for Nitrogen Dioxide. They are distributed as follows:-

7 locations inside the Newton Abbot/Kingsteignton AQMA (85 Wolborough Street, Jetty Marsh Road - West Lampost, 108 – 110 Queen Street, 30-34 Bradley Court, Exeter Road Opposite Coombeshead Academy, 90 Wolborough Street and 79 Wolborough Street.

It should be noted that 2 of the 7 locations exceeding in the Newton Abbot/Kingsteignton AQMA are not relevant exposure but provide infomative data to describe the anticipated changes in traffic flow as a result of the A382 ugrade.

Also, of note is that as expected there are now no longer exceedances within the Kingkserswell AQMA due to the construction of the South Devon Highway.

In the Dawlish AQMA there were also no tubes that exceeded the national annual objective. The levels have been reducing year on year within this AQMA and it is therefore likely that this AQMA will be revoked in 2019.

It should be noted that there are another 9 further locations very close to the National Air Quality Objetives and have the potential to exceed in the future. 8 of these locations are in the Newton Abbot/Kingsteignton AQMA.

One tube in the Dawlish AQMA has changed against the overall the trend in recent years. Although this tube has slightly increased, it still meets the DEFRA criteria of 3 years well below the National Objectives (ie 10% or more) so it is unlikey to hinder the revocation of the Dawlish AQMA in 2019.

With regard to the exceedances, the extent of the exceedance of the National Objectives range from 1 $\mu g/m^3$ at 108 – 110 Queen Street to 18 $\mu g/m^3$ at 1 Reed Vale Lodge, Teignmouth.

There was no annual average over 60 $\mu g/m^3$ which would indicate that an exceedance of the 1 hour mean objective is also not likely.

Each year Teignbridge reviews the sites of the diffusion tubes and takes into consideration extending, reducing or revoking an AQMA. With current levels in two of our AQMA's namely Dawlish and Kingskerswell, being significantly below the national objective, monitoring will continue in line with current Government guidelines to enable revokation of these AQMA's in the next year or so.

Figure A4.1 shows the NO_2 trend from 7 of Teignbridge District Council's highest exceeding sites between 2013 – 2017. It is evident from this graph that all tubes have increased in the reporting year.

2.5.2   Particulate Matter (PM10)

Table A.5 in Appendix A compares the ratified and adjusted monitored PM10 annual mean concentrations for the past 5 years with the air quality objective of 40µg/m³.

Table A.6 in Appendix A compares the ratified continuous monitored PM10 daily mean concentrations for the past 5 years with the air quality objective of 50µg/m³, not to be exceeded more than 35 times per year.

Following issues with the data collection in 2016, although these issues have now been resolved, it is not possible with the percentage of data captured to provide

annual figures for the Osiris monitors. With reference to the Old Newton Road (Magnolia) BAM site, figures show that neither the 24 hour mean or the annual mean concentration is exceeding. However, again it should be noted that only 49% of data capture was possible in 2017 so Teignbridge are not in a position to make any definate conclusions from the data thus far.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Inlet Height (m)
CM1	Halcyon Road, Newton Abbot	Roadside	285681	71393	NO2	YES	Chemiluminescent	5	2	1.7
CM2	Bitton Park Road, Teignmouth	Roadside	293363	73094	NO2	YES	Chemiluminescent	8.5	1.73	1.7
CM3	BAM - Magnolia	Roadside	283220	75972	PM10	NO	Absorption of Beta Radiation	14	N/A	1.7
CM4	Queen Street Newton Abbot	Roadside	286617	71332	PM10	YES	Light scattering technique	2.18	2.63	1.7
CM5	11 Brow Hill Heathfield	Other	283149	75937	PM10	NO	Light scattering technique	80	N/A	1.7
CM6	Magnolia Heathfield	Other	283220	75972	PM10	NO	Light scattering technique	14	N/A	1.7
CM7	Battle Road Heathfield	Other	282813	75775	PM10	NO	Light scattering technique	N/A	0	1.7
CM8	A38 Heathfield	Other	283435	75826	PM10	NO	Light scattering technique	N/A	5	1.7

Notes:

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

(2) N/A if not applicable.

Table A.2 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube collocated with a Continuous Analyser?	Height (m)
1	Aller Brake Road N Abbot	Roadside	287396	69902	NO2	NO	1m	5m	NO	1.7
2	DP 155(153) Bitton Park Road, Teignmouth	Kerbside	293277	293277	NO2	YES	0	1m	NO	1.7
3	9 Gestridge Rd, Kingsteignton	Kerbside	286967	73146	NO2	YES	0	1m	NO	1.7
4	DP 85 Wolborough St, Newton Abbot	Kerbside	285526	71010	NO2	YES	0	1m	NO	1.7
5	96 Bitton Park Rd, Teignmouth	Kerbside	293387	73101	NO2	YES	0	1m	NO	1.7
6	157 Queen St, Newton Abbot	Kerbside	286630	71329	NO2	YES	0	1m	NO	1.7
7	54 Newton Rd, Kingsteignton	Roadside	286718	72523	NO2	YES	1m	5m	NO	1.7
8	57 East St, Newton Abbot	Kerbside	285991	71158	NO2	YES	0	1m	NO	1.7
9	Forde House Offices, Newton Abbot	Other	287073	70915	NO2	NO	N/A	N/A	NO	1.7
10	Control	Other	N/A	N/A	N/A	NO	N/A	N/A	NO	N/A
11	12 Torquay Rd, Newton Abbot	Kerbside	286345	71078	NO2	YES	0	1m	NO	1.7
12	Bus Stop/Datal office Torquay Rd, Newton Abbot	Kerbside	287939	68823	NO2	YES	0	1m	NO	1.7

13	22 Courtenay Road, Newton Abbot	Urban Background	286061	70812	NO2	NO	24m	1m	NO	1.7
14	Bus StopWestcombe Caravan Park Torquay Rd, N Abbot	Kerbside	288024	68769	NO2	YES	15m	1m	NO	1.7
15	38 Ashburton Road	Roadside	275659	69917	NO2	NO	2m	2m	NO	2
16	46/48 Newton Rd, Kingsteignton	Roadside	286727	72538	NO2	YES	2m	5m	NO	1.7
17	Whitecourt, Iddesleigh Terrace, Dawlish	Kerbside	296299	76738	NO2	YES	0	1m	NO	1.7
18	DP Flat 2, Birchwood Court, Addison Rd, NA	Roadside	287211	70496	NO2	YES	0	2m	NO	1.7
19	DP 49 The Avenue, Newton Abbot	Roadside	286479	71558	NO2	YES	0	5m	NO	1.7
20	Specsavers 16 Queen Street Ground Floor Newton Abbot	Kerbside	286056	71334	NO2	YES	0	1m	NO	1.7
21	Jetty Marsh Lamp Post no. 28 Westward Traffic Flow	Roadside	285813	72061	NO2	YES			NO	
22	Jetty Marsh Lamp Post no. 29 Eastward Traffic Flow	Roadside	285812	72050	NO2	YES			NO	

23	108-110 Queen St First Floor level Newton Abbot	Kerbside	286519	71344	NO2	YES	0	1m	NO	4
24	87 East St, Newton Abbot	Kerbside	286061	71151	NO2	YES	0	1m	NO	1.7
25	DP 7 Station Rd, Newton Abbot	Roadside	286703	70922	NO2	Y	0	4m	NO	1.7
26										
27	DP 173 Bitton Park Rd, Teignmouth	Kerbside	293231	73085	NO2	YES	0	1m	NO	1.7
28	Western Cottages 1 Greenhill Road KKwell	Roadside	287671	67405	NO2	NO	5m	3m	NO	1.7
29	Jct of Huxnor Rd and Eddginswell Lane Kkwell	Kerbside	287667	67263	NO2	NO	0	1m	NO	1.7
30	1A Piermont Place, Dawlish	Kersbide	296281	296281	NO2	YES	0	1m	NO	1.7
31	DP 108-110 Queen St, Newton Abbot	Kerbside	286517	71336	NO2	YES	0	1m	NO	1.7
32	21 Oakford, Broadway Rd, Kingsteignton	Kerbside	286957	73112	NO2	YES	0	1m	NO	1.7
33	DP 30-34 Bradley Court, Highweek Street NA	Kerbside	285681	71393	NO2	YES	0	1m	NO	1.7
34	NOx Analyser, Halcyon Road, Newton Abbot	Other	286071	71478	NO2	YES	0	N/A	YES	1.7

35	Lamp post St Mary Church Road Newton Abbot	Roadside	287299	70621	NO2	NO	5m	1m	NO	1.7
36	DP Westhill House, Kingskerswell	Kerbside	288111	67872	NO2	YES	0	1m	NO	1.7
37	Telegraph pole Ringslade, Highweek	Kerbside	284851	72101	NO2	NO	0	1m	NO	1.7
38	DP 26 Newton Road, Kingsteignton	Roadside	286757	72583	NO2	YES	2m	5m	NO	1.7
39	Rock House 1 Maddacombe Rd KKwell	Kerbside	287477	67698	NO2	NO	0	1m	NO	1.7
40	Exeter Road, Newton Abbot	Roadside	285565	71929	NO2	YES			NO	
41	DP Aller Farmhouse, Kingskerswell	Kerbside	288077	68761	NO2	YES	0	1m	NO	1.7
42	Lay By Exeter Rd (opp Vauxhall Garage) Whitehill N Abbot	Kerbside	285477	72510	NO2	NO	N/A – pre planning application.	1m	NO	1.7
43	NOx Analyser, Halcyon Road, Newton Abbot	other	285681	71393	NO2	YES	0	N/A	YES	1.7
44	NOx Analyser, Halcyon Road, Newton Abbot	Other	285681	71393	NO2	YES	0	N/A	YES	1.7
45	DP 4 Commercial Rd, Dawlish	Kerbside	296302	76756	NO2	YES	0	1m	NO	1.7

46	DP 3 Iddesleigh Terrace, Dawlish	Kerbside	296318	76763	NO2	YES	0	1m	NO	1.7
47	DP 114 Bitton Park Rd, Teignmouth	Kerbside	293256	73109	NO2	YES	0	1m	NO	1.7
48	DP 1 Reed Vale Lodge, Teignmouth	Kerbside	293446	73091	NO2	YES	0	1m	NO	2
49	DP 68 Bitton Park Rd, Teignmouth	Kerbside	293541	73083	NO2	YES	0	1m	NO	2
50	L/Post Newton Road (Northbound opp Priory Ave) Kkwell	kerbside	288027	68381	NO2	YES	0	1m	NO	1.7
51	DP St Mary's Court, Highweek St,NA	Roadside	285674	71401	NO2	YES	0m	4m	NO	1.7
52	DP 29 Vicarage Hill, Kingsteignton (Blindwell)	Roadside	287544	73067	NO2	NO	2m	5m	NO	1.7
53	90 Wolborough Street Newton Abbot	Kerbside	285537	71035	NO2	YES	0	1m	NO	1.7
54	DP 3 Gestridge Road, Kingsteignton	Kerbside	286969	73130	NO2	YES	0	1m	NO	1.7
55	DP 79 Wolborough St, Newton Abbot	Kerbside	285554	71043	NO2	YES	0	1m	NO	1.7
56	DP Wywurree Bungalow, Addison Road NA	Roadside	287198	70542	NO2	YES	0	10m	NO	1.7

57	West Golds Way, Newton Abbot	Roadside	285942	72254	NO2	NO			NO	
58	L/Post Level with 28 Water lane Torquay Road (Northbound) Kkwell	Kerbside	288168	67516	NO2	YES	0	1m	NO	1.7
59	LP Newton Road, South of Pottery Road, Kingsteignton	Roadside	286730	72518	NO2	YES	15m	2m	NO	1.7
60	NOx Analyser - Bitton Park Road, Teignmouth	Other	293363	73094	NO2	YES	0	N/A	YES	1.7
61	NOx Analyser - Bitton Park Road, Teignmouth	other	293363	73094	NO2	YES	0	N/A	YES	1.7
62	NOx Analyser - Bitton Park Road, Teignmouth	Other	293363	73094	NO2	YES	0	N/A	YES	1.7
63	DP 3 Gestridge Rd, Kingsteignton (Broadway Rd)	Kerbside	286965	73120	NO2	YES	0	1m	NO	1.7
64	Telegraph Pole, 22 Gestridge Road, Kingsteignton	Kerbside	286985	73111	NO2	NO	0	1m	NO	1.7
65	96 Wolborough St, Newton Abbot	Kerbside	285518	71018	NO2	YES	0	1m	NO	1.7

66	Halfway House Torquay Road (next to Hare +Hound) Kkwell	Kerbside	288339	66936	NO2	YES	0	1m	NO	1.7
67	Coventry Cottage Torquay Road (Southbound)	Kerbside	288487	66690	NO2	YES	0	1m	NO	1.7
68	Cliffpark, Bishopsteignton Road, Teignmouth	Kerbside	292886	72930	NO2	NO	0	1m	NO	1.7
69	Highweek Inn crossroad	Kerbside	284813	72062	NO2	NO	0	1m	NO	1.7

Notes:

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO₂ Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2017 (%) [2]	NO₂ Annual Mean Concentration (µg/m³) [3]				
					2013	2014	2015	2016	2017
BP	Roadside	Automatic	96.75	48.38	<u>21.45</u>	19.29	19.82	0	11.39
HR	Roadside	Automatic	97.63	48.82	<u>29.77</u>	44.63	29.01	0	18.51
1	Roadside	Diffusion Tube		75.00	<u>-</u>		27.66	24.07	32.72
1 (A)	Roadside	Diffusion Tube		0.00	<u>23.37</u>	20.8			
2	Roadside	Diffusion Tube		66.67	<u>38.82</u>	38.88	36.97	28.77	41.36
3	Roadside	Diffusion Tube		100.00	<u>37.87</u>	38.41	37.37	31.32	37.30
4	Roadside	Diffusion Tube		100.00	<u>58.17</u>	51.4	50.12	45	47.36
5	Roadside	Diffusion Tube		91.67	<u>50.03</u>	46.05	42.08	40.77	42.68
6	Roadside	Diffusion Tube		100.00	<u>44.5</u>	36.79	34.97	34.25	36.12
7	Roadside	Diffusion Tube		100.00	<u>33.49</u>	30.72	30.76	28.16	30.74
8	Roadside	Diffusion Tube		91.67	<u>35.55</u>	31.62	30.75	28.32	33.21
9	Other	Diffusion Tube		100.00	<u>17.34</u>	16.51	13.84	13.64	15.15
10	Other	Diffusion Tube		100.00	<u>0.23</u>	0.11	0.13	0.1	0.33
11	Roadside	Diffusion Tube		83.33	<u>34.83</u>	37.41	31.46	29.7	31.98
12	Roadside	Diffusion Tube		91.67	<u>-</u>		37.65	21.86	20.87

12 (A)	Roadside	Diffusion Tube		0.00	**17.72**	17.72			
13	Roadside	Diffusion Tube		100.00	**10.72**	8.93	8.33	8.92	8.41
14	Kerbside	Diffusion Tube		100.00	**-**		31.38	16.67	16.97
14 (a)	Roadside	Diffusion Tube		0.00	**14.13**	14.13	0	0	
15	Roadside	Diffusion Tube		100.00	**0**	8.93	27.08	27.65	30.05
15 (a)	Roadside	Diffusion Tube		0.00	**25.21**				
16	Roadside	Diffusion Tube		100.00	**35.64**	13.51	36.4	31.94	36.92
17	Roadside	Diffusion Tube		75.00	**38.37**	30.77	36.03	32.84	33.57
18	Roadside	Diffusion Tube		100.00	**22**	36.57	22.68	21.81	24.46
19	Roadside	Diffusion Tube		100.00	**27.43**	40.07	24.19	24.47	26.91
20	Roadside	Diffusion Tube		83.33	**22.07**	25.25	19.45	20.59	21.78
21	Roadside	Diffusion Tube		100.00	**-**				43.13
21(a)	Roadside	Diffusion Tube		0.00	**23.32**	28.05	19.39	19.83	
22	Roadside	Diffusion Tube		91.67	**-**				38.75
22(a)	Roadside	Diffusion Tube		0.00	**31.04**	21.21	25.49	24.54	
23	Roadside	Diffusion Tube		91.67	**40.82**	21.07	36.34	34.38	37.28
24	Roadside	Diffusion Tube		100.00	**42.64**	28.45	39.91	37.95	39.95
25	Roadside	Diffusion Tube		100.00	**36.46**	38.62	36.03	32.68	37.36

ID	Site Type	Monitoring Type							
26	Roadside	Diffusion Tube			-				
26 (a)	Roadside	Diffusion Tube		0.00	**24.82**	42.46	21.56	22.1	
27	Roadside	Diffusion Tube		91.67	**41.71**	36.67	40.27	26.85	41.11
28	Roadside	Diffusion Tube		100.00	-		9.72	11.44	12.27
28 (a)	Roadside	Diffusion Tube		0.00	**43.78**				
29	Roadside	Diffusion Tube		100.00	-		11.01	11.82	11.62
29 (a)	Roadside	Diffusion Tube		0.00	**25.5**				
30	Kerbside	Diffusion Tube		100.00	**35.59**	29.64	34.3	33.51	35.74
31	Roadside	Diffusion Tube		91.67	**43.46**	42.71	38.09	36.3	41.07
32	Roadside	Diffusion Tube		91.67	**26.78**	26.43	25.12	20.6	26.12
33	Roadside	Diffusion Tube		100.00	**44.39**	43.58	41.28	35.84	43.77
34	Kerbside	Diffusion Tube		100.00	**31.96**	29.06	28.11	26.42	28.19
35	Roadside	Diffusion Tube		75.00	-	30.33	27.49	25.77	26.48
35 (a)	Roadside	Diffusion Tube		0.00	**23.53**				
36	Roadside	Diffusion Tube		100.00	**38.98**	37.78	34.18	15.88	15.39
37	Kerbside	Diffusion Tube		100.00	-		17.81	18.28	20.17
37 (a)	Roadside	Diffusion Tube		0.00	**33.77**	33.77			
38	Roadside	Diffusion Tube		100.00	**35.37**	34.76	32.9	29.95	32.19

ID	Location	Method		%					
39	Roadside	Diffusion Tube		100.00	-		14.99	17.58	19.68
39 (a)	Urban Centre	Diffusion Tube		0.00	**0**	0			
39 (b)	Roadside	Diffusion Tube		0.00	**35.37**				
40	Roadside	Diffusion Tube		75.00	-				52.84
40(a)	Roadside	Diffusion Tube		0.00	-		13.48		
40(b)	Roadside	Diffusion Tube		0.00	-		21.37		
41	Roadside	Diffusion Tube		100.00	**40.62**	45.9	24.57	14.14	15.31
42	Kerbside	Diffusion Tube		100.00	-		20.39	21.79	22.79
42 (b)	Roadside	Diffusion Tube		0.00	**22.22**				
43	Kerbside	Diffusion Tube		100.00	**31.05**	29.31	27.45	26.94	26.93
44	Kerbside	Diffusion Tube		100.00	**33.76**	28.64	27.64	26.86	27.60
45	Roadside	Diffusion Tube		83.33	**28.58**	27.65	26.35	25.34	24.90
46	Roadside	Diffusion Tube		100.00	**32.98**	41.81	32.3	26.83	28.48
47	Roadside	Diffusion Tube		100.00	**28.04**	28.34	26.13	25.16	27.17
48	Roadside	Diffusion Tube		83.33	**62.32**	70.43	41.35	50.46	57.99
49	Roadside	Diffusion Tube		83.33	**50.16**	48.7	47.25	31.09	54.04
50	Roadside	Diffusion Tube		100.00	-		44.73	21.45	21.25
50 (a)	Kerbside	Diffusion Tube		0.00	**26.56**	26.56			

51	Roadside	Diffusion Tube		100.00	**26.74**	26.58	26.09	25.11	24.97
52	Roadside	Diffusion Tube		100.00	**39.99**	24.54	19.92	20.82	25.74
53	Roadside	Diffusion Tube		91.67	**46.9**	44.15	45.89	42.03	46.46
54	Kerbside	Diffusion Tube		100.00	**37.52**	36.73	35	32.18	36.29
55	Roadside	Diffusion Tube		100.00	**56.34**	50.69	48.76	42.76	47.09
56	Roadside	Diffusion Tube		100.00	**26.75**	26.35	25.45	24.22	27.03
57	Roadside	Diffusion Tube		100.00	**-**				12.34
57(a)	Kerbside	Diffusion Tube		0.00	**31.36**	33.53	32.27	27.12	
58	Roadside	Diffusion Tube		83.33	**-**		42.35	17.41	19.71
58 (a)	Roadside	Diffusion Tube		0.00	**24.12**	24.12			
59	Roadside	Diffusion Tube		83.33	**29.2**	30.5	29.36	23.43	30.94
60	Roadside	Diffusion Tube		100.00	**25.11**	23.45	20.92	20.9	21.69
61	Roadside	Diffusion Tube		100.00	**23.53**	23.01	21.31	21.01	21.67
62	Roadside	Diffusion Tube		100.00	**25.21**	22.73	21.26	20.77	21.13
63	Roadside	Diffusion Tube		100.00	**26.22**	12.13	22.28	25.1	28.71
64	Roadside	Diffusion Tube		100.00	**-**		23.36	18.34	19.93
64 (a)	Roadside	Diffusion Tube		0.00	**27.94**	27.94			
65	Roadside	Diffusion Tube		100.00	**33.03**	30.88	30.76	26.76	29.45

66	Roadside	Diffusion Tube		91.67	-		**39.03**	**21.2**	**20.50**
66 (a)	Roadside	Diffusion Tube		0.00	**<u>25.35</u>**	25.35			
67	Roadside	Diffusion Tube		100.00	**<u>0</u>**	0	**41.43**	**20.87**	**23.63**
67 (a)	Roadside	Diffusion Tube		0.00	**<u>28.08</u>**	28.08			
68	Roadside	Diffusion Tube			-				
68(a)	Roadside	Diffusion Tube		0.00	**<u>34.02</u>**	30.53	**25.92**	**26.91**	
69	Roadside	Diffusion Tube		100.00	-		**12.86**	**13.32**	**14.30**

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

☒ **Annualisation has been conducted where data capture is <75%**

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.
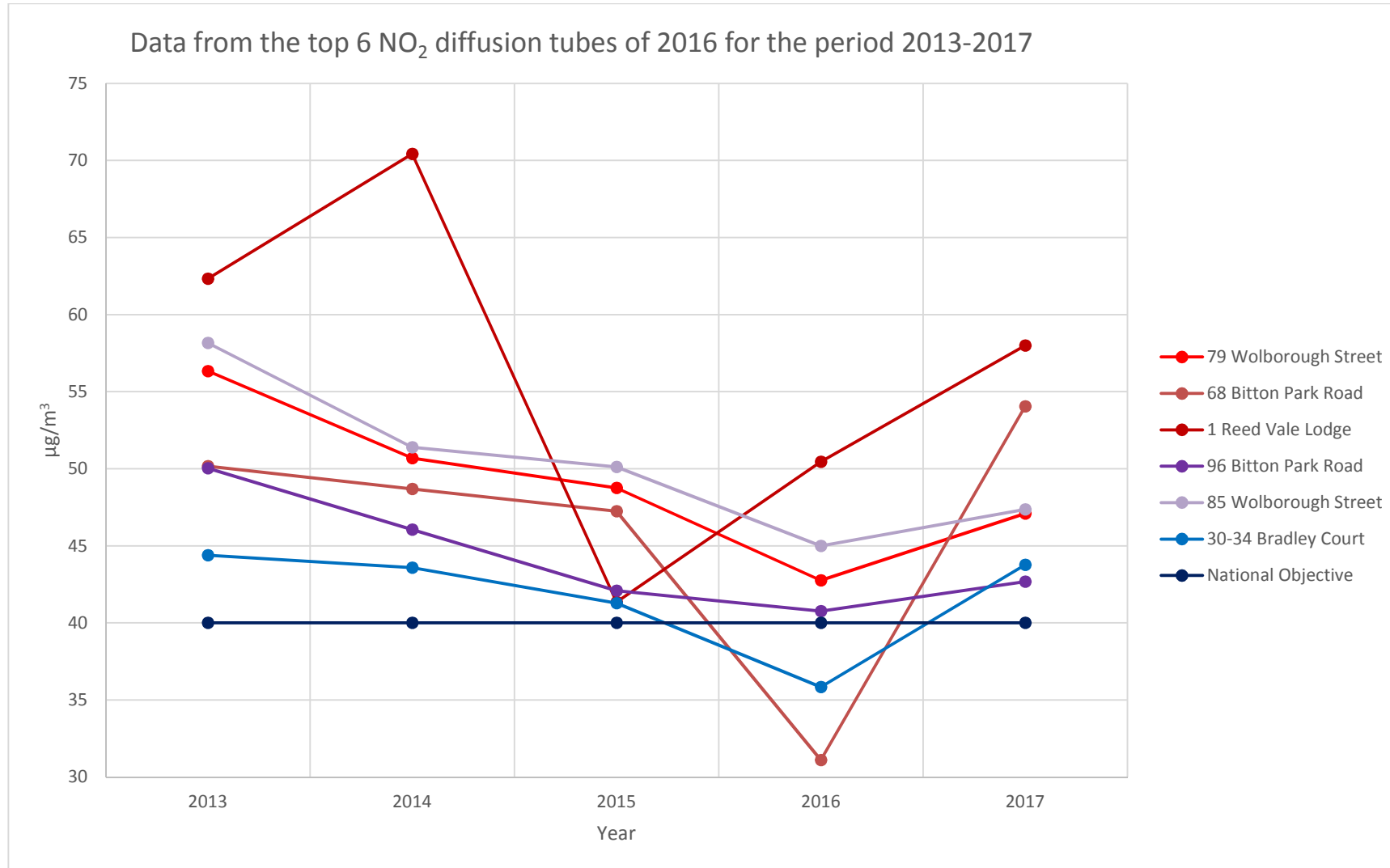
NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **<u>bold and underlined.</u>**

(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%).

(3) Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.
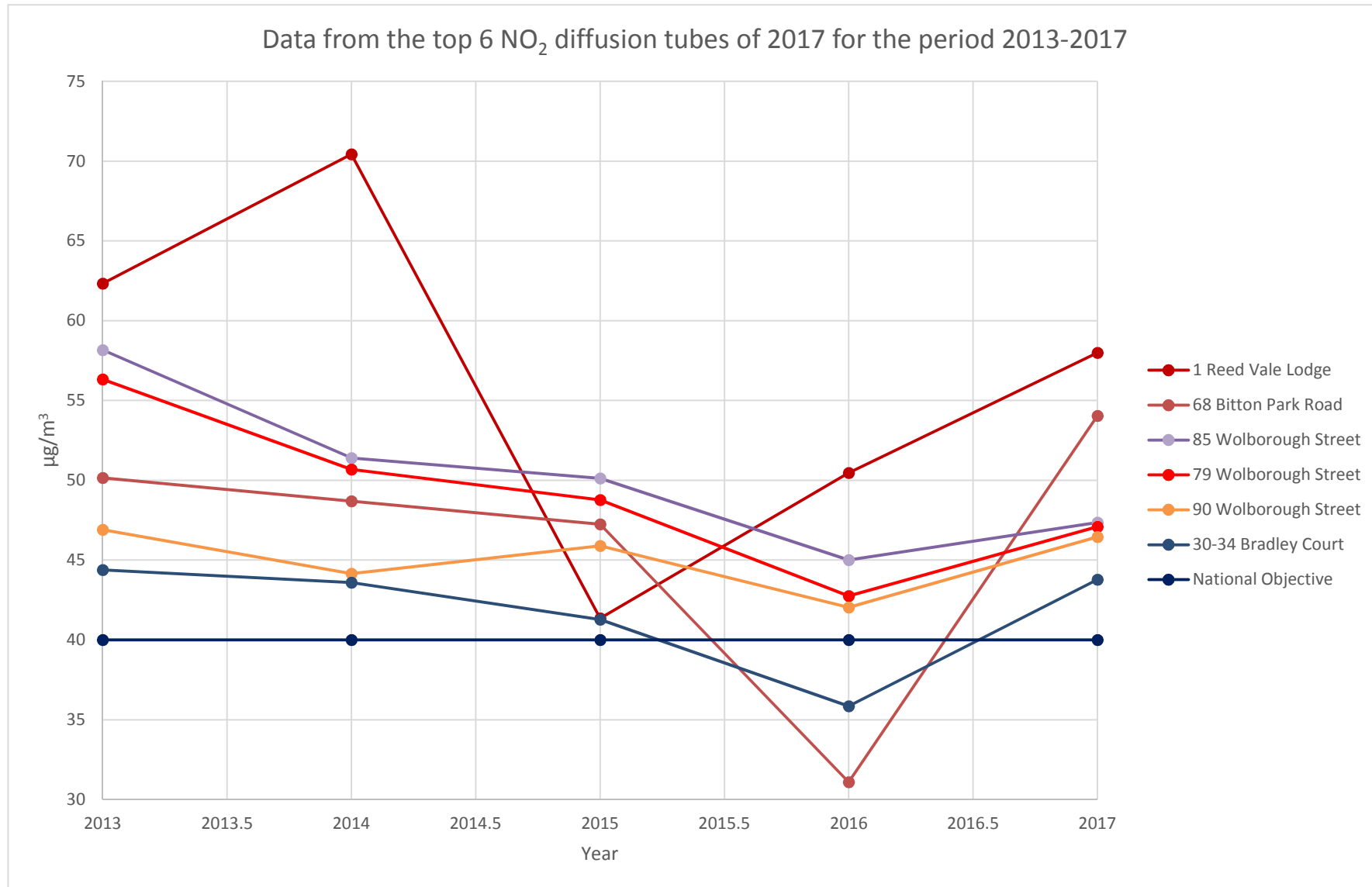
Figure A.1 – Trends in Annual Mean NO₂ Concentrations

Data from the top 6 NO$_2$ diffusion tubes of 2016 for the period 2013-2017

Legend:
- 79 Wolborough Street
- 68 Bitton Park Road
- 1 Reed Vale Lodge
- 96 Bitton Park Road
- 85 Wolborough Street
- 30-34 Bradley Court
- National Objective

Data from the top 6 NO$_2$ diffusion tubes of 2017 for the period 2013-2017

Table A.4 – 1-Hour Mean NO₂ Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2017 (%) (2)	NO₂ 1-Hour Means > 200µg/m³ (3)				
					2013	2014	2015	2016	2017
HR	Roadside	Automatic	97.63	48.82	4	18	No data	No data	3
BP	Roadside	Automatic	96.75	48.38	0	0	No data	No data	0

Notes:

Exceedances of the NO₂ 1-hour mean objective (200µg/m³ 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%).

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

Table A.5 – Annual Mean PM$_{10}$ Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2017 (%) [2]	PM$_{10}$ Annual Mean Concentration (µg/m^3) [3]				
				2013	2014	2015	2016	2017
Mag	Roadside	99.82	49.91		55.06	25.79	No Data	26.98
Brow Hill	Special	-	0	7.33	16.15	No Data	No Data	No Data
Magnolia	Special	-	0	11.94	25.9	49.38	No Data	No Data
A38	Special	-	0	N/A	128.59	No Data	No Data	No Data
Queen Street	Roadside	-	0	22.71	61.56	No Data	No Data	No Data
Battle Road	Special	-	0	N/A	9.52	No Data	No Data	No Data

☒ **Annualisation has been conducted where data capture is <75%**

Notes:

Exceedances of the PM$_{10}$ annual mean objective of 40µg/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%).

(3) All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Table A.6 – 24-Hour Mean PM$_{10}$ Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2017 (%) [2]	PM$_{10}$ 24-Hour Means > 50µg/m^3 [3]				
				2013	2014	2015	2016	2017
Mag	Roadside	99.82	49.91	No Data	No Data	No Data	No Data	31
Brow Hill	Special	-	-	**0**	No Data	No Data	No Data	No Data
Magnolia	Special	-	-	**1**	**0**	**0**	No Data	No Data
A38	Special	-	-	N/A	No Data	No Data	No Data	No Data
Queen Street	Roadside	-	-	**308**	**0**	No Data	No Data	No Data
Battle Road	Special	-	-	N/A	No data	No data	No Data	No Data

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%).

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

Appendix B: Full Monthly Diffusion Tube Results for 2017

Table B.1 – NO₂ Monthly Diffusion Tube Results - 2017

Site ID	NO₂ Mean Concentrations (µg/m³)												Annual Mean		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (factor) and Annualised [1]	Distance Corrected to Nearest Exposure [2]
1	47.61	37.47	38.04	-	28.70	30.96	32.89	-	31.83	34.17	-	38.44	35.57	32.72	32.72
2	45.58	-	41.85	-	-	44.89	42.29	43.75	-	38.07	43.14	34.61	41.77	41.36	41.36
3	51.07	43.50	44.00	40.28	30.88	36.03	34.80	37.01	38.17	37.70	46.73	46.29	40.54	37.30	37.30
4	60.77	59.95	55.75	48.82	48.81	48.61	46.65	47.05	45.23	46.86	59.90	49.33	51.48	47.36	47.36
5	55.44	46.88	48.36	54.07	-	46.70	44.07	46.42	39.58	37.35	55.76	35.69	46.39	42.68	42.68
6	55.46	44.92	39.06	43.49	40.14	34.98	30.84	35.84	31.75	30.93	47.87	35.83	39.26	36.12	36.12
7	41.35	36.90	31.76	36.25	29.00	29.07	27.78	29.38	29.10	30.30	45.15	34.91	33.41	30.74	30.74
8	67.78	-	33.58	29.25	35.31	28.72	25.57	30.61	30.91	30.70	46.98	37.62	36.09	33.21	33.21
9	29.96	20.42	15.45	17.28	12.46	10.50	10.40	11.93	14.14	14.92	22.11	18.06	16.47	15.15	15.15
10	0.27	0.12	0.36		0.15	0.50	0.20	0.31	1.54	0.17	0.25	0.11	0.36	0.33	0.33
11	-	43.01	37.42	23.84	-	33.39	30.60	29.52	32.52	31.72	47.41	38.16	34.76	31.98	31.98
12	34.62	25.43	19.00	-	20.80	17.86	17.45	17.54	20.79	21.42	30.32	24.26	22.68	20.87	20.87
13	18.85	11.50	9.07	8.36	8.11	6.92	5.54	5.90	7.39	7.82	10.89	9.35	9.14	8.41	8.41
14	27.15	19.89	19.21	16.36	14.66	15.74	15.55	16.40	16.64	17.88	22.70	19.19	18.45	16.97	16.97
15	48.68	40.49	35.74	32.60	29.99	26.31	26.80	25.35	26.13	29.34	38.19	32.35	32.66	30.05	30.05

16	45.62	41.85	34.68	38.77	31.40	33.88	33.33	35.01	36.46	37.40	61.72	51.51	40.14	36.92	36.92
17	-	-	-	38.70	48.46	36.77	34.41	38.09	35.72	32.55	36.82	26.86	36.49	33.57	33.57
18	37.26	30.57	27.04	24.82	22.71	20.63	20.16	23.96	23.41	24.92	35.00	28.55	26.59	24.46	24.46
19	38.90	34.44	27.21	29.95	25.44	24.19	22.69	27.64	18.41	29.41	40.18	32.59	29.25	26.91	26.91
20	34.21	-	21.77	22.43	22.34	-	15.19	16.04	29.61	20.48	28.01	26.62	23.67	21.78	21.78
21	59.40	53.01	41.38	52.35	44.82	49.31	41.10	46.38	27.38	45.79	55.43	46.16	46.88	43.13	43.13
22	48.65	47.57	40.73	40.42	-	39.32	34.03	34.65	35.64	37.97	58.15	46.13	42.11	38.75	38.75
23	53.30	45.24	44.17	40.62	36.76	36.63	32.62	35.92	33.44	-	48.32	38.73	40.52	37.28	37.28
24	49.76	39.92	43.91	44.98	41.93	39.59	37.28	38.91	42.29	40.15	58.34	43.97	43.42	39.95	39.95
25	51.90	49.43	38.96	37.26	34.06	37.60	31.50	32.35	38.87	41.94	51.25	42.20	40.61	37.36	37.36
26															
27	50.02	48.61	42.69	42.33	42.23	53.09	-	41.78	40.51	41.80	46.25	42.18	44.68	41.11	41.11
28	18.67	17.29	13.14	12.57	10.01	12.61	5.98	10.27	12.02	12.83	19.77	14.88	13.34	12.27	12.27
29	22.85	16.34	9.26	13.02	11.20	11.45	8.34	9.13	9.25	10.81	17.19	12.77	12.63	11.62	11.62
30	45.57	42.08	37.14	36.71	48.72	41.76	36.54	38.25	31.83	35.97	39.65	31.99	38.85	35.74	35.74
31	60.85	51.08	45.63	44.09	42.82	41.69	38.60	40.59	38.48	-	45.42	41.80	44.64	41.07	41.07
32	37.09	32.94	27.86	23.44	23.65	26.91	22.48	23.97	-	27.32	34.12	32.55	28.39	26.12	26.12
33	46.67	53.63	50.37	48.88	40.40	45.41	47.53	36.58	42.98	44.33	61.53	52.66	47.58	43.77	43.77
34	40.61	34.39	30.29	34.07	27.33	30.15	22.73	24.80	26.66	26.81	37.37	32.49	30.64	28.19	28.19
35	-	-	29.41	29.95	26.04	-	7.16	26.26	27.97	28.27	45.17	38.81	28.78	26.48	26.48
36	24.78	20.10	16.66	14.99	13.99	16.78	12.76	13.72	15.27	15.44	20.02	16.21	16.73	15.39	15.39
37	35.58	23.80	19.19	20.53	21.64	21.09	16.11	15.57	18.08	20.26	28.65	22.53	21.92	20.17	20.17
38	42.45	36.92	35.96	41.33	30.01	35.35	0.16	31.71	35.25	35.33	53.64	41.77	34.99	32.19	32.19
39	31.37	24.08	16.87	20.04	16.19	19.31	16.55	18.17	18.03	21.50	30.63	23.98	21.39	19.68	19.68
40	-	38.38	55.30	68.89	-	70.76	56.40	55.09	51.28	56.63	-	64.15	57.43	52.84	52.84
41	35.08	17.71	15.34	16.21	12.13	13.05	10.16	11.82	13.99	14.81	20.85	18.59	16.65	15.31	15.31
42	38.67	29.91	22.75	22.94	19.40	23.82	19.39	20.22	20.98	25.31	29.13	24.69	24.77	22.79	22.79

43	39.00	34.52	26.80	29.31	27.65	27.31	25.18	23.11	25.09	26.21	37.28	29.85	29.28	26.93	26.93
44	38.64	32.76	28.72	33.30	27.70	24.82	26.45	21.93	26.45	26.83	38.68	33.73	30.00	27.60	27.60
45	35.31	33.45	-	-	31.25	28.11	23.85	25.25	22.34	23.89	24.05	23.12	27.06	24.90	24.90
46	34.28	34.21	33.39	34.19	24.84	28.18	27.37	29.78	28.30	25.11	37.51	34.28	30.95	28.48	28.48
47	37.50	29.98	30.54	28.98	29.85	24.48	25.11	26.34	26.99	27.00	35.42	32.18	29.53	27.17	27.17
48	68.10	59.60	64.14	71.62	66.84	-	-	55.92	57.09	54.96	73.93	58.12	63.03	57.99	57.99
49	76.66	52.85	56.53	55.58	46.14	-	57.80	-	51.41	54.58	73.94	61.90	58.74	54.04	54.04
50	38.51	29.15	23.25	23.94	9.58	16.97	16.29	18.19	21.20	23.00	32.85	24.25	23.10	21.25	21.25
51	36.70	32.46	28.10	29.83	31.29	26.88	22.74	21.34	20.57	20.48	30.87	24.41	27.14	24.97	24.97
52	38.70	30.25	23.73	23.70	22.34	18.86	22.27	26.24	26.94	34.59	38.47	29.68	27.98	25.74	25.74
53	65.12	56.15	57.82	43.96	42.79	47.69	-	38.24	45.97	45.38	61.03	51.35	50.50	46.46	46.46
54	52.27	42.78	41.28	38.98	30.30	33.22	30.43	30.69	35.79	39.70	54.25	43.65	39.45	36.29	36.29
55	66.37	67.15	50.97	53.46	49.06	50.76	40.12	43.15	43.27	48.64	62.29	39.00	51.19	47.09	47.09
56	40.27	32.45	29.28	30.32	24.72	22.03	22.14	24.67	27.40	28.38	38.68	32.25	29.38	27.03	27.03
57	26.94	19.51	14.39	11.73	1.59	10.76	8.71	8.73	11.02	12.74	18.33	16.48	13.41	12.34	12.34
58	34.52	26.64	-	20.70	16.92	16.82	15.48	18.10	19.51	19.06	26.49	-	21.42	19.71	19.71
59	42.40	38.66	30.64	29.82	-	26.88	-	25.23	27.29	34.48	44.02	36.83	33.63	30.94	30.94
60	31.67	23.84	23.48	25.28	26.69	23.72	18.90	21.78	19.85	21.71	26.30	19.67	23.57	21.69	21.69
61	29.18	26.39	22.69	24.96	25.98	22.69	19.98	21.83	19.81	21.36	24.79	23.05	23.56	21.67	21.67
62	27.06	25.34	19.44	23.52	25.41	23.01	19.17	21.22	19.53	21.95	27.14	22.79	22.97	21.13	21.13
63	43.19	35.47	29.65	29.42	27.24	27.94	24.36	24.78	24.95	29.78	42.91	34.85	31.21	28.71	28.71
64	34.90	27.29	22.91	20.32	17.63	16.09	15.40	16.50	16.73	18.94	30.79	22.40	21.66	19.93	19.93
65	42.50	34.69	35.01	30.89	29.98	28.97	26.46	29.07	27.05	26.75	37.98	34.82	32.01	29.45	29.45
66	-	26.88	22.95	23.91	20.40	16.34	17.86	18.98	18.86	25.19	28.11	25.67	22.29	20.50	20.50
67	37.25	29.83	27.00	25.64	22.09	21.42	18.61	21.99	22.25	23.81	32.86	25.46	25.68	23.63	23.63
68															
69	23.82	18.19	15.26	13.87	13.53	12.48	11.50	11.35	13.43	14.28	19.94	18.81	15.54	14.30	14.30

☐ **Local bias adjustment factor used**

☒ **National bias adjustment factor used**

☒ **Annualisation has been conducted where data capture is <75%**

☒ **Where applicable, data has been distance corrected for relevant exposure**

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) See Appendix C for details on bias adjustment and annualisation.

(2) Distance corrected to nearest relevant public exposure.

Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC

QA/QC of Automatic Monitoring

NOₓ Analysers

The guidance contained in Technical Guidance LAQM.TG (09) advises that a well-documented quality assurance and quality control programme must be followed in order to ensure reliable and credible measurements. An ongoing resource commitment to QA/QC is required in any monitoring survey, to ensure that measurements fully comply with the requirements of the air quality review and assessment and are therefore fit for the purpose.

The fundamental aims of the QA/QC programme are as follows:
- Data should be representative of ambient concentrations existing in the area under investigation.
- Measurements need to be sufficiently accurate and precise to meet the defined monitoring requirements.
- Data must be intercomparable and reproducible. Results from multi-site networks need to be internally consistent and comparable with national, international or other acceptable standards.
- Measurements should be consistent over time, particularly if long-term trend analysis is to be undertaken.

QA/QC procedures were applied to both sets of automatic monitoring data throughout the monitoring periods. The Chemiluminescent analysers are continuous automatic real time monitors and are housed in 'M' type purpose built air-conditioned enclosures. In order to minimise measurement uncertainty it is important to apply stringent QA/QC procedures to monitoring programmes. The following procedures were carried out in Teignbridge in order to meet the criteria.

Calibration Checks

The following calibration checks were carried out: -
• Daily 'automatic' calibration
• Fortnightly manual calibrations
• 6 monthly reference calibrations

During the daily automatic calibration, a two point calibration is used to quantify the analyser 'zero' and 'span' response. The 'zero' response is the response of the analyser when the pollutant species being measured is not present in the sample air stream. The 'span' response is the response, of the analyser to a gas mixture of accurately known concentration. In order to ensure reproducible data quality, automatic monitoring instruments must be properly calibrated using reliable and traceable calibration standards.

The gas mixture was of mixture type U, nitric oxide 2.5 and nitrogen 5.0, and was provided by E.T. under the service and maintenance contract. Teignbridge trained staff

carried out the fortnightly calibration checks and the visits included checking the equipment, sampling systems and security of the enclosure and analyser. E.T. carries out the six monthly reference calibrations and the last one was completed on the 3rd/4th June 2009.

Equipment Service and Maintenance

Teignbridge has an ongoing service and maintenance contract with E.T. for the NOx Analysers. The contract provides the following cover:-
- Routine six monthly service visits in accordance with the manufacturers instruction and warranty conditions;
- Guaranteed breakdown call out service;
- Written reports showing work carried out and status of instrumentation;
- All work and documentation is carried out in accordance with BS ISO 9002;
- Dedicated telephone support in normal working hours.

Data Capture

The LAQM.TG(16) recommends a data capture rate of 90% for ratified (usable) data. Teignbridge employs the following methods to ensure maximum data capture: -
- The deployment of a proven NOx analyser;
- Automatic daily data collection using dedicated software (Opis EnviMan using the ComVisioner and Reporter modules). This enabled frequent checks of the data so that on-site problems could be identified quickly;
- M200A in built data storage capability;
- Rapid servicing, maintenance and repair;
- Comprehensive and documented site operational protocols;
- Regular and frequent site visits;
- Trained Teignbridge staff operators.
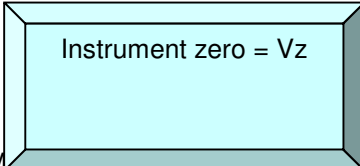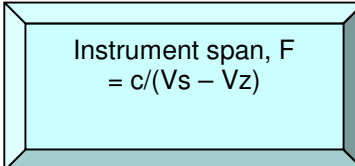
Data Processing

The M200A records the concentration of pollutants as continuous analogue voltage signals.
The signal is averaged over an hour period. An in-built data logger carries out this averaging process and the data is then downloaded via a modem to a computer in the Environment & Safety Services team. The modem is automatically dialled up three times a day at set times. The raw data collected has to be converted to more useful pollutant concentrations and this conversion is achieved using the 'zero' and 'span' calibration factors that are recorded during the manual fortnightly visits. The two-point calibration quantify's the analyser 'zero' and 'span' response. The 'zero' response, Vz, is the response in measurement units of the analyser when the pollutant species being measured is not present in the sample air stream. The 'span' response, Vs, is the response of the analyser to an accurately known concentration, c, in ppb (parts per billion) of the pollutant species. The instrument 'zero' and 'span' factors are then calculated using these data as follows:
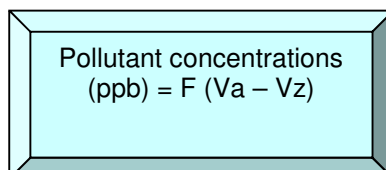
Instrument zero = Vz

Instrument span, F = $c/(Vs - Vz)$

Ambient pollution data are then calculated by applying these factors to logged output signals as follows:

$$\text{Pollutant concentrations (ppb)} = F(V_a - V_z)$$

Where V_a is the recorded signal from the analyser sampling ambient air. The fortnightly calibration factors applied to the raw data are then filed.

Data Ratification

Once the calibration factors have been applied to the raw data, the data is screened, by visual examination to see if they contain any spurious and/or unusual measurements. Any suspicious data, such as large spikes or spurious high concentrations can be 'flagged' and investigated more fully. This process is known as validation. Data validation is followed by data ratification, which is carried out at 3 – 6 month intervals. Steps in the ratification process included: -

- Examination of calibration records to ensure correct application of calibration factors;
- Examination of data for other pollutants and monitoring sites to highlight any anomalies;
- Deletion of data shown i.e. spikes generated by the analyser;
- Correction of any baseline drift as indicated by examination of daily calibration records;
- Examination of any local scale changes to the site environment;
- Application of correction factors from QA/QC audits.

When data verification has been completed then the data is ready for further statistical and critical examination for reporting purposes.

QA/QC of the BAM

The BAM-1020 is a continuous automatic real time analyser with a Graseby Anderson 10 sampling lead. It is housed in an M type purpose built air-conditioned enclosure.

The following procedures were carried out in Teignbridge in order to meet the criteria.

Calibration Checks

The BAM-1020 has a built in Mass Membrane Calibrator. The membrane is automatically moved into the Beta Pathway to determine the mass of the membrane each hour or when the filter tape advances. Each membrane has a factory verified mass and the value is stored in the BAM-1020. When the hourly membrane calibration is made, the computed value is compared to the stored factory value to determine proper operation. Should the instrument fail to perform to specification an error is logged in memory and data is flagged.

Zero testing of blank filter paper is performed at the beginning and end of each sample period to ensure the stability of the measurement system.

E.T. also carries out 6 monthly calibrations under the service and maintenance contract.

Equipment Service and Maintenance

Teignbridge has an ongoing service and maintenance contract with E.T. The contract provides the following cover:-

- Routine six monthly service visits in accordance with the manufacturers instruction and warranty conditions
- Guaranteed breakdown call-out service
- Written reports showing work carried out and status of instrumentation
- All work and documentation is carried out in accordance with BS ISO 9002
- Dedicated telephone support in normal working hours

The monitoring equipment has routine (fortnightly) on site checks and maintenance visits by Teignbridge staff. These routine visits include regular filter changes, sampling head cleaning, filtering tape changes and airflow/analyser test function checks at set intervals.

Non-routine visits, as a result of equipment failure or spurious data, are also carried out. All visits are fully documented and details kept of all works carried out i.e. adjustments, modifications and repairs completed.

BAM Monitoring Adjustment

The un-heated BAM inlet meets the equivalence criteria for PM_{10} monitoring, provided the results are corrected for slope. The measured concentrations have been divided by a factor of 1.21.

QA/QC of Osiris Monitors

The Osiris monitors are real-time, portable particulate matter monitors that use light-scattering technology to measure the concentration of different sized particles (PM_1, $PM_{2.5}$ and PM_{10}). Although Osiris' are not an approved method for measuring PM_{10} levels, as it is not possible to compare directly with the air quality objectives, it does

provide indicative levels. The monitors are much easier and cheaper and less labour intensive than gravimetric analysers.

Teignbridge has an ongoing service and maintenance service contract with Turnkey Instruments Ltd for each of the monitors. The monitors are routinely checked every 3 months by trained Teignbridge DC officers. This involves a filter change and air flow test of the pump. The following parameters are also logged in a maintenance book filter minutes, filter weight and pump hours. The monitors are sent back to Turnkey Instruments annually for a complete service and calibration.

The monitors are dialled up weekly by trained Teignbridge DC officers and the data is downloaded onto Air Q for windows software. The data is screened by visual examination.

QA/QC of Diffusion Tube Monitoring

The NO_2 tubes diffusion tubes are analysed by Gradko International Limited in Winchester utilising 20% TEA in water for a 1-month exposure duration. Periodically samples of tubes prepared for exposure are spiked with known concentrations of nitrate solution and measured. Blank tube values are also monitored from each new batch of tubes prepared. Once a month, a stock solution containing a known amount of nitrate is received from AEA Technology and measured. The results are used as part of the UK NO_2 Survey QA/QC scheme. This stock solution is used by Gradko to check the ultra-violet spectrophotometer calibration graph. Gradko also participate in the inter-laboratory round robin exercise via the WASP scheme. The performance of the laboratory is rated as satisfactory in the centralised AIR NO_2 PT scheme for quality assurance and quality control.

Gerry Stuchbury of Gradko International also sits on the Working Group on the Harmonisation of Diffusion Tubes. The Working Group's aim was to harmonise the methodology used in preparing, utilising and analysing diffusion tubes.

NO_2 Diffusion Tube Handling Procedures

Teignbridge District Council's NO_2 diffusion tube monitoring is carried out in full accordance with the site quality assurance procedures contained in the UK Automatic Network Site Operator's Manual. Teignbridge also participates in the NO_2 UK Network.

Data Quality Objective and Roles

Adopted within our Policy and Strategy are our Council's Data Quality Objectives which have been drafted to create a memorable acronym **(HEART).** The objectives embrace the Audit Commissions data quality guidance and encompass the six characteristics that they use to define quality data as data that is: accurate, valid, reliable, timely, relevant and complete. These six characteristics are incorporated into our data quality objectives which we use throughout the year to test compliance and help us ascertain any likely risk.

Held by   **who has responsibility for specific data**
Evidenced   **audit trail or work complaint with good data quality procedures**

Accurate	**decision-makers should be clear about their information requirements for accuracy**	
Relevant	**must be sure that it describes the actual state under discussion (doesn't mislead).**	
Timely	**Data captured is reported yearly using an Annual Status Report format set out by central government**	

Tubes received / stored / put out following current NOx route / recovered / and sent to Gradko in accordance with nationally approved handling procedure. In March 2018 procedure reviewed via webinar to ensure methodology is consistently applied. Results come back and are screened by Technical Officers for obvious anomalies. Technical Support Officers enter data into spreadsheet. Random checks carried out by BW to verify data received with data inputted.

Spreadsheet has inbuilt conditional format which is designed by Data Officer who applies current government guidance to do so. Spreadsheet has been set to show all exceedances over N/Objective.

Data captured is reported yearly using an Annual Status Report format set out by central government

| ROLE/PROMPT	DETAIL OF TASK (With links)	OFFICER	FREQUENCY
New Tubes received through the post	Tubes placed in refrigerator storage	Any	monthly
New Tubes numbered up	New tubes are numbered up based on current location sheet and returned to refrigerator storage asap G:\Environment & Safety Service\Environmental Control\92NOISE&AIRPOLLUTION\922AIRPOLLUTION\9226Air Quality Review\Monitoring\NOX TUBE Info about\TUBE Collection Routes and Calendars	Technical Officer	monthly
Tubes put out and old tubes recovered	Gather in the old tubes and install the new tubes. Complete the "Current NOx location sheet" using waterproof marker pen.	See rota for the year	monthly
Old Tubes placed in fridge	On return to office old Tubes placed in fridge asap, and completed the current NOx location sheet put into Ian Roberts IN tray	See rota for the year	
Package and return Old Tubes to Gradko	Carried out within 2 days of recovering tubes, package and return "old tubes" to Gradko	Technical Officer	Within 2 days Monthly

|	following "Procedure for sending off Diffusion Tubes 2013" G:\Environment & Safety Service\Environmental Control\92NOISE&AIRPOLLUTION\922AIRPOLLUTION\9226Air Quality Review\Monitoring\NOX TUBE Info about		
Notify any missing tubes	Email to Becky W and Colin B about any missing tubes, any observations.	Technical Officer	
data entry to spreadsheet.	Up to 3 weeks after postage results email is sent from Gradko to Ian R and they are copied and saved to excel spreadsheet "NOx Tubes 2018" Z:\Environment & Safety Service\Environmental Control\92NOISE&AIRPOLLUTION\922AIRPOLLUTION\9226Air Quality Review\POLLUTANT DATA\Nitrogen Dioxide\2018	Technical Officer	monthly
Random checks of data received against data inputted to excel Spreadsheet	Check to verify that data received has been accurately transposed to the spread sheet. Also to identify emerging issues e.g. repeated missing tubes, random outlier results, significant variations between reference monitors and co-located tubes.	Technical Officer	Quarterly Minimum
Review of in built conditional format	Excel spreadsheet "NOx Tubes 2018"has an inbuilt conditional format designed to process the raw data. The design applies current government guidance (LAQM T G 16*) to highlight all exceedances over the current National Objective *See…… Z:\Environment & Safety Service\Environmental Control\92NOISE&AIRPOLLUTION\922AIRPOLLUTION\9226Air Quality Review\GUIDANCE Defra GOV.UK LAQM Technical Guidance 2016	Data Officer	Yearly
Calculate yearly Annual Bias adjustment	Calculate yearly Annual Bias adjustment factor using National figure issued by Defra (usually announced in March). to show no of tubes exceeding in the year	Data Officer	Yearly
Apply Annual Bias adjustment	Apply Annual Bias adjustment factor to the Excel spreadsheet "NOx Tubes 2018" and calculate and complete the Annualised Bias Adjusted Mean for each tube location	Data Officer	Yearly
Review of processed Data	Review data processing to make sure it satisfies the validation and ratification criteria	Technical Officer	

	of current government guidance (LAQM T G 16*)		
Annual Status Report	Data reported yearly using an Annual Status Report format set out by central government	Technical Officer	By the end of the following June
Review of NOx tube locations	Yearly Screening Review of results from current NOx tube locations (in context of current guidance (LAQM T G 16*) and identify any locations that should be made redundant and any new locations needed to be established to better inform about potentially emerging local air quality issues	Technical Officer	Yearly
Review all procedures for the capture and reporting of air quality data	Carry out review by applying the **H.E.A.R.T.** principles of the Council's Data Quality Objectives…. **H**eld by Who has responsibility for specific data **E**videnced Audit trail or work complaint with good data quality procedures **A**ccurate Decision-makers should be clear about their information requirements for accuracy. **R**elevant Must be sure that it describes the actual state under discussion (doesn't mislead). **T**imely Data captured is reported yearly using an Annual Status Report format set out by central government.	Technical Officer	Yearly

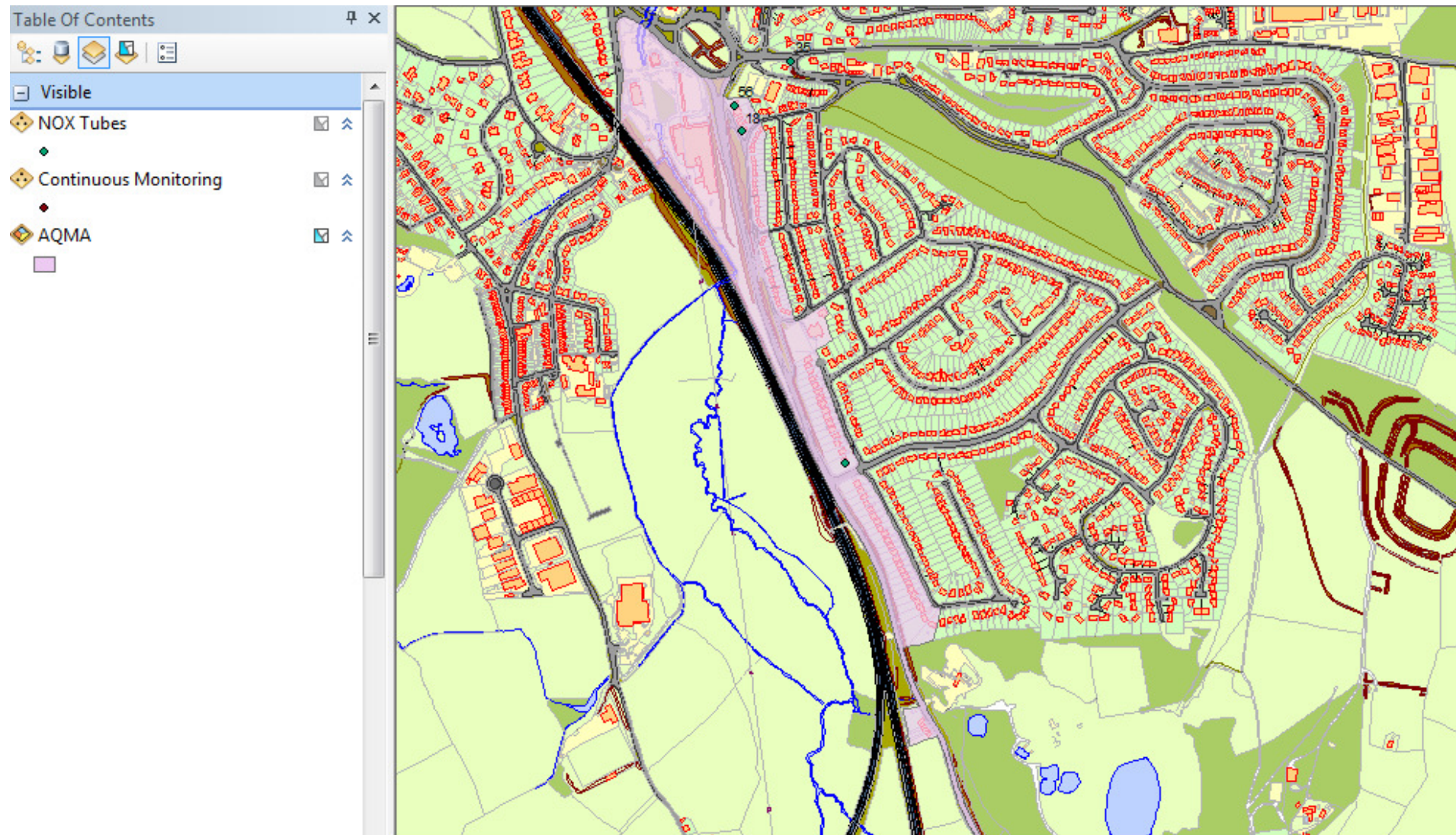# Appendix D: Map(s) of Monitoring Locations and AQMAs

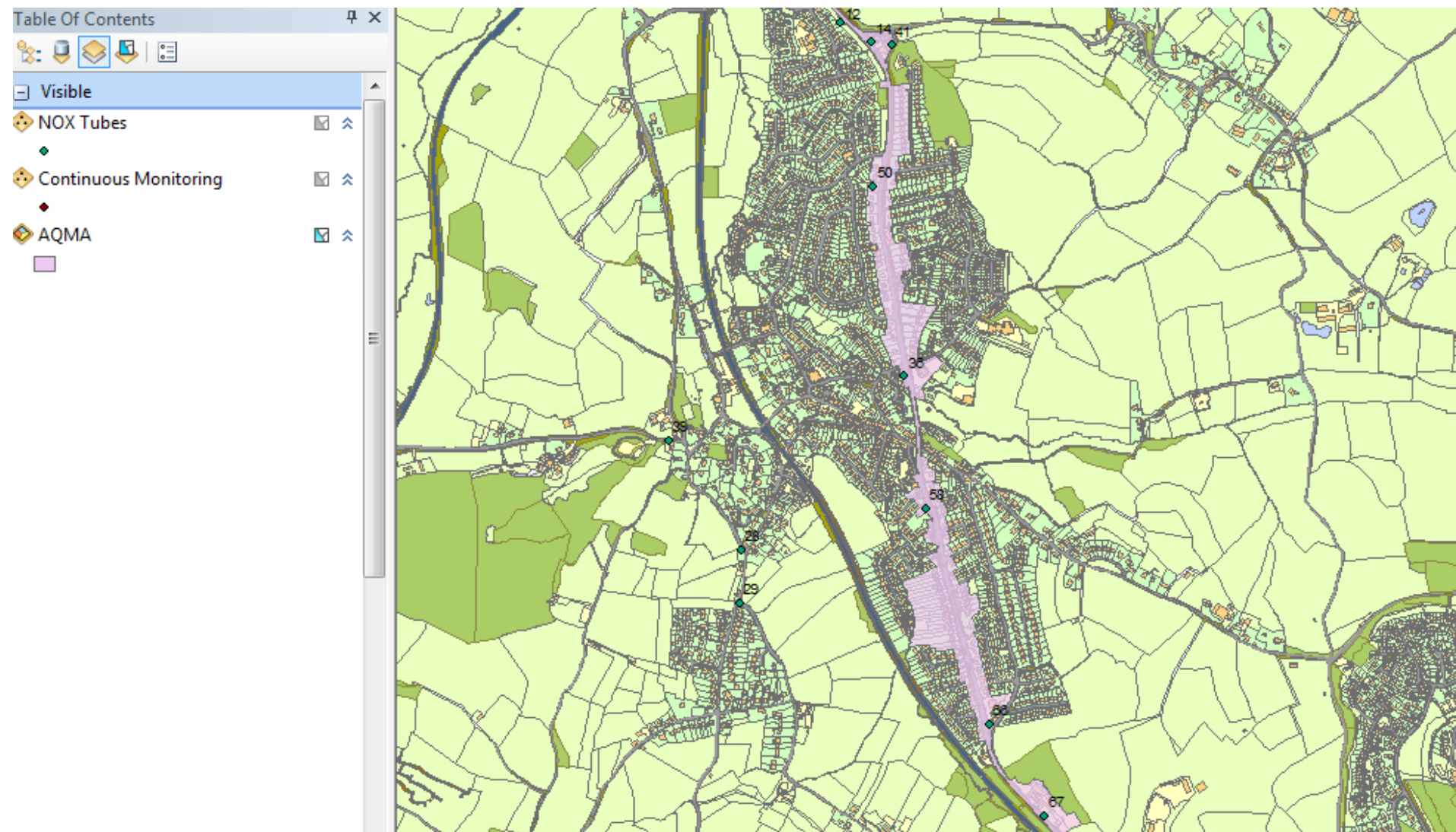Dawlish AQMA & Monitoring Locations
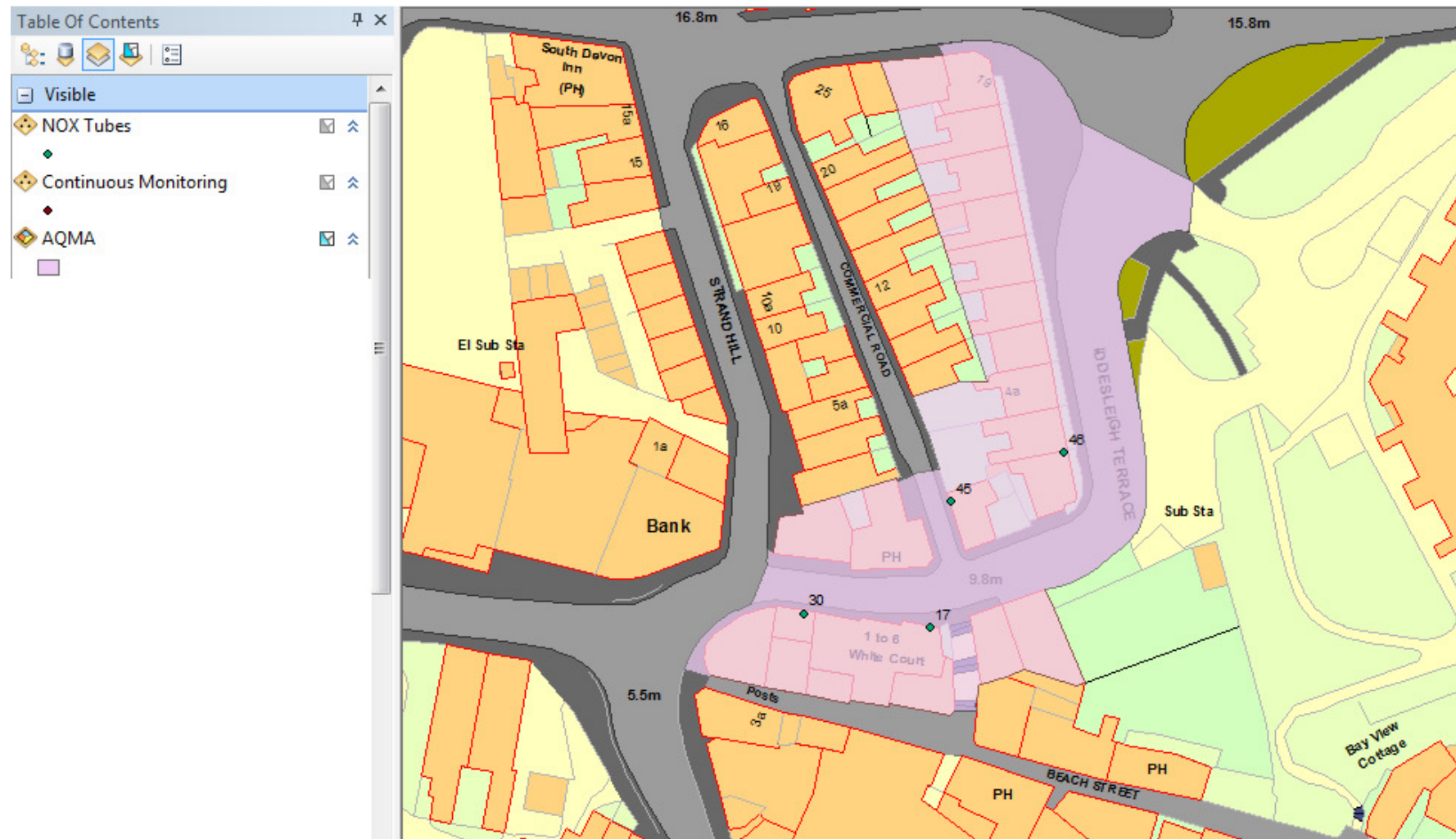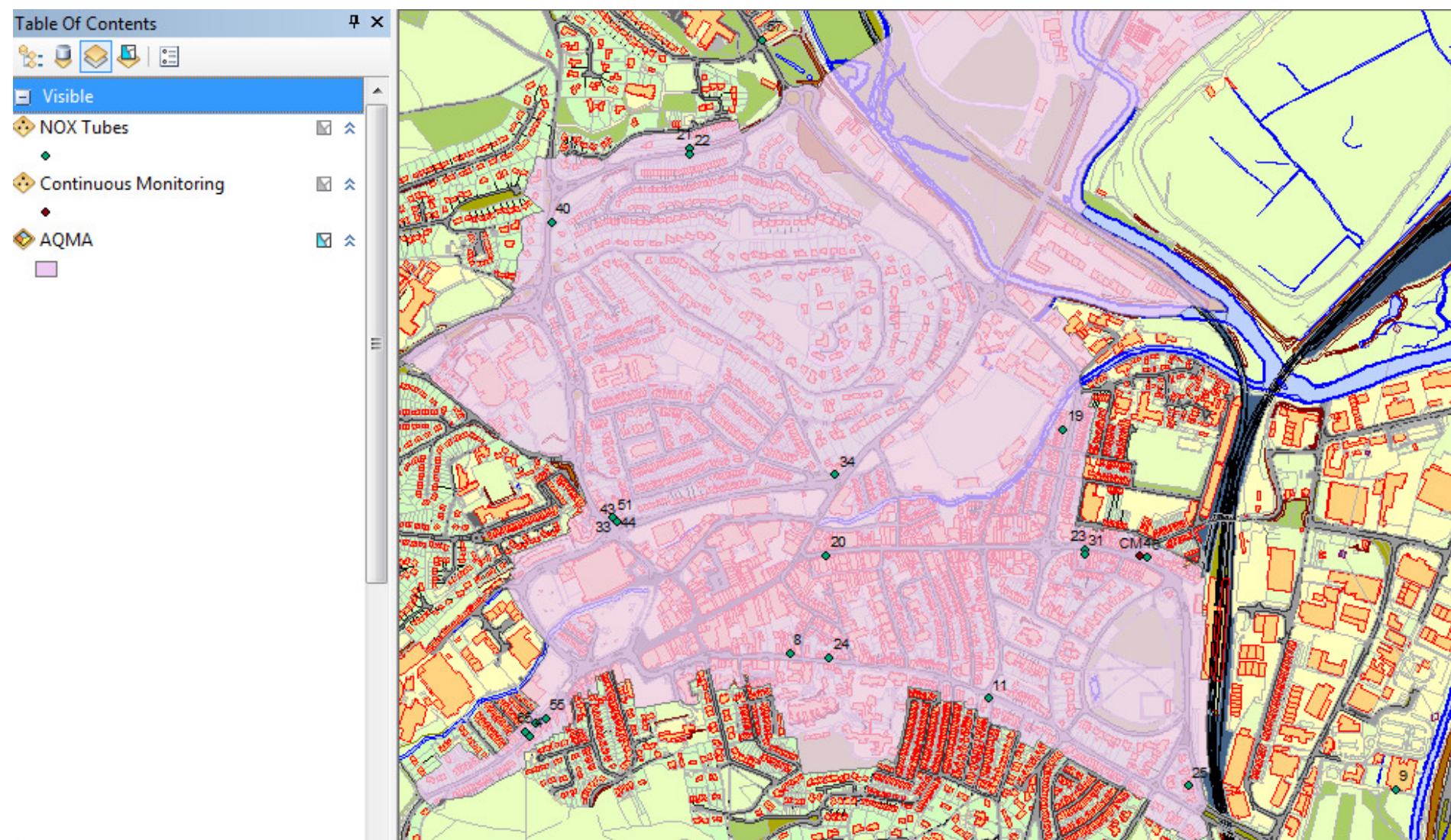
Heathfield Monitoring Locations
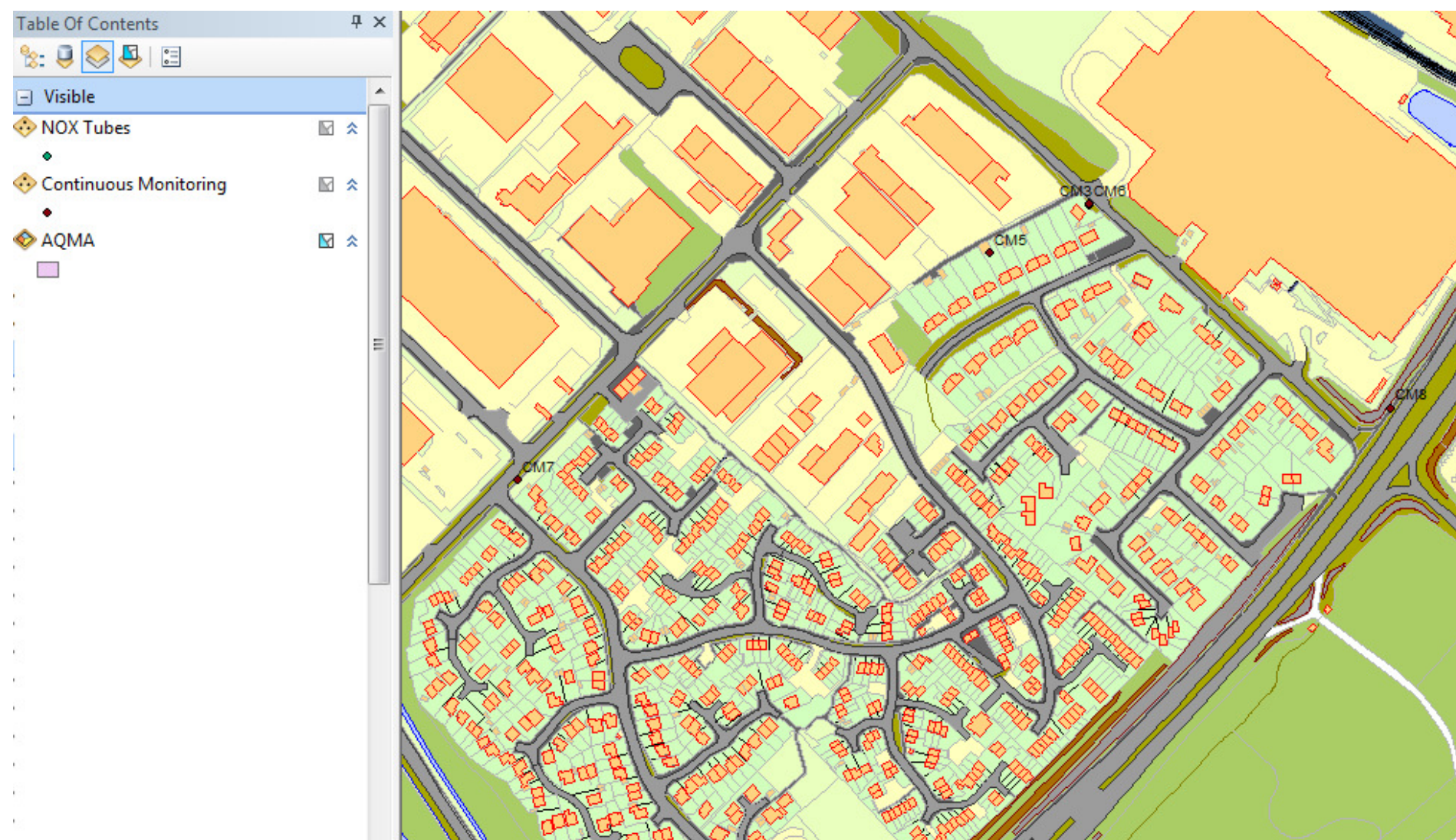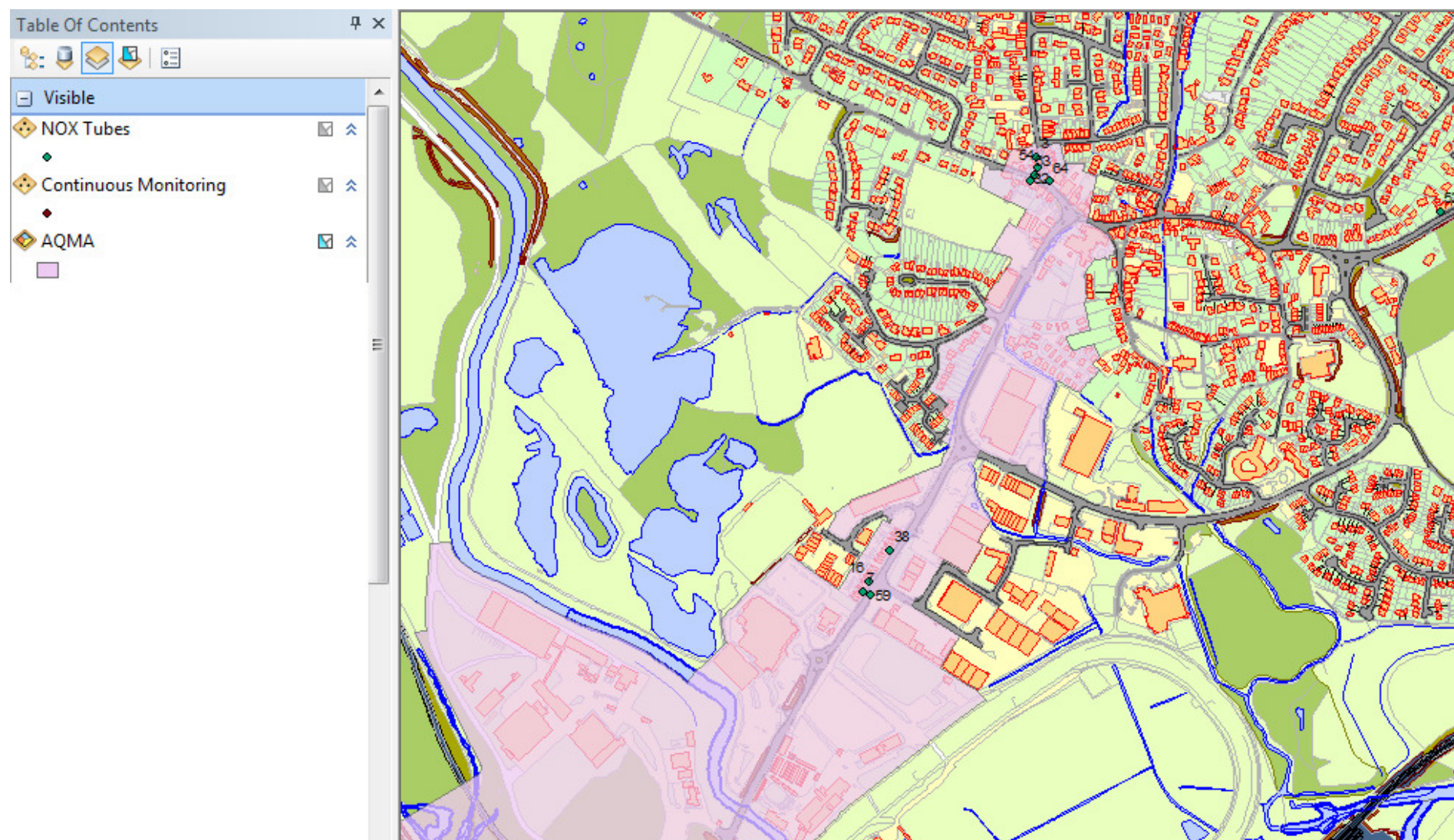
Kingskerswell AQMA & Monitoring Locations 1

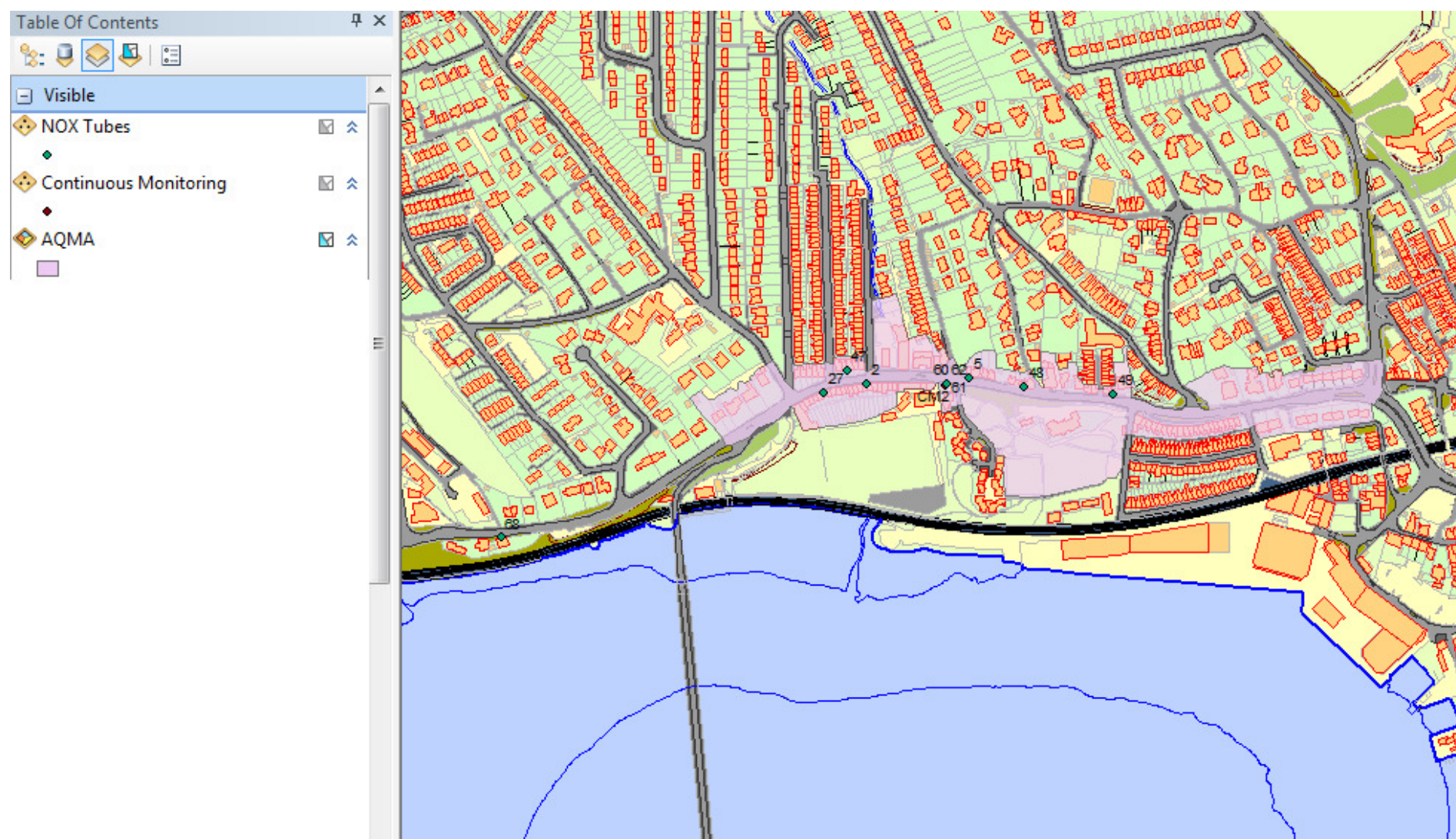Kingskerswell AQMA & Monitoring Locations 2

Newton Abbot and Kingsteignton AQMA & Monitoring Locations 1

Newton Abbot and Kingsteignton AQMA & Monitoring Locations 2

Teignmouth AQMA & Monitoring Locations

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

| Pollutant | Air Quality Objective[4] | |
	Concentration	Measured as
Nitrogen Dioxide (NO$_2$)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m^3	Annual mean
Particulate Matter (PM$_{10}$)	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m^3	Annual mean
Sulphur Dioxide (SO$_2$)	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

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[4] 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	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
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 (micrometres or microns) 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
TDC	Teignbridge District Council

References

Teignbridge District Council website www.teignbridge.gov.uk

Teignbridge District Council Action Plan 2010
www.teignbridge.gov.uk/environmental-health-and-wellbeing/land-air-and-water-pollution/air-quality

National bias adjustment factor spreadsheet https://laqm.defra.gov.uk/bias-adjustment-factors/bias-adjustment.html

Local Air Quality Management Technical Guidance 2016 – LAQM.TG (16)