

# Lewisham Nitrogen Dioxide Diffusion Tube Survey 2023

London Borough of Lewisham

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## Quality information

<b>Prepared by</b>	<b>Checked by</b>	<b>Verified by</b>	<b>Approved by</b>
Adam Ssali Air Quality Consultant	Zadie Astill Principal Air Quality Consultant	Anna Savage Air Quality Director	Anna Savage Air Quality Director

## Revision History

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**Prepared for:**

London Borough of Lewisham

**Prepared by:**

AECOM Limited  
Sunley House  
4 Bedford Park  
Croydon, CR0 2AP  
United Kingdom

T: +44(0)1256 310200  
aecom.com

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# 1. Introduction

AECOM was commissioned by the London Borough of Lewisham to install and maintain a network of NO<sub>2</sub> diffusion tubes to assess the spatial variation of nitrogen dioxide (NO<sub>2</sub>) concentrations within the borough. Monitoring was carried out at 144 locations in 2023 following the addition of 3 locations in June 2023. The diffusion tubes were exposed for periods of between 4 and 5 weeks in accordance with the UK NO<sub>2</sub> Survey Timetable. The results of the survey provide Lewisham Borough Council with valuable monitoring data for use in their Local Air Quality Review and Assessment (LAQM) process.

This report outlines the results of the original survey for January 2023 to December 2023, inclusive. The spatial variation in NO<sub>2</sub> concentration throughout the borough is discussed and the annual mean concentrations for each location are compared against the annual mean objective for NO<sub>2</sub> to indicate locations that may be likely to exceed the objective. Monthly concentrations are examined for evidence of seasonal trends.

## 2. Legislative Background

The UK is no longer a member of the European Union. EU legislation which applied directly or indirectly to the UK before 11.00 p.m. on 31 December 2020 has been retained in UK law as a form of domestic legislation known as ‘retained EU legislation’. This is set out in sections 2 and 3 of the European Union (Withdrawal) Act 2018 (c.16). Section 4 of the 2018 Act ensures that any remaining EU rights and obligations, including directly effective rights within EU treaties, continue to be recognised and available in domestic law after exit.

Prior to the UK’s withdrawal from the European Union, limit values and air quality objectives for nitrogen dioxide (NO<sub>2</sub>) were set out in the First Daughter Directive (1999/30/EC) and subsequent revisions. An annual mean NO<sub>2</sub> objective was set at 40 µg/m<sup>3</sup> to be achieved by 1<sup>st</sup> January 2010. A 200 µg/m<sup>3</sup> hourly mean standard not to be exceeded more than 18 hours per year was also outlined, to be achieved by the same compliance date. These objectives were reiterated in the 2008 Directive on ambient air quality and Clean Air for Europe (2008/50/EC).

The UK has published its own Air Quality Strategy<sup>1</sup>, which detailed the UK’s position on nitrogen dioxide and broadly aligned with the EU directives described above. The UK air quality objectives differ from the European objectives only in their compliance dates; the UK objectives were to be achieved by the end of 2005. A summary of the principal air quality objectives for NO<sub>2</sub> is given in Table 1.

**Table 1: UK Air Quality Objectives for NO<sub>2</sub>**

Pollutant	UK Air Quality Objectives		
	Standard/Concentration	Measured as	Date to be achieved by and maintained thereafter
Nitrogen Dioxide	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year	1 Hour Mean	31 <sup>st</sup> December 2005
	40 µg/m <sup>3</sup>	Annual Mean	

<sup>1</sup> Defra, The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, 2007.

## 3. Monitoring Methodology

### Description of Network

The Lewisham Diffusion Tube Network has been maintained by AECOM since January 2011. In 2011, the network consisted of 49 diffusion tubes across 47 sites, including a triplicate co-located site at the automatic monitoring station in New Cross Road, and the remainder were single tube sites. In 2012, the network was reduced to 34 diffusion tubes at 32 sites, comprising single tubes at 31 sites and triplicates co-located at the New Cross Road automatic monitoring station. During December 2016, two new sites were commissioned at Kender Primary School and Deptford Park Primary School. In October 2017 a new site was also added at St James Hatcham Primary School. In 2018, 16 new sites were added, and one existing site removed, bringing the total number of sites up to 50. In September 2020, 51 new locations were added across the borough, taking the total number of sites up to 101. No additional sites were added to the network in 2021, however an additional 20 sites were added in January 2022, and a further 20 sites in July 2022, bringing the total number of monitoring sites to 141. In June 2023 a further 3 sites were added.

The locations of the diffusion tubes are shown in Appendix A. Detailed listing of all monitoring sites from 2011 to present including those added or removed are shown in Appendix D.

### Procedures and Site Changes

Diffusion tubes throughout the Borough have been deployed and collected at 4 to 5 weeks intervals in accordance with the UK NO<sub>2</sub> Diffusion Tube calendar<sup>2</sup>.

All diffusion tubes used in the network were stored in a refrigerator prior to deployment and after collection to reduce the possibility of degradation of the chemicals involved. Tubes subject to contamination (e.g. spider webs, foreign bodies, etc.) or vandalised have been excluded from the final dataset.

### Tube Preparation, Analysis and Laboratory QA/QC

The diffusion tubes were supplied and analysed by Gradko International Ltd, using a 50% triethanolamine (TEA) in acetone method. Gradko participates in the AIR Proficiency Testing (PT) scheme for diffusion tubes, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL), which provides a Quality Assurance / Quality Control (QA/QC) framework for local authorities carrying out diffusion tube monitoring as a part of their local air quality management process.

The percentage of results submitted by Gradko International Ltd that were subsequently determined to be satisfactory was 100% between July 2023 and August 2023 (AR058) and 100% satisfactory results between September 2023 and October 2023 (AR059)<sup>3</sup>.

### Factors Affecting Diffusion Tube Performance

NO<sub>2</sub> diffusion tubes are an indicative monitoring technique, as they do not offer the same accuracy as the reference method for NO<sub>2</sub>, the automatic chemiluminescent analyser. NO<sub>2</sub> diffusion tubes are affected by several factors, which may cause them to exhibit bias relative to the reference technique.

Over-estimation may be attributed to one of the following three interfering factors:

- The shortening of the diffusive path length caused by the wind;
- The blocking of UV light resulting in reduced NO<sub>2</sub> photolysis in the tube; and
- The interference effects of peroxyacetyl nitrate (PAN).

<sup>2</sup> Defra, Local Air Quality Management, Diffusion Tubes, Nitrogen Dioxide Diffusion Tube Monitoring, Calendar of Suggested Exposure Periods. Available at <http://laqm.defra.gov.uk/diffusion-tubes/data-entry.html>

<sup>3</sup> <https://laqm.defra.gov.uk/air-quality/air-quality-assessment/qa-qc-framework/>

Under-estimation can be caused by the following factors:

- Increasing exposure period, and is thought to be due to degradation of the absorbed nitrate with time;
- Insufficient extraction of nitrite from the meshes;
- The photochemical degradation of the triethanolamine-nitrite complex by light, although this is minimised by the use of opaque end-caps; and
- The solution used. For example, 50% solution of TEA in water has been reported to lead to comparatively reduced NO<sub>2</sub> uptake.

There are a number of additional factors that may also affect diffusion tube performance including time of the year, the exposure setting (i.e. sheltered or open sites), the proximity to roads, the preparation method and analytical laboratory used, the exposure concentration and the ratio of NO<sub>2</sub> to NO<sub>x</sub>.

## Data Validation and Data QA/QC

Validation of diffusion tube readings is vital to ensure public confidence in the measurements produced. Validation is achieved through the following steps described in sub-sections below.

### Blanks

The laboratory reserved a set of diffusion tubes for use as laboratory blanks for each dispatch of tubes to the user. These are kept in sealed containers in a refrigerator and analysed with the exposed tubes to provide a measure of concentration on unexposed tubes.

One travelling blank was taken to site during each of the monthly changeovers. These tubes accompany the user during tubes changeover but are not themselves exposed. The purpose of using field blanks is to identify possible contamination of the tubes during transportation or in storage by the user.

Laboratory and field blanks were routinely screened by AECOM to ensure quality of data. Neither the laboratory blanks nor the travel blank results were subtracted from the results of exposed tubes, in accordance to Defra and the GLA's London Local Air Quality Management Technical Guidance (LLAQM.TG(19))<sup>4</sup> and the Diffusion Tube Practical Guidance.

### Rejection of Diffusion Tube Results

Diffusion tube results obtained for each month were checked to meet the following criteria for inclusion in the final dataset:

- Correct calculation of exposure hours;
- Concentrations less than 3 µg/m<sup>3</sup> were rejected as these concentrations are unlikely to occur in an urban area;
- Concentrations at the high end were not routinely rejected unless good evidence can be shown to prove they were spurious results;
- Exposure records were checked for possible explanation of any unusual results (e.g. foreign objects, bonfires, pollution episodes, construction works, tampering, etc; and
- For a triplicate site, diffusion tubes that exhibit poor precision (>20%) were excluded from the final dataset. For single sites, professional judgement was used to accept or reject the results based on observations made during site visits.

### Bias Adjustment Factor

Diffusion tube monitoring is indicative and does not offer the same accuracy as the reference method for monitoring NO<sub>2</sub> i.e. using an automatic chemiluminescent analyser. Several factors could affect NO<sub>2</sub> concentrations measured with diffusion tubes, which may cause them to exhibit bias (over-read or

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<sup>4</sup> Defra & the GLA, London Local Air Quality Management Technical Guidance LLAQM.TG(19).



under-read readings) relative to the reference method (see ‘Factors Affecting Diffusion Tube Performance’). To correct this bias, comparison of the NO<sub>2</sub> concentration as measured by diffusion tubes is made with automatic monitoring data to derive a bias-adjustment factor.

Bias adjustment factors can be obtained using the Nitrogen Dioxide Diffusion Tube Bias Adjustment spreadsheet<sup>5</sup>, which is updated periodically and collates the bias-adjustment factors obtained in co-location studies conducted nationally. It can also be derived locally through co-location of diffusion tubes with automatic analysers and comparison of results obtained from both methods of monitoring.

Further details of the monitoring sites used, and the derivation of the factor can be found in Appendix B and Appendix C. The local bias factor was applied to all diffusion tube results in the period unless indicated otherwise.

## Annualisation Factor

Where data capture is less than 75% of a full calendar year (less than 9 months), the mean should be “annualised” – i.e. adjusted using the methodology outlined in LLAQM.TG(19)<sup>4</sup> before being compared to annual mean objectives. Due to the commissioning of three new sites in June 2023 (L94 - L96), and therefore these sites having at most six months of data capture in 2023, annualisation was required for all of these sites. In addition, sites L3, L4, L20, L82, L84, SSDT\_15, SSDT\_42 and SSDT\_50 all had data capture <75%, and needed annualisation. To carry out annualisation the following automatic Urban Background monitors were used; Deptford, Belvedere Bexley, and London - Westminster.

## Site Designations

The designation of site types is used to compare different locations statistically. Sites were categorised as kerbside, roadside, and urban background sites according to the definitions given in LLAQM.TG(19)<sup>4</sup>. These definitions are reproduced in Table 2 below.

**Table 2: Site Designation Criteria**

Type	Definition
Urban Centre	An urban location representative of typical population exposure in towns or city centres, for example, pedestrian precincts and shopping areas.
Urban Background	An urban location distanced from sources and therefore broadly representative of city-wide background conditions, e.g. urban residential areas. For example: > 50m from any major source of NO <sub>2</sub> , such as multi-storey car parks; > 30m from any very busy road (> 30000 vehicles per day); > 20m from any busy road (10000 – 30000 vehicles per day); > 10m from any main road (quiet roads e.g. within residential estates are acceptable); and > 5m from any area where vehicles are likely to be idling.
Suburban	A location type situated in a residential area on the outskirts of a town or city
Roadside	A site sampling typically 1-5m of the kerb of a busy road (can be up to 15 m from kerb in some cases)
Kerbside	A site sampling within 1m of the kerb of a busy road
Industrial	An area where industrial sources make an important contribution to the total pollution burden
Rural	An open countryside location, in an area of low population density distanced as far as possible from roads, populated and industrial areas

<sup>5</sup> Defra, Diffusion tube bias adjustment spreadsheet March 2024, available at: <https://laqm.defra.gov.uk/air-quality/air-quality-assessment/national-bias/>

<b>Type</b>	<b>Definition</b>
Other	Any special source-orientated or location category covering monitoring undertaken in relation to specific emission sources such as power stations, car-parks, airports or tunnels

## 4. Results and Discussion

### Data Capture

Data capture rates for the Lewisham Diffusion Tube (DT) Survey Network during 2023 were high, achieving an overall average of 91.5% for all site types. Data capture was less than 75% at 11 sites, including L3, L4, L20, L82, L84, SSDT\_15, SSDT\_42 and SSDT\_50. Note that due to sites L94 – L96 being commissioned half-way through the year (June 2023), annualisation was carried out for these three sites.

Sites recording lower than 100% data capture were as a result of tubes being stolen, clips being vandalised or data not being included in the final dataset (see the section titled ‘Rejection of Diffusion Tube Results’).

### Bias Adjustment

#### Local Bias Adjustment Factor

The co-location site’s annual mean NO<sub>2</sub> concentrations measured by the diffusion tubes and the automatic monitors are displayed in Table 3.

The Defra DT processing spreadsheet<sup>6</sup> tool was used to calculate a local bias adjustment factor of 0.81 for the co-location site at the New Cross Air Quality Monitoring Station (AQMS) (site LW2). Automatic monitoring data was sourced from the London Air Quality Network (LAQN) website<sup>7</sup>. Further details can be found in Appendix C.

The complete diffusion tube results without the application of a bias adjustment factor can be found in Appendix B.

**Table 3: Comparison of Diffusion Tube and Automatic Monitor Measurements at Co-located Site**

Site Name	2023 Annual Mean NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )	
	Unadjusted Diffusion Tube	Automatic Monitor
Lewisham – New Cross	32.6	26.3

Monthly readings from the triplicate diffusion tubes were compared with the concentration at Lewisham New Cross AQMS (

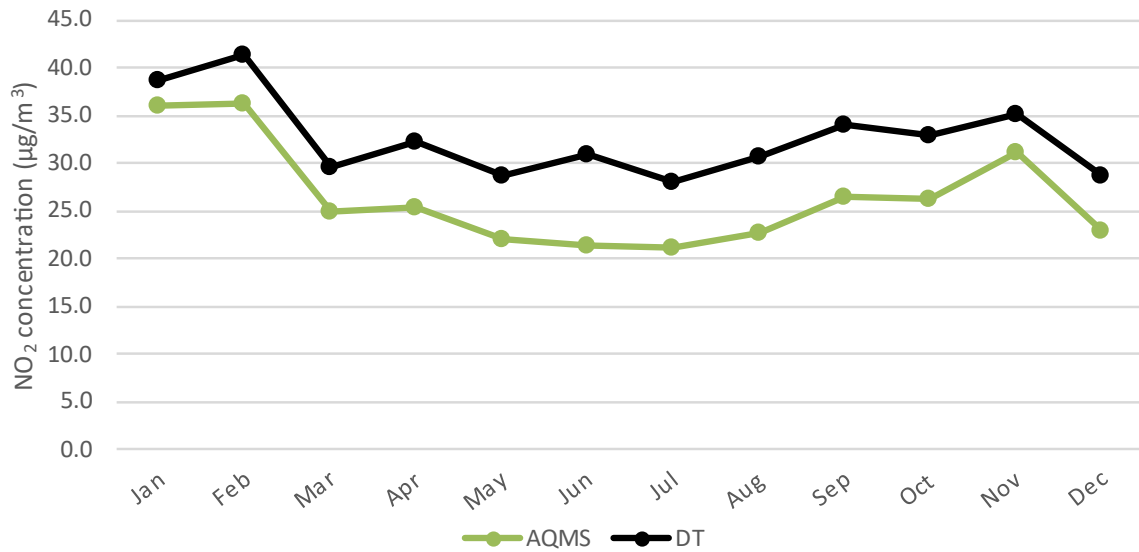
Figure 1). It can be seen that for all 12 months of the year, the monthly average diffusion tube concentration was greater than the monthly average concentration recorded by the New Cross AQMS. In general, at locations close to sources of NO<sub>x</sub> such as roadside and kerbside sites, within-tube chemical reactions of NO and O<sub>3</sub> have been found to result in over-reading in relation to reference method<sup>8</sup>.

<sup>6</sup> <https://laqm.defra.gov.uk/air-quality/air-quality-assessment/diffusion-tube-data-processing-tool/>

<sup>7</sup> London Air Quality Network Website. Available at <http://www.londonair.org.uk>.

<sup>8</sup> Cape, J.N., Review of the Use of Passive Diffusion Tubes for Measuring Concentrations of Nitrogen Dioxide in Air, 2005. Available at [http://uk-air.defra.gov.uk/reports/cat05/0810141025\\_NO2\\_review.pdf](http://uk-air.defra.gov.uk/reports/cat05/0810141025_NO2_review.pdf)

**Figure 1: Comparison of Diffusion Tube and Automatic Monitoring Station Measurements at Co-located Site**



## National Bias Adjustment Factor

The national bias adjustment factor for 2023 is 0.83 for the laboratory and preparation method, based on 15 studies (spreadsheet version 03/24). Based primarily on the fact that the national factor was greater than the local factor, it was recommended that the national bias adjustment factor was used in 2023, to ensure a more conservative estimate was obtained of annual mean NO<sub>2</sub> concentrations from the diffusion tubes.

## Annual Mean NO<sub>2</sub> Concentrations

The mean NO<sub>2</sub> concentration over the whole network during 2023 was 20.2 µg/m<sup>3</sup> applying the national bias adjustment factor of 0.83. This is well below the annual mean NO<sub>2</sub> objective of 40 µg/m<sup>3</sup>. The maximum annual mean NO<sub>2</sub> concentration, after application of the national bias adjustment factor, was measured at L95 (Lewis Grove) (78.8 µg/m<sup>3</sup>). When distance corrected for relevant exposure, the concentration decreased to 74.0 µg/m<sup>3</sup>.

**Table 4: 2023 Average Annual Mean NO<sub>2</sub> Concentration (µg/m<sup>3</sup>)**

Site Type	Raw	Bias Adjusted, using National Bias Adjustment Factor
		(Factor = 0.83)
All Sites	23.7	20.2
Roadside	24.8	21.3
Urban Background	20.5	17.0

## Comparison with Objectives

The air quality objectives of relevance to NO<sub>2</sub> in the UK are detailed in Table 1. There was one exceedance of the annual mean NO<sub>2</sub> air quality objective of 40 µg/m<sup>3</sup> during 2023 (L95). This site was added as part of the three new diffusion tubes in 2023 along Lewisham High Street and Lewis Grove. It is situated near a busy junction and is also in a street canyon due to the road layout, which are believed to be the main contributing factors to this high annual mean NO<sub>2</sub> concentration. The highest recorded value at the pre-existing tubes was at L85 (Health Centre bus stop) at 37.3 µg/m<sup>3</sup>.

Where diffusion tube locations are not representative of relevant exposure (for example, where a tube is kerbside, but residential facades are several metres back from the kerb), annual mean NO<sub>2</sub> concentrations can be distance-corrected to take into account the fall-off in concentration away from the kerb. Appendix B presents the full set of diffusion tube results including distance-corrected concentrations. When considering the national bias-adjusted diffusion tube results, there are no individual locations that, when distance-corrected to the nearest relevant exposure, exceed the annual mean objective.

A report issued by Air Quality Consultants<sup>9</sup> analysed the relationship between annual mean and hourly mean NO<sub>2</sub> concentrations, concluding that locations where the annual mean concentration is greater than 60 µg/m<sup>3</sup> may be susceptible to breaches of the hourly mean objective (hourly mean NO<sub>2</sub> concentration of 200 µg/m<sup>3</sup> or more not to be exceeded more than 18 occasions per year). As the concentration at L95 is above 60 µg/m<sup>3</sup>, it is likely that the 1 hour mean NO<sub>2</sub> objective was exceeded at L95 during 2023.

## Seasonal Variation

The seasonal variation in NO<sub>2</sub> concentrations during 2023 are shown in Table 5. Due to seasonal variations in the bias adjustment that can occur at diffusion tube sites, the results presented in Table 5 are the raw concentrations with no bias adjustment applied.

The highest mean concentrations occurred in January and February at roadside and urban background sites. Mean NO<sub>2</sub> concentrations were generally lowest in the summer months for all site types.

**Table 5: Monthly Mean NO<sub>2</sub> Concentrations in Lewisham, 2023 (µg/m<sup>3</sup>; Unadjusted)**

Site Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All Sites	31.3	31.7	22.4	22.4	20.2	19.3	16.6	21.5	24.0	26.1	28.2	19.6
Roadside	31.9	32.4	23.2	23.5	21.3	20.5	17.8	22.9	25.6	27.6	29.2	20.3
Urban Background	29.4	29.4	19.7	18.9	16.9	15.1	12.8	17.5	19.4	21.5	25.4	17.3

**Table 6: Unadjusted Winter and Summer Period Mean Concentrations in Lewisham, 2023**

Site Type	Winter Mean Concentration (October – March) (µg/m <sup>3</sup> )	Summer Mean Concentration (April – September) (µg/m <sup>3</sup> )	Ratio Winter : Summer
All Sites	26.6	20.7	1.28
Roadside	27.4	21.9	1.25
Urban Background	23.8	16.8	1.42

<sup>9</sup> Air Quality Consultants (2007). Deriving NO<sub>2</sub> from NO<sub>x</sub> for Air Quality Assessments of Roads.

Table 6 shows that the ratio of winter to summer mean NO<sub>2</sub> concentration was 1.25 for roadside sites, indicating mean concentrations were higher in the winter than the summer period. The urban background sites display a greater winter: summer ratio compared to roadside sites with a value of 1.42 in 2023. For all sites, collectively, the ratio of winter to summer mean NO<sub>2</sub> concentration was 1.28.

## Historical Trends

Table 7 summarises the results of the Lewisham Tube Network by site type from 2018 to 2023; results for each site in 2023 are detailed in Appendix B. These results have been bias-adjusted using the factor derived in Appendix C.

Measurements from the past year showed a slight decrease in annual mean NO<sub>2</sub> concentration across the network between 2022 and 2023.

**Table 7: Annual Mean NO<sub>2</sub> Concentration (bias-adjusted) by Site Type, 2018 – 2023**

Bias Adjusted Annual Mean NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )						
		2018		2019		2020
Site Type	Bias Adjusted using New Cross Co-located tubes (Factor = 0.91)	Bias Adjusted using National Bias Adjustment factor (Factor = 0.92)	Bias Adjusted using New Cross Co-located tubes (Factor = 0.91)	Bias Adjusted using National Bias Adjustment factor (Factor = 0.87)	Bias Adjusted using New Cross Co-located tubes (Factor = 0.78)	Bias Adjusted using National Bias Adjustment factor (Factor = 0.82)
All Sites	31.5	31.9	29.6	28.3	22.2	23.3
Roadside	35.7	36.1	33.2	31.8	24.8	26.0
Urban Background	26.2	26.5	25.0	23.9	18.8	19.8
Bias Adjusted Annual Mean NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )						
		2021		2022		2023
Site Type	Bias Adjusted using New Cross Co-located tubes (Factor = N/A)	Bias Adjusted using National Bias Adjustment factor (Factor = 0.83)	Bias Adjusted using New Cross Co-located tubes (Factor = 0.78)	Bias Adjusted using National Bias Adjustment factor (Factor = 0.82)	Bias Adjusted using New Cross Co-located tubes (Factor = 0.81)	Bias Adjusted using National Bias Adjustment factor (Factor = 0.83)
All Sites	-	21.9	20.0	21.0	19.7	20.2
Roadside	-	22.6	21.0	22.2	20.8	21.3
Urban Background	-	19.2	17.1	18.0	16.6	17.0

## 5. Conclusions

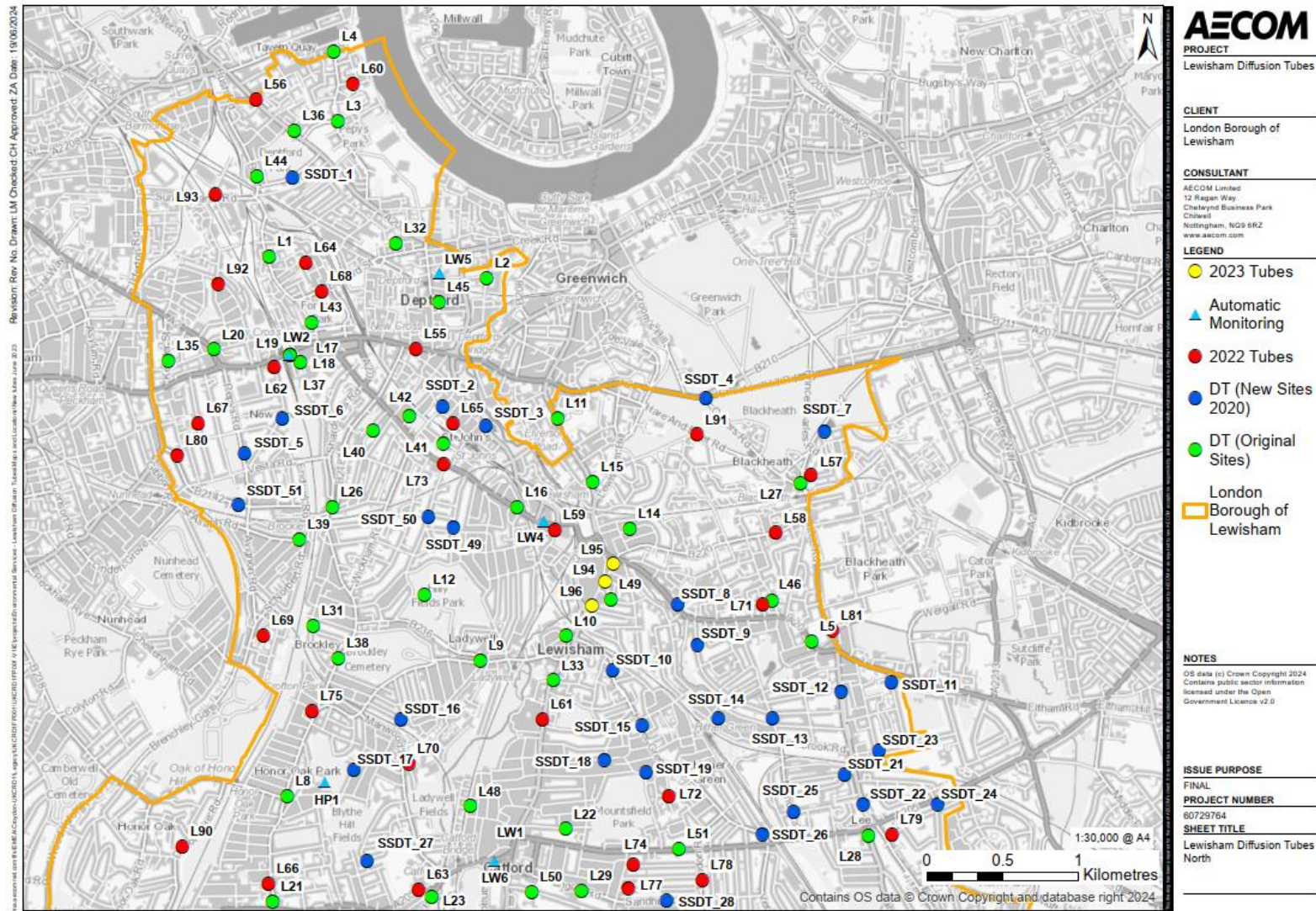
The main conclusions of the 2023 Lewisham Diffusion Tube Network study are:

- The annual mean NO<sub>2</sub> concentration for the whole network was 20.3 µg/m<sup>3</sup>, applying the national bias adjustment factor of 0.83;
- NO<sub>2</sub> concentrations were greatest at roadside monitoring locations, and lowest at urban background sites, as would be expected;
- The maximum annual mean NO<sub>2</sub> concentration was measured at the L95 site (Lewis Grove) (78.8 µg/m<sup>3</sup>). When distance corrected for relevant exposure, the concentration decreased to 74.0 µg/m<sup>3</sup>;
- The mean roadside NO<sub>2</sub> concentration across the network was 21.3 µg/m<sup>3</sup> based on the national bias adjustment factor and the mean urban background concentration was 17.0 µg/m<sup>3</sup>;
- Results based on applying either the national or local adjustment factor showed only one diffusion tube location to exceed the annual mean NO<sub>2</sub> objective (L95); and
- Only site L95 recorded an annual mean above 60 µg/m<sup>3</sup>, indicating that it is likely that the short-term objective was exceeded at this location in 2023.

# Appendix A Diffusion Tube Locations



Figure 2: LB Lewisham Diffusion Tube Network (North) in 2023





# Appendix B Diffusion Tube Results

**Table 8: Lewisham Diffusion Tube Network 2023 – Raw and Bias Adjusted Results**

Original Site ID	New Site ID	Site Name	X	Y	Site Type	Data Capture	Raw	Locally Adjusted and Annualised	Nationally Adjusted and Annualised	Distance Corrected	Comment
L1	L1	Chubworthy Street	536109	177580	Roadside	99.7	22.9	18.5	19.0		
L2	L2	Bronze Street	537540	177439	Urban Background	99.7	20.4	16.5	16.9		
L3	L3	Grove Street	536561	178471	Urban Background	32.7	26.3	18.9	19.4		
L4	L4	Plough Way	536534	178926	Urban Background	57.4	26.8	21.6	22.1		
L5	L5	Lee High Road	539678	175050	Roadside	99.7	22.5	18.2	18.7		
L6	L6	Le May Avenue	540615	172337	Urban Background	82.1	21.4	17.3	17.7		
L7	L7	Bell Green	536556	171810	Roadside	99.7	33.0	26.7	27.4		
L8	L8	Stondon Park	536229	174032	Roadside	99.7	25.4	20.5	21.1		
L9	L9	Ladywell Road	537500	174925	Roadside	99.7	25.5	20.6	21.2		
L10	L10	Whitburn Road	538062	175085	Roadside	99.7	25.8	20.9	21.4		
L11	L11	Sparta St,	538007	176517	Roadside	99.7	29.8	24.1	24.7		

Original Site ID	New Site ID	Site Name	X	Y	Site Type	Data Capture	Raw	Locally Adjusted and Annualised	Nationally Adjusted and Annualised	Distance Corrected	Comment
L12	L12	Hilly Fields	537132	175353	Urban Background	99.7	19.6	15.9	16.3		
LWS 53	L13	Mayow Rd	535804	171567	Urban Background	89.8	20.4	16.6	17.0		
LWS 002	L14	Boyne Rd	538482	175792	Urban Background	99.7	21.8	17.7	18.1		
LWS 003	L15	Lewisham Rd	538237	176101	Roadside	99.7	32.7	26.5	27.2		
LWS 004	L16	Loampit Vale	537740	175930	Roadside	99.7	31.5	25.5	26.2		
LWS 005	L17	New Cross AQMS	536246	176934	Roadside	100.0	32.9	26.7	27.3		
LWS 006	L18	New Cross AQMS	536246	176934	Roadside	100.0	32.5	26.3	27.0		
LWS 007	L19	New Cross AQMS	536246	176934	Roadside	83.3	32.4	26.4	26.9		
LWS 008	L20	Hatcham Park Rd	535746	176969	Roadside	59.6	28.8	21.1	21.6		
LWS 009	L21	Brockley Rise	536133	173341	Roadside	89.8	29.9	24.2	24.8		
LWS 010	L22	Ringstead Rd	538060	173816	Urban Background	92.3	21.1	17.1	17.5		
LWS 011	L23	Catford Hill	537178	173365	Roadside	82.1	29.5	23.9	24.5		
LWS 018	L24	Torrison School Hazelbank Rd	538904	172697	Urban Background	79.9	25.4	20.6	21.1		

Original Site ID	New Site ID	Site Name	X	Y	Site Type	Data Capture	Raw	Locally Adjusted and Annualised	Nationally Adjusted and Annualised	Distance Corrected	Comment
LWS 015	L26	Shardeloes Rd	536527	175935	Roadside	99.7	27.5	22.3	22.9		
LWS 016	L27	Montpelier Vale	539604	176090	Roadside	92.3	34.3	27.7	28.4		
LWS 017	L28	Baring Rd	540051	173769	Roadside	99.7	30.6	24.8	25.4		
SCH 8	L29	Holy Cross School	538165	173406	Roadside	92.3	20.2	16.3	16.7		
SCH 13	L30	St George's CofE School	535535	172679	Roadside	99.7	19.1	15.5	15.9		
SCH 16	L31	St Mary Magdalen's School	536399	175150	Urban Background	99.7	17.7	14.3	14.7		
SCH 18	L32	Grinling Gibbons School	536944	177665	Urban Background	80.2	21.7	17.6	18.0		
SCH 20	L33	St Mary's Lewisham School	537979	174792	Roadside	99.7	28.2	22.8	23.4		
SCH 21	L34	Sydenham School	535071	172346	Urban Background	99.7	17.4	14.1	14.4		
SCH 22	L35	Kender Primary Sch	535447	176897	Roadside	92.3	19.6	15.8	16.2		
SCH 23	L36	Deptford Park Sch	536275	178405	Roadside	99.7	24.8	20.1	20.6		
SCH 24	L37	St James Hatcham Sch	536317	176883	Urban Background	99.7	20.5	16.6	17.0		
L38	L38	Beecroft Primary School	536564	174937	Roadside	99.7	21.3	17.2	17.7		

Original Site ID	New Site ID	Site Name	X	Y	Site Type	Data Capture	Raw	Locally Adjusted and Annualised	Nationally Adjusted and Annualised	Distance Corrected	Comment
L39	L39	John Stainer Primary School	536308	175721	Roadside	99.7	21.2	17.1	17.6		
L40	L40	Myatt Garden Primary School	536792	176432	Urban Background	82.4	18.1	14.7	15.0		
L41	L41	Ashmead Primary School	537256	176353	Urban Background	99.7	18.0	14.6	14.9		
L42	L42	Lucas Vale Primary School	537032	176534	Urban Background	99.7	19.9	16.1	16.5		
L43	L43	Childeric Primary School	536389	177144	Urban Background	99.7	21.1	17.1	17.5		
L44	L44	Sir Francis Drake Primary School	536028	178107	Roadside	82.7	29.3	23.8	24.3		
L45	L45	Tidemill Academy	537228	177284	Roadside	99.7	21.4	17.4	17.8		
L46	L46	St Margaret Lee Primary School	539416	175315	Urban Background	99.7	18.4	14.9	15.2		
L47	L47	Rathfern Primary School	536839	173211	Roadside	92.0	18.8	15.2	15.6		
L48	L48	Holbeach Primary School	537433	173965	Urban Background	99.7	21.6	17.5	17.9		
L49	L49	St Saviours RC Primary School	538358	175324	Urban Background	99.7	21.2	17.1	17.6		
L50	L50	Rushey Green Primary School	537836	173400	Urban Background	99.7	16.9	13.7	14.0		
L51	L51	290 Brownhill Rd S Circular	538803	173683	Roadside	92.3	35.0	28.3	29.0		

Original Site ID	New Site ID	Site Name	X	Y	Site Type	Data Capture	Raw	Locally Adjusted and Annualised	Nationally Adjusted and Annualised	Distance Corrected	Comment
L52	L52	St John CofE School	538285	171877	Roadside	99.7	24.8	20.1	20.6		
L53	L53	Greenvale School	539319	172362	Urban Background	99.7	18.0	14.6	15.0		
L54	L54	Baring Road Medical Centre - Healthwatch Lewisham	540485	172665	Roadside	99.7	26.4	21.4	21.9		
L55	L55	Addey and Stanhope School	537110	176953	Roadside	74.7	24.6	19.9	20.4		
L56	L56	Marathon Science School	536015	178631	Roadside	79.9	26.7	21.6	22.1		
L57	L57	Heath House Preparatory School	539671	176141	Urban Background	99.7	23.0	18.6	19.1		
L58	L58	THE BLACKHEATH HOSPITAL OUTPATIENT CENTRE	539442	175762	Roadside	99.7	32.3	26.1	26.8		
L59	L59	TLG Lewisham	537986	175738	Urban Background	82.4	26.8	21.7	22.2		
L60	L60	FLEMMING HOUSE	536660	178717	Urban Background	92.3	22.2	18.0	18.5		
L61	L61	UNIVERSITY HOSPITAL LEWISHAM	537926	174634	Roadside	99.7	29.3	23.7	24.3		
L62	L62	Haberdashers' Aske's Hatcham Temple Grove	536152	176823	Roadside	90.1	28.1	22.8	23.3		
L63	L63	St Dunstan's College	537092	173415	Roadside	99.7	33.7	27.3	28.0		

Original Site ID	New Site ID	Site Name	X	Y	Site Type	Data Capture	Raw	Locally Adjusted and Annualised	Nationally Adjusted and Annualised	Distance Corrected	Comment
L64	L64	Kings Kids Christian School	536352	177541	Urban Background	89.8	20.7	16.7	17.2		
L65	L65	St Stephen's CofE Primary School	537319	176485	Urban Background	92.0	19.7	15.9	16.3		
L66	L66	Dalmain Primary School	536106	173458	Roadside	82.1	17.3	14.0	14.3		
L67	L67	Edmund Waller Primary School	535644	176484	Urban Background	92.0	18.6	15.0	15.4		
L68	L68	Deptford Green School	536462	177354	Roadside	92.3	33.9	27.5	28.2		
L69	L69	Chelwood Nursery School	536065	175089	Urban Background	75.0	18.8	15.2	15.6		
L70	L70	Prendergast Ladywell School	537048	174220	Urban Background	92.0	16.4	13.3	13.6		
L71	L71	St Margaret's Lee CofE Primary School	539355	175293	Urban Background	89.8	18.3	14.8	15.2		
L72	L72	SOUTH LONDON AND MAUDSLEY	538738	174030	Urban Background	99.7	17.3	14.0	14.4		
L73	L73	LeSoCo	537258	176212	Roadside	99.7	35.4	28.7	29.4		
L74	L74	Arngask Road	538503	173580	Urban Background	99.7	19.8	16.0	16.4		
L75	L75	Eddystone Road	536392	174592	Urban Background	99.7	20.2	16.3	16.7		
L76	L76	Verdant Lane	539519	172846	Roadside	99.7	26.5	21.5	22.0		



Original Site ID	New Site ID	Site Name	X	Y	Site Type	Data Capture	Raw	Locally Adjusted and Annualised	Nationally Adjusted and Annualised	Distance Corrected	Comment
L77	L77	Glenfarg Road	538470	173427	Urban Background	92.3	19.4	15.7	16.1		
L78	L78	Torridon Road	538958	173479	Urban Background	99.7	22.6	18.3	18.8		
L79	L79	Horncastle Road	540204	173780	Urban Background	99.7	22.0	17.8	18.3		
L80	L80	Gellatly Road	535505	176274	Roadside	92.3	26.8	21.7	22.3		
L81	L81	Lee Road	539815	175122	Roadside	99.7	23.3	18.9	19.3		
L82	L82	Perry Hill Bus Stop X	536791	172863	Roadside	59.3	21.7	19.6	20.1		
L83	L83	Bellingham Road	537967	172366	Roadside	92.3	22.7	18.4	18.8		
L84	L84	Perry Rise	536500	172023	Roadside	67.3	33.2	24.3	24.9		
L85	L85	Health Centre bus stop	536528	171882	Roadside	82.1	44.9	36.4	37.3	27.6	
L86	L86	Southend Lane Bridge	536871	171719	Roadside	92.3	37.7	30.5	31.3		
L87	L87	Kirkdale/Wells Park Road	534983	171996	Roadside	84.6	28.1	22.8	23.3		
L88	L88	Sydenham Library	536309	171594	Roadside	92.3	37.1	30.0	30.8		
L89	L89	Nursery entrance OLSPN	536208	171508	Roadside	99.7	21.0	17.0	17.5		

Original Site ID	New Site ID	Site Name	X	Y	Site Type	Data Capture	Raw	Locally Adjusted and Annualised	Nationally Adjusted and Annualised	Distance Corrected	Comment
L90	L90	Devonshire Road	535538	173700	Roadside	99.7	20.0	16.2	16.6		
L91	L91	Hare and Billet Road/Lewisham Hill	538924	176411	Roadside	92.3	23.4	19.0	19.4		
L92	L92	Camplin St at Brocklehurst St junc	535760	177399	Roadside	99.7	22.3	18.1	18.5		
L93	L93	Landmann Way	535765	178032	Roadside	89.8	28.7	23.3	23.8		
L94	L94	Three Store, Lewis Grove	538318	175446	Roadside	49.7	35.8	31.3	32.1		
L95	L95	9A Lewis Grove	538371	175562	Roadside	49.7	87.9	76.9	78.8	74.0	
L96	L96	191 Lewisham High Street	538233	175283	Roadside	49.7	43.5	38.0	39.0	32.2	
SSDT_1	SSDT_1	46 Grinstead Road	536219	178078	Roadside	99.7	27.2	22.1	22.6		
SSDT_2	SSDT_2	58 Friendly Street	537250	176593	Roadside	89.8	22.4	18.1	18.6		
SSDT_3	SSDT_3	1 Lind Street	537550	176443	Roadside	99.7	23.7	19.2	19.7		
SSDT_4	SSDT_4	Goffers Road	538982	176645	Roadside	99.7	28.4	23.0	23.6		
SSDT_5	SSDT_5	121 Pepys Road	535947	176287	Roadside	99.7	21.5	17.4	17.9		
SSDT_6	SSDT_6	101 Jerningham Road	536197	176514	Roadside	99.7	22.3	18.1	18.5		

Original Site ID	New Site ID	Site Name	X	Y	Site Type	Data Capture	Raw	Locally Adjusted and Annualised	Nationally Adjusted and Annualised	Distance Corrected	Comment
SSDT_7	SSDT_7	41 South Row	539761	176431	Roadside	99.7	28.6	23.2	23.7		
SSDT_8	SSDT_8	1 Belmont Park	538795	175291	Roadside	99.7	24.8	20.1	20.6		
SSDT_9	SSDT_9	19 Manor Road	538926	175030	Roadside	99.7	19.9	16.1	16.5		
SSDT_10	SSDT_10	94 Hither Green Lane	538367	174857	Roadside	99.7	27.3	22.1	22.6		
SSDT_11	SSDT_11	1 Woodville Close	540200	174781	Roadside	89.8	18.0	14.6	14.9		
SSDT_12	SSDT_12	4 Burnt Ash Road	539871	174720	Roadside	92.0	26.3	21.3	21.8		
SSDT_13	SSDT_13	101 Manor Lane	539418	174543	Roadside	74.5	20.0	16.2	16.6		
SSDT_14	SSDT_14	160 Leahurst Road	539063	174543	Roadside	79.9	20.9	16.9	17.3		
SSDT_15	SSDT_15	185 Hither Green Lane	538562	174494	Roadside	67.6	23.3	18.4	18.8		
SSDT_16	SSDT_16	140 Chudleigh Road	536975	174537	Roadside	99.7	21.5	17.4	17.9		
SSDT_17	SSDT_17	112 Crofton Park Road	536666	174206	Roadside	99.7	19.7	16.0	16.4		
SSDT_18	SSDT_18	George Lane, Holy Trinity Church	538313	174269	Roadside	99.7	21.5	17.4	17.9		
SSDT_19	SSDT_19	193 George Lane	538589	174189	Roadside	99.7	19.4	15.7	16.1		

Original Site ID	New Site ID	Site Name	X	Y	Site Type	Data Capture	Raw	Locally Adjusted and Annualised	Nationally Adjusted and Annualised	Distance Corrected	Comment
SSDT_20	SSDT_20	208 Verdant Lane	539498	172969	Roadside	99.7	23.2	18.8	19.3		
SSDT_21	SSDT_21	Holme Lacey Road	539892	174174	Roadside	99.7	20.4	16.5	16.9		
SSDT_22	SSDT_22	40B Burnt Ash Road	540014	173979	Roadside	89.8	26.0	21.0	21.6		
SSDT_23	SSDT_23	75 Leyland Road	540119	174329	Roadside	99.7	19.4	15.7	16.1		
SSDT_24	SSDT_24	131 Woodyates Road	540504	173977	Roadside	99.7	23.2	18.8	19.3		
SSDT_25	SSDT_25	268 Manor Lane	539559	173929	Roadside	92.0	23.5	19.1	19.5		
SSDT_26	SSDT_26	389 Hither Green Lane	539352	173783	Roadside	99.7	24.7	20.0	20.5		
SSDT_27	SSDT_27	51 Polstead Road	536753	173603	Roadside	99.7	18.7	15.2	15.6		
SSDT_28	SSDT_28	119 Sandhurst Road	538723	173345	Roadside	99.7	26.0	21.1	21.6		
SSDT_29	SSDT_29	18 Jevington Way	541019	173231	Roadside	99.7	19.0	15.4	15.8		
SSDT_30	SSDT_30	7 Fordmill Road	537530	173095	Roadside	74.7	21.2	17.2	17.6		
SSDT_31	SSDT_31	38 Thorpewood Avenue	534939	172586	Roadside	92.3	16.7	13.5	13.8		
SSDT_32	SSDT_32	155 Woolstone Road	536495	172795	Roadside	92.3	20.5	16.6	17.0		
SSDT_33	SSDT_33	3 Brookehowse Road	537436	172596	Roadside	99.7	19.8	16.1	16.5		

Original Site ID	New Site ID	Site Name	X	Y	Site Type	Data Capture	Raw	Locally Adjusted and Annualised	Nationally Adjusted and Annualised	Distance Corrected	Comment
SSDT_34	SSDT_34	136 Thornsbeach Road	538471	172660	Roadside	92.0	18.8	15.3	15.6		
SSDT_35	SSDT_35	49 Castillion Road	539254	172658	Roadside	99.7	20.5	16.6	17.0		
SSDT_36	SSDT_36	12 Pragnell Road	540601	172744	Roadside	99.7	15.4	12.5	12.8		
SSDT_37	SSDT_37	147 Perry Hill	536618	172405	Roadside	99.7	28.1	22.8	23.4		
SSDT_38	SSDT_38	Dacres Road	535533	172340	Roadside	89.8	15.6	12.7	13.0		
SSDT_39	SSDT_39	Wells Park Road	534309	172044	Roadside	84.3	19.9	16.1	16.5		
SSDT_40	SSDT_40	22 Mayow Road	535924	172207	Roadside	89.8	22.1	17.9	18.3		
SSDT_41	SSDT_41	5 Stanton Way	536598	171766	Roadside	92.3	31.1	25.2	25.8		
SSDT_42	SSDT_42	Oakridge Road	538788	171517	Roadside	39.8	25.4	22.8	23.4		
SSDT_43	SSDT_43	198 Glenbow Road	539170	170869	Roadside	99.7	17.8	14.4	14.8		
SSDT_44	SSDT_44	Glenbow Road, Playing Fields	539374	171246	Roadside	82.4	16.4	13.3	13.6		
SSDT_45	SSDT_45	165 Downham Way	539492	171567	Roadside	99.7	17.4	14.1	14.4		
SSDT_46	SSDT_46	Daneswood Avenue, 90 Passfields	539732	172202	Roadside	92.3	21.6	17.5	17.9		

Original Site ID	New Site ID	Site Name	X	Y	Site Type	Data Capture	Raw	Locally Adjusted and Annualised	Nationally Adjusted and Annualised	Distance Corrected	Comment
SSDT_47	SSDT_47	398 Downham Way	540091	171644	Roadside	92.3	22.8	18.5	18.9		
SSDT_48	SSDT_48	549 Downham Way	540331	172103	Roadside	89.8	20.9	16.9	17.3		
SSDT_49	SSDT_49	72 Tyrwhitt Road	537318	175817	Roadside	99.7	18.6	15.1	15.5		
SSDT_50	SSDT_50	53 Tressillian Road	537111	175716	Roadside	57.7	19.4	15.2	15.6		
SSDT_51	SSDT_51	110 Drakefell Road	535910	175947	Roadside	72.5	28.7	23.2	23.8		


# Appendix C Diffusion Tube Bias Adjustment

**Table 9: Summary of Local and National Bias Adjustment Factors for Lewisham NO<sub>2</sub> Diffusion Tube Surveys, 2009 to 2023**

Site Type	Mean Local Factor	National Factor <sup>a</sup>
2009	0.84	0.97
2010	0.69	1.03
2011	0.59	0.95
2012	0.79	1.01
2013	0.93	1.00
2014	0.82	0.97
2015	1.02	0.95
2016	0.92	1.03
2017	1.00	0.97
2018	0.91	0.92
2019	0.91	0.87
2020	0.78	0.82
2021	-	0.83
2022	0.78	0.82
2023	0.81	0.83

Notes: <sup>a</sup> National factor obtained from Bias Adjustment Factor spreadsheet<sup>3</sup> version 03/24 based on Gradko as the analysing laboratory using the 50% TEA in acetone method

**Figure 4: Local Bias Adjustment Factor Calculator**



**Local Bias Adjustment Outputs - Information Only**

Go back to STEP 3 - Bias Adjustment to define factor

	STEP 3a Local Bias Adjustment Input 1	STEP 3b Local Bias Adjustment Input 2	STEP 3c Local Bias Adjustment Input 3	STEP 3d Local Bias Adjustment Input 4	STEP 3e Local Bias Adjustment Input 5	STEP 3f Local Bias Adjustment Input 6	STEP 3g Local Bias Adjustment Input 7
Periods used to calculate bias	12						
Bias Adjustment Factor A	0.81 (0.77 - 0.86)						
Diffusion Tube Bias B	23% (17% - 30%)						
Diffusion Tube Mean (µg/m <sup>3</sup> )	32.6						
Mean CV (Precision)	3.0%						
Automatic Mean (µg/m <sup>3</sup> )	26.4						
Data Capture	97%						
Adjusted Tube Mean (µg/m <sup>3</sup> )	26 (25 - 28)						
Overall Diffusion Tube Precision	Good Overall Precision						
Overall Continuous Monitor Data Capture	Good Overall Data Capture						
Local Bias Adjustment Factor	0.81						

Figure 5: National Bias Adjustment Factor Calculator

National Diffusion Tube Bias Adjustment Factor Spreadsheet						Spreadsheet Version Number: 03/24				
<p>Follow the steps below <u>in the correct order</u> to show the results of <u>relevant</u> co-location studies</p> <p>Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods</p> <p>Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet</p> <p>This spreadsheet will be updated every few months; the factors may therefore be subject to change. This should not discourage their immediate use.</p>						<p>This spreadsheet will be updated at the end of June 2024</p> <p><a href="#">LAQM Helpdesk Website</a></p>				
The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.						Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.				
Step 1:		Step 2:	Step 3:	Step 4:						
Select the Laboratory that Analyses Your Tubes from the Drop-Down List		Select a Preparation Method from the Drop-Down List	Select a Year from the Drop-Down List	Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor <sup>2</sup> shown in blue at the foot of the final column.						
If a laboratory is not chosen, we have no data for this laboratory.		If a preparation method is not chosen, we have no data for this method at this laboratory.	If a year is not chosen, we have no data <sup>3</sup> .	If you have your own co-location study then see footnote <sup>4</sup> . If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0600 0327953						
Analysed By <sup>1</sup>	Method	Year	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m <sup>3</sup> )	Automatic Monitor Mean Conc. (Cm) (µg/m <sup>3</sup> )	Bias (B)	Tube Precision <sup>5</sup>	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	50% TEA in acetone	2023	R	London Borough Of Lewisham	11	33	27	22.7%	G	0.82
Gradko	50% TEA in Acetone	2023	R	London Borough Of Merton	12	37	31	18.5%	G	0.84
Gradko	50% TEA in acetone	2023	KS	Manylebone Road intercomparison	11	47	38	25.7%	G	0.80
Gradko	50% TEA in acetone	2023	R	Royal Borough Of Windsor And Maidenhead	11	27	23	21.6%	G	0.82
Gradko	50% TEA in acetone	2023	R	Royal Borough Of Windsor And Maidenhead	12	24	24	0.6%	G	0.99
Gradko	50% TEA in acetone	2023	R	London Borough Of Richmond Upon Thames	11	18	16	15.6%	G	0.86
Gradko	50% TEA in acetone	2023	<b>Overall Factor<sup>2</sup> (15 studies)</b>						<b>Use</b>	<b>0.83</b>



## Appendix D Diffusion Tube Locations – 2011 to Present

Original Site Name	New Site Name	Address	X	Y	Site Type	Date of Diffusion Tube Added	Date of Diffusion Tube Removed	Reasoning behind location
L54	L54	Baring Road Medical Centre - Healthwatch Lewisham	540485	172665	Roadside	2022	-	
L55	L55	Addey and Stanhope School	537110	176953	Roadside	2022	-	
L56	L56	Marathon Science School	536015	178631	Roadside	2022	-	
L57	L57	Heath House Preparatory School	539671	176141	Urban Background	2022	-	
L58	L58	THE BLACKHEATH HOSPITAL OUTPATIENT CENTRE	539442	175762	Roadside	2022	-	
L59	L59	TLG Lewisham	537986	175738	Urban Background	2022	-	
L60	L60	FLEMMING HOUSE	536660	178717	Urban Background	2022	-	
L61	L61	UNIVERSITY HOSPITAL LEWISHAM	537926	174634	Roadside	2022	-	
L62	L62	Haberdashers' Aske's Hatcham Temple Grove	536152	176823	Roadside	2022	-	

Original Site Name	New Site Name	Address	X	Y	Site Type	Date of Diffusion Tube Added	Date of Diffusion Tube Removed	Reasoning behind location
L63	L63	St Dunstan's College	537092	173415	Roadside	2022	-	
L64	L64	Kings Kids Christian School	536352	177541	Urban Background	2022	-	
L65	L65	St Stephen's CofE Primary School	537319	176485	Urban Background	2022	-	
L66	L66	Dalmain Primary School	536106	173458	Roadside	2022	-	
L67	L67	Edmund Waller Primary School	535644	176484	Urban Background	2022	-	
L68	L68	Deptford Green School	536462	177354	Roadside	2022	-	
L69	L69	Chelwood Nursery School	536065	175089	Urban Background	2022	-	
L70	L70	Prendergast Ladywell School	537048	174220	Urban Background	2022	-	
L71	L71	St Margaret's Lee CofE Primary School	539355	175293	Urban Background	2022	-	
L72	L72	SOUTH LONDON AND MAUDSLEY	538738	174030	Urban Background	2022	-	
L73	L73	LeSoCo	537258	176212	Roadside	2022	-	

Original Site Name	New Site Name	Address	X	Y	Site Type	Date of Diffusion Tube Added	Date of Diffusion Tube Removed	Reasoning behind location
L74	L74	Arngask Road	538503	173580	Urban Background	2022	-	
L75	L75	Eddystone Road	536392	174592	Urban Background	2022	-	
L76	L76	Verdant Lane	539519	172846	Roadside	2022	-	
L77	L77	Glenfarg Road	538470	173427	Urban Background	2022	-	
L78	L78	Torridon Road	538958	173479	Urban Background	2022	-	
L79	L79	Horncastle Road	540204	173780	Urban Background	2022	-	
L80	L80	Gellatly Road	535505	176274	Roadside	2022	-	
L81	L81	Lee Road	539815	175122	Roadside	2022	-	
L82	L82	Perry Hill Bus Stop X	536791	172863	Roadside	2022	-	
L83	L83	Bellingham Road	537967	172366	Roadside	2022	-	
L84	L84	Perry Rise	536500	172023	Roadside	2022	-	

Original Site Name	New Site Name	Address	X	Y	Site Type	Date of Diffusion Tube Added	Date of Diffusion Tube Removed	Reasoning behind location
L85	L85	Health Centre bus stop	536528	171882	Roadside	2022	-	
L86	L86	Southend Lane Bridge	536871	171719	Roadside	2022	-	
L87	L87	Kirkdale/Wells Park Road	534983	171996	Roadside	2022	-	
L88	L88	Sydenham Library	536309	171594	Roadside	2022	-	
L89	L89	Nursery entrance OLSPN	536208	171508	Roadside	2022	-	
L90	L90	Devonshire Road	535538	173700	Roadside	2022	-	
L91	L91	Hare and Billet Road/Lewisham Hill	538924	176411	Roadside	2022	-	
L92	L92	Camplin St at Brocklehurst St junc	535760	177399	Roadside	2022	-	
L93	L93	Landmann Way	535765	178032	Roadside	2022	-	
L94	L94	Three Store, Lewis Grove	538318	175446	Roadside	2023	-	Added as part of the three new diffusion tubes in 2023 along Lewisham High Street and Lewis Grove
L95	L95	9A Lewis Grove	538371	175562	Roadside	2023	-	Added as part of the three new diffusion tubes in 2023 along

Original Site Name	New Site Name	Address	X	Y	Site Type	Date of Diffusion Tube Added	Date of Diffusion Tube Removed	Reasoning behind location
								Lewisham High Street and Lewis Grove
L96	L96	191 Lewisham High Street	538233	175283	Roadside	2023	-	Added as part of the three new diffusion tubes in 2023 along Lewisham High Street and Lewis Grove
SSDT_1	SSDT_1	25 Grinstead Road	536219	178078	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_2	SSDT_2	58 Friendly Street	537250	176593	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_3	SSDT_3	1 Lind Street	537550	176443	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_4	SSDT_4	Goffers Road	538982	176645	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_5	SSDT_5	121 Pepys Road	535947	176287	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_6	SSDT_6	101 Jerningham Road	536197	176514	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_7	SSDT_7	41 South Row	539761	176431	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_8	SSDT_8	1 Belmont Park	538795	175291	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_9	SSDT_9	19 Manor Road	538926	175030	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department

Original Site Name	New Site Name	Address	X	Y	Site Type	Date of Diffusion Tube Added	Date of Diffusion Tube Removed	Reasoning behind location
SSDT_10	SSDT_10	94 Hither Green Lane	538367	174857	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_11	SSDT_11	1 Woodville Close	540200	174781	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_12	SSDT_12	4 Burnt Ash Road	539871	174720	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_13	SSDT_13	101 Manor Lane	539418	174543	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_14	SSDT_14	160 Leahurst Road	539063	174543	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_15	SSDT_15	185 Hither Green Lane	538562	174494	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_16	SSDT_16	140 Chudleigh Road	536975	174537	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_17	SSDT_17	112 Crofton Park Road	536666	174206	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_18	SSDT_18	George Lane, Holy Trinity Church	538313	174269	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_19	SSDT_19	193 George Lane	538589	174189	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_20	SSDT_20	208 Verdant Lane	539498	172969	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department

Original Site Name	New Site Name	Address	X	Y	Site Type	Date of Diffusion Tube Added	Date of Diffusion Tube Removed	Reasoning behind location
SSDT_21	SSDT_21	Holme Lacey Road	539892	174174	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_22	SSDT_22	40B Burnt Ash Road	540014	173979	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_23	SSDT_23	75 Leyland Road	540119	174329	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_24	SSDT_24	131 Woodyates Road	540504	173977	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_25	SSDT_25	268 Manor Lane	539559	173929	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_26	SSDT_26	389 Hither Green Lane	539352	173783	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_27	SSDT_27	51 Polstead Road	536753	173603	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_28	SSDT_28	119 Sandhurst Road	538723	173345	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_29	SSDT_29	18 Jevington Way	541019	173231	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_30	SSDT_30	7 Fordmill Road	537530	173095	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_31	SSDT_31	38 Thorpewood Avenue	534939	172586	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department

Original Site Name	New Site Name	Address	X	Y	Site Type	Date of Diffusion Tube Added	Date of Diffusion Tube Removed	Reasoning behind location
SSDT_32	SSDT_32	155 Woolstone Road	536495	172795	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_33	SSDT_33	3 Brookehowse Road	537436	172596	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_34	SSDT_34	136 Thornsbeach Road	538471	172660	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_35	SSDT_35	49 Castillion Road	539254	172658	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_36	SSDT_36	12 Pragnell Road	540601	172744	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_37	SSDT_37	147 Perry Hill	536618	172405	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_38	SSDT_38	Dacres Road	535533	172340	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_39	SSDT_39	Wells Park Road	534309	172044	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_40	SSDT_40	22 Mayow Road	535924	172207	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_41	SSDT_41	5 Stanton Way	536598	171766	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_42	SSDT_42	Oakridge Road	538788	171517	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department



Original Site Name	New Site Name	Address	X	Y	Site Type	Date of Diffusion Tube Added	Date of Diffusion Tube Removed	Reasoning behind location
SSDT_43	SSDT_43	198 Glenbow Road	539170	170869	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_44	SSDT_44	Glenbow Road, Playing Fields	539374	171246	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_45	SSDT_45	165 Downham Way	539492	171567	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_46	SSDT_46	Daneswood Avenue, 90 Passfields	539732	172202	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_47	SSDT_47	398 Downham Way	540091	171644	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_48	SSDT_48	549 Downham Way	540331	172103	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_49	SSDT_49	72 Tyrwhitt Road	537318	175817	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_50	SSDT_50	53 Tressillian Road	537111	175716	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
SSDT_51	SSDT_51	110 Drakefell Road	535910	175947	Roadside	2020	-	Monitoring as part of modal filters work being undertaken by LBL's transport department
L1	L1	Chubworthy Street	536109	177580	Roadside	2011	-	Representative of Chubworthy Street
L10	L10	Whitburn Road	538062	175085	Roadside	2011	-	Representative of Lewisham High Street

Original Site Name	New Site Name	Address	X	Y	Site Type	Date of Diffusion Tube Added	Date of Diffusion Tube Removed	Reasoning behind location
L11	L11	Sparta St, opp Morden Mount School	538007	176517	Roadside	2011	-	Located near school
L12	L12	Hilly Fields	537132	175353	Urban Background	2011	-	Representative of Hilly Fields
L2	L2	Bronze Street	537540	177439	Urban Background	2011	-	Representative of Sue Godfrey Local Nature Reserve
L3	L3	Grove Street	536561	178471	Urban Background	2011	-	Representative of Deptford Park Primary School
L38	L38	Beecroft Primary School	536564	174937	Roadside	2018	-	Located near school
L39	L39	John Stainer Primary School	536308	175721	Roadside	2018	-	Located near school
L4	L4	Plough Way	536534	178926	Urban Background	2011	-	Representative of South Docks
L40	L40	Myatt Garden Primary School	536792	176432	Urban Background	2018	-	Located near school
L41	L41	Ashmead Primary School	537256	176353	Urban Background	2018	-	Located near school
L42	L42	Lucas Vale Primary School	537032	176534	Urban Background	2018	-	Located near school
L43	L43	Childeric Primary School	536389	177144	Urban Background	2018	-	Located near school

Original Site Name	New Site Name	Address	X	Y	Site Type	Date of Diffusion Tube Added	Date of Diffusion Tube Removed	Reasoning behind location
L44	L44	Sir Francis Drake Primary School	536028	178107	Roadside	2018	-	Located near school
L45	L45	Tidemill Academy	537219	177264	Roadside	2018	-	Located near school
L46	L46	St Margaret Lee Primary School	539416	175315	Urban Background	2018	-	Located near school
L47	L47	Rathfern Primary School	536839	173211	Roadside	2018	-	Located near school
L48	L48	Holbeach Primary School	537433	173965	Urban Background	2018	-	Located near school
L49	L49	St Saviours RC Primary School	538358	175324	Urban Background	2018	-	Located near school
L5	L5	Lee High Road	539678	175050	Roadside	2011	-	Considered worst case location in local area due to A20
L50	L50	Rushey Green Primary School	537836	173400	Urban Background	2018	-	Located near school
L51	L51	290 Brownhill Road S Circular	538803	173683	Roadside	2018	-	Considered worst case location in local area due to A205
L52	L52	St John CofE School	538285	171877	Roadside	2018	-	Located near school
L53	L53	Greenvale School	539319	172362	Urban Background	2018	-	Located near school

Original Site Name	New Site Name	Address	X	Y	Site Type	Date of Diffusion Tube Added	Date of Diffusion Tube Removed	Reasoning behind location
L6	L6	Le May Avenue	540615	172337	Urban Background	2011	-	Representative of Baring Road
L7	L7	Bell Green	536556	171810	Roadside	2011	-	Considered worst case location in local area due to A212 and A2218
L8	L8	Stondon Park	536229	174032	Roadside	2011	-	Representative of Stondon Park
L9	L9	Ladywell Road	537500	174925	Roadside	2011	-	Representative of Ladywell Road
LWS 002	L14	Boyne Road	538482	175792	Urban Background	2011	-	Representative of Boyne Road
LWS 003	L15	Lewisham Road	538237	176101	Roadside	2011	-	Representative of Lewisham Road
LWS 004	L16	Loampit Vale	537740	175930	Roadside	2011	-	Representative of Loampit Vale
LWS 005	L17	New Cross AQMS	536246	176934	Roadside	2011	-	Representative of New Cross AQMS
LWS 006	L18	New Cross AQMS	536246	176934	Roadside	2011	-	Representative of New Cross AQMS
LWS 007	L19	New Cross AQMS	536246	176934	Roadside	2011	-	Representative of New Cross AQMS
LWS 008	L20	Hatcham Park Road	535746	176969	Roadside	2011	-	Representative of Hatcham Park Road

Original Site Name	New Site Name	Address	X	Y	Site Type	Date of Diffusion Tube Added	Date of Diffusion Tube Removed	Reasoning behind location
LWS 009	L21	Brockley Rise	536133	173341	Roadside	2011	-	Representative of Brockley Rise
LWS 010	L22	Ringstead Road	538060	173816	Urban Background	2011	-	Representative of Ringstead Road
LWS 011	L23	Catford Hill	537178	173365	Roadside	2011	-	Representative of Catford Hill
LWS 015	L26	Shardeloes Road	536527	175935	Roadside	2011	-	Representative of Shardeloes Road
LWS 016	L27	Montpelier Vale	539605	176090	Roadside	2011	-	Representative of Montpelier Vale
LWS 017	L28	Baring Road	540051	173769	Roadside	2011	-	Representative of Baring Road
LWS 018	L24	Torridon School Hazelbank Road	538930	172713	Urban Background	2011	-	Located near school
LWS 53	L13	Mayow Road	535804	171567	Urban Background	2011	-	Representative of Mayow Road
SCH 13	L30	St George's CofE School	535535	172679	Roadside	2011	-	Located near school
SCH 16	L31	St Mary Magdalen's School	536399	175150	Urban Background	2011	-	Located near school
SCH 18	L32	Grinling Gibbons School	536944	177665	Urban Background	2011	-	Located near school

Original Site Name	New Site Name	Address	X	Y	Site Type	Date of Diffusion Tube Added	Date of Diffusion Tube Removed	Reasoning behind location
SCH 20	L33	St Mary's Lewisham School	537979	174792	Roadside	2011	-	Located near school
SCH 21	L34	Sydenham School	535071	172346	Urban Background	2011	-	Located near school
SCH 22	L35	Kender Primary School	535447	176897	Roadside	2016	-	Located near school
SCH 23	L36	Deptford Park School	536275	178405	Roadside	2016	-	Located near school
SCH 24	L37	St James Hatcham School	536317	176883	Urban Background	2017	-	Located near school
SCH 8	L29	Holy Cross School	538165	173406	Roadside	2011	-	Located near school
LWS 014	L25	Downpipe to 8 Stanstead Road	535536	173192	Urban Background	2011	2018	Representative of Stanstead Road
SCH 1	-	All Saints Primary School	539250	176402	Urban Background	2011	2012	Located near school
SCH 2	-	Lee Manor	539348	174477	Urban Background	2011	2012	Located near school
SCH 3	-	Cooper's Lane	540545	172840	Urban Background	2011	2012	Located near school
SCH 4	-	Launcelot	540149	171652	Urban Background	2011	2012	Located near school

Original Site Name	New Site Name	Address	X	Y	Site Type	Date of Diffusion Tube Added	Date of Diffusion Tube Removed	Reasoning behind location
SCH 5	-	Bonus Pastor	539063	171632	Urban Background	2011	2012	Located near school
SCH 6	-	Forster Park	539369	172480	Urban Background	2011	2012	Located near school
SCH 7	-	Sandhurst Juniors & Infants	539089	173398	Urban Background	2011	2012	Located near school
SCH 9	-	Catford High School	538456	172426	Urban Background	2011	2012	Located near school
SCH 10	-	Athelney JMI	537453	172410	Urban Background	2011	2012	Located near school
SCH 11	-	St Michael's CE	536245	171849	Urban Background	2011	2012	Located near school
SCH 12	-	St William of York	536241	173493	Urban Background	2011	2012	Located near school
SCH 14	-	Perrymount	535862	172685	Urban Background	2011	2012	Located near school
SCH 15	-	Holbeach	537438	173941	Urban Background	2011	2012	Located near school
SCH 17	-	Turnham	536118	175119	Urban Background	2011	2012	Located near school
SCH 19	-	St Saviour's	538311	175304	Urban Background	2011	2012	Located near school

