Land North of Rectory Lane, Ashington

Air Quality Assessment

Taylor Wimpey Strategic Land (a division of Taylor Wimpey UK Ltd)

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Basis of Report

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1.0 Introduction

SLR Consulting Ltd (SLR) has been commissioned by Taylor Wimpey Strategic Land (a division of Taylor Wimpey UK Ltd) to undertake an Air Quality Assessment (AQA) to support an outline planning application for a proposed residential development and associated infrastructure (the 'Proposed Development'), located at Land North of Rectory Lane, Ashington (the 'Site'). The full description of the planning application is as follows:

> *"Up to 125 dwellings, access, public open space and associated landscaping, drainage and highways infrastructure. All matters reserved except access."*

The Site currently comprises open agricultural land, and is situated at the approximate National Grid Reference (NGR): x512600, y116500. The Site falls within the administrative area of Horsham District Council (HDC). The surrounding area comprises:

- Open agricultural land to the immediate east, north and west; and
- Rectory Lane running adjacent to the southern boundary, beyond which are existing residential dwellings and a number of wider residential developments which are either currently being constructed or have planning consent[1]:
  - HDC planning reference: DC/23/0406 - 152 dwellings, resolution to grant 22/10/25;
  - HDC planning reference: DC/25/1327 - 74 dwellings, resolved to approve; and
  - HDC planning reference: DC/22/0372 - 74 dwellings, granted 04/09/23.

Vehicular access to the Site will be via Rectory Lane to the south.

1.1 Scope of Assessment

The following scope of works has been undertaken as part of this AQA, which is based on national and local guidance, as well as established best practice.

- Baseline Evaluation – Assessment of existing air quality in the local area;
- Construction Phase Assessment – Identification and assessment of potential air quality impacts associated with the construction phase of the Proposed Development;
- Operational Phase Assessment – Identification and assessment of potential air quality impacts associated with the operational phase of the Proposed Development at existing human and ecological receptors, as well as a site-suitability assessment to determine whether future occupants of the Proposed Development will be introduced onto an area of poor air quality; and
- Mitigation Measures – Identification of mitigation measures, as appropriate, based on the outcome of the construction and operational phase assessments.

[1] The cumulative impact of these have been accounted for within the Construction Phase Assessment and Operational Phase Assessment.

2.0 Background Context

2.1 Legislation

A dual set of regulations, applicable to National and Local Government separately are currently operable within the UK.

2.1.1 National Obligations

2.1.1.1 Air Quality Standards

The Air Quality Standards Regulations 2010[2] (AQSR) transpose both the EU Ambient Air Quality Directive (2008/50/EC), and the Fourth Daughter Directive (2004/107/EC) within UK legislation. The AQSR includes Limit Values which are legally binding ambient concentration thresholds which, however, are only applicable at specific locations (Schedule 1: AQSR)[3].

Following the UK's withdrawal from the EU, the Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020[4] was introduced to mirror revisions to supporting EU legislation. As a result, the fine particulate matter ($PM_{2.5}$) Limit Value is 20µg/m^3 (to be met by 2020).

The responsibility of achieving the AQSR (and European equivalent Directives) is a national obligation for Central Government who undertake assessments on an annual basis. Local Authorities have no statutory obligation to achieve the AQSR or the European equivalent Directives, unless otherwise instructed to assist Central Government under Ministerial Direction

2.1.1.2 Environment Targets (Fine Particulate Matter) Regulations

The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023[5] introduced two legally binding $PM_{2.5}$ targets, each with an interim target:

- 10µg/m^3 annual mean concentration $PM_{2.5}$ by 2040, with an interim target of 12µg/m^3 by January 2028.
- 35% reduction in average population exposure by 2040, with an interim target of a 22% reduction by January 2028, both compared to a 2018 baseline.

These targets are the responsibility of Central Government, which reports on compliance annually. Compliance is assessed using data from the Automatic Urban and Rural Network (AURN) only. The population exposure reduction target is not relevant to individual project-level assessment, as it reflects a national metric and would not be influenced by the Proposed Development.

2.1.2 Local Obligations

Part IV of the Environment Act 1995[6] (as amended by the Environment Act 2021) requires the Secretary of State to review the national Air Quality Strategy (AQS) every five years and modify if required. It also established the system of Local Air Quality Management (LAQM)

[2] The Stationary Office Limited, The Air Quality Standards Regulations (England) 2010, Statutory Instrument No 1001.

[3] Schedule 1 of the 2010 AQSR provides the locations of the sampling points where the AQSR Limits Values can be assessed.

[4] The Stationary Office Limited, The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020, Statutory Instrument No. 1313.

[5] The Stationary Office Limited, The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023. UK Statutory Instruments 2023 No. 96.

[6] His Majesty's Stationary Office, The Environment Act 1995.

for Local Authorities to regularly review and assess air quality within their administrative areas.

The Air Quality (England) Regulations 2000[7] (as amended) ('the Regulations') provide the statutory basis for the Air Quality Objectives Local Authorities must adhere to under LAQM in England. $PM_{2.5}$ is not currently cited within the Regulations, however in line with the AQS and the *'$PM_{2.5}$ Targets: Interim Planning Guidance'* issued by the Department for Environment, Food & Rural Affairs (Defra) in October 2024[8], Local Authorities are required to work towards reducing $PM_{2.5}$.

The Air Quality Objectives apply at locations where members of the public are regularly present and might reasonably be expected to be exposed to pollutant concentrations over the relevant averaging period (referred to as '*relevant exposure*'). Table B provides an indication of those locations. Where any of the prescribed Air Quality Objectives are not likely to be achieved, the authority must designate an Air Quality Management Area (AQMA). For each AQMA, the local authority is required to prepare an Air Quality Action Plan (AQAP), which details measures the authority intends to introduce to deliver improvements in local air quality in pursuit of the objective.

The latest AQS for England was published in 2023[9]. The AQS provides the delivery framework for air quality management across England for local authorities and summarises the air quality standards and objectives operable within England for the protection of public health and the environment.

The ambient air quality standards of relevance this assessment (collectively termed Air Quality Assessment Levels (AQALs) throughout this report) are provided in Table A. These are primarily based upon the Air Quality Objectives Local Authorities are responsible for achieving – reflective of the Local Planning Authority's duties. The $PM_{2.5}$ AQSR AQAL has also been included for completeness, to provide an indicative assessment (as the sampling point may not comply with the siting locations prescribed under Schedule 1: AQSR).

Table A: Relevant Ambient AQALs

Pollutant	AQAL (µg/m^3)	Averaging Period
Nitrogen dioxide (NO_2)	40	Annual mean
	200	1-hour mean (not to be exceeded on more than 18 occasions per annum)
Particles (as PM_{10})	40	Annual mean
	50	24-hour mean (not to be exceeded on more than 35 occasions per annum)
Particles (as $PM_{2.5}$)	20	Annual mean
Note: The $PM_{2.5}$ AQAL is not prescribed within the Air Quality (England) Regulations 2000 / 2002 and there is no requirement for Local Authorities to meet it. Exceedances are only valid at the AQSR specific siting locations (Schedule 1: AQSR).		

[7] The Stationary Office Limited. The Air Quality (England) Regulations 2000, Statutory Instrument No. 928.

[8] Defra, $PM_{2.5}$ Targets: Interim Planning Guidance, October 2024.

[9] Defra, Air Quality Strategy: Framework for Local Authority Delivery, , April 2023.

Table B: Human Health Relevant Exposure

AQAL Averaging Period	AQALs should apply at	AQALs should not apply at
Annual mean	Building facades of residential properties, schools, hospitals etc.	Facades of offices Hotels Gardens of residences Kerbside sites
24-hour mean	As above together with hotels and gardens of residential properties	Kerbside sites where public exposure is expected to be short term
1-hour mean	As above together with kerbside sites of regular access, car parks, bus stations etc.	Kerbside sites where public would not be expected to have regular access

2.1.3 Environmental Protection Act 1990

The Environmental Protection Act 1990[10] sets out provisions for the regulation of statutory nuisances. Section 79 sets out this statutory nuisance as, "*any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance*".

Section 79 requires that, where a complaint of a statutory nuisance is made to it by a person living within its area, a Local Authority must take steps as are reasonably practicable to investigate the complaint. Proposed developments which result in the introduction of future sensitive receptors are however subject to the Agent of Change principle to ensure potential interactions with the existing environment and operations are assessed and mitigated to minimise restrictions being placed on existing businesses.

Fractions of dust greater than 10µm (i.e. greater than PM_{10}) in diameter typically relate to nuisance effects as opposed to potential health effects and therefore are not covered within the UK AQS. In legislation there are currently no numerical limits in terms of what level of dust deposition constitutes a nuisance.

2.2 Policy

2.2.1 National Policy

2.2.1.1 Clean Air Strategy

The 2019 Clean Air Strategy[11] sets out the Government's proposals aimed at delivering cleaner air in England and indicates how devolved administrations intend to make emissions reductions. It sets out the comprehensive action that is required from across all parts of government and society to deliver clean air.

[10] His Majesty's Stationary Office, The Environmental Protection Act 1990. Available at: http://www.legislation.gov.uk/ukpga/1990/43/contents.

[11] Defra, The Clean Air Strategy. January 2019.

2.2.1.2 Environment Improvement Plan 2025

In England, the newly published Environmental Improvement Plan 2025 (EIP 2025)[12] establishes revised air quality commitments which follow the statutory Environment Act 2021 targets.

Under "Goal 2: Clean Air", the EIP sets an annual mean $PM_{2.5}$ concentration target of 10µg/m^3 to be achieved by December 2030 – advancing the previous target date of 2040. The EIP further sets a population $PM_{2.5}$ exposure reduction target of 30% by the same date and proposes tighter regulation of emissions sources, including agricultural activities and small combustion plants, alongside the decarbonisation of transport.

2.2.1.3 National Planning Policy Framework

The December 2024 National Planning Policy Framework[13] (NPPF) sets out planning policy for England. The NPPF states that the planning system should contribute to and enhance the natural and local environment, by preventing new development from contributing to or being adversely affected by unacceptable concentrations of air pollution and development should, wherever possible, help to improve local environmental conditions such as air quality.

In specific relation to air quality policy, the document states:

> ***"Chapter 15 - Conserving and Enhancing the Natural Environment****Para 199: Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."*

The NPPF is accompanied by web based supporting Planning Practice Guidance (PPG)[14] which includes guiding principles on how planning can take account of the impacts of new development on air quality. In regard to air quality, the PPG states:

> *"The Department for Environment, Food and Rural Affairs carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with relevant limit values. It is important that the potential impact of new development on air quality is taken into account where the national assessment indicates that relevant limits have been exceeded or are near the limit, or where the need for emissions reductions has been identified."*
>
> *"Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action*

[12] Defra: Environmental Improvement Plan (EIP) 2025, December 2025. Available at: https://www.gov.uk/government/publications/environmental-improvement-plan-2025/environmental-improvement-plan-eip-2025.

[13] Ministry of Housing, Communities & Local Government, National Planning Policy Framework, February 2025.

[14] Ministry of Housing, Communities & Local Government, Planning Practice Guidance: Air Quality, February 2024.

plans and/or breach legal obligations (including those relating to the conservation of habitats and species).”

The PPG sets out the information that may be required within the context of a supporting air quality assessment, stating that “*Assessments need to be proportionate to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific* […] *Mitigation options will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact*”.

2.2.2 Local Policy

2.2.2.1 Local Plan

The Horsham District Planning Framework[15] was adopted in November 2015 and sets out the long-term vision for HDC and provides a blueprint for managing growth and development in the area up to 2031.

Within the Horsham District Planning Framework, the following policy relates to air quality:

“***Policy 24***

Strategic Policy: Environmental Protection

The high quality of the district’s environment will be protected through the planning process and the provision of local guidance documents. Taking into account any relevant Planning Guidance Documents, developments will be expected to minimise exposure to and the emission of pollutants including noise, odour, air and light pollution and ensure that they: […]

4. Minimise the air pollution and greenhouse gas emissions in order to protect human health and the environment;

5. Contribute to the implementation of local Air Quality Action Plans and do not conflict with its objectives;

6. Maintain or reduce the number of people exposed to poor air quality including odour. Consideration should be given to development that will result in new public exposure, particularly where vulnerable people (e.g. the elderly, care homes or schools) would be exposed to the areas of poor air quality; and

7. Ensure that the cumulative impact of all relevant committed developments is appropriately assessed.”

HDC are in the process of developing a new Local Plan for the district. This was submitted to the Planning Inspectorate in July 2024 following a Regulation 19 period of representation. The new Local Plan sets out planning policies and proposals to guide development in the district up to 2040.

The Regulation 19 Local Plan[16] includes the following policy specific to air quality:

“**Strategic Policy 12: Air Quality**

The Council recognises the direct effects air quality has on public health, natural habitats and biodiversity, including its contribution to climate change, and the importance of the management of air quality. Taking into account any relevant

[15] Horsham District Planning Framework (excluding South Downs National Park), November 2015.

[16] Horsham District Council, Horsham District Local Plan 2023-2040, Regulation 19, January 2024.

Planning Guidance Documents and / or policies within this Plan, proposals will be required to:

1. Adhere to the Air Quality and Emissions Mitigation Guidance for Sussex (2021), or any future updates, to identify if an Air Quality Impact Assessment and / or an Emissions Mitigation Statement is required;

2. Contribute to the implementation of local Air Quality Action Plans, and not conflict with the set objectives;

3. Minimise traffic generation and congestion through access to sustainable transport modes, maximising the provision for cycling and pedestrian facilities;

4. Encourage the use of cleaner transport fuels, including through the provision of electric car charging points.

5. Take into account habitats or biodiversity designations that are sensitive to air quality changes, including ancient woodland. Habitats identified as sensitive to such changes, including proposals within 7km of The Mens, will require a relevant impact assessment and appropriate mitigation measures to be put in place.

6. Mitigate the impact on the amenities of users of the site and surrounding land to an appropriate level, during both construction and operation where development creates or results in pollution including particulates, dust, smoke, pollutant gases or odour, as outlined in the Air Quality and Emissions Mitigation Guidance for Sussex (2021), or any future updates; and

7. Ensure that the cumulative impact of all relevant permitted and allocated developments, including associated traffic impacts, is appropriately assessed."

2.3 Assessment Guidance

This assessment has been carried out in accordance with the following principles contained within the guidance documents below.

- AEA Energy and Environment: 'Diffusion Tubes for Ambient NO_2 Monitoring: Practical Guidance' (Issue 1a), (2008)[17];
- Sussex-air Air Quality Partnership: Air quality and emissions mitigation guidance for Sussex (2021)[18].
- Defra: Air quality appraisal: damage cost guidance *(*hereafter referred to as the 'Defra damage cost guidance')[19];
- Defra: Local Air Quality Management Technical Guidance (LAQM.TG(22))[20];
- Defra: $PM_{2.5}$ Targets: Interim Planning Guidance[8] (the '$PM_{2.5}$ IPG');
- National Highways: Design Manual for Roads and Bridges, LA105 - Air Quality (Vertical Barriers)[21] (the 'DMRB LA 105' guidance);

[17] AEA Energy and Environment, Diffusion Tubes for Ambient NO_2 Monitoring: Practical Guidance, Issue 1a, February, 2008.

[18] Sussex-air: Air quality and emissions mitigation guidance for Sussex (2021). v1.1, April 2021.

[19] Defra: *Air quality appraisal: damage cost guidance*, April 2026. Available at: https://www.gov.uk/government/publications/assess-the-impact-of-air-quality/air-quality-appraisal-damage-cost-guidance.

[20] Local Air Quality Management Technical Guidance (22), Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland. May 2025.

[21] National Highways, DMRB, LA 105 – Air Quality (Vertical Barriers), June 2024.

- Environmental Policy Implementation Community (EPIC) (previously Environmental Protection UK (EPUK)) and the Institute of Air Quality Management (IAQM): Land-Use Planning and Development Control: Planning for Air Quality[22] (hereafter referred to as the 'EPIC & IAQM guidance'); and
- IAQM: Guidance on the Assessment Dust from Demolition and Construction[23] (the 'IAQM Construction Dust' guidance.

[22] EPIC and IAQM, Land-Use Planning and Development Control: Planning for Air Quality, v1.2 January 2017.

[23] IAQM, Guidance on the Assessment Dust from Demolition and Construction, v2.2, January 2024.

3.0 Assessment Methodology

3.1 Development Classification

In line with the Sussex-air guidance, a residential development is classified as 'major' when either of the below criteria are met:

a. *the number of dwellinghouses to be provided is 10 or more; or*

b. *the development is to be carried out on a site having an area of 0.5 hectares or more […];*

As the Proposed Development comprises up to 120 dwellings, it is classified as 'major' development for the purposes of this assessment. Accordingly, the methodology associated with this classification has been applied.

3.2 Construction Phase

A construction dust assessment has been undertaken with reference to the IAQM Construction Dust guidance. The assessment of risk is determined by considering the risk of dust effects arising from four activities in the absence of mitigation:

- Demolition;
- Earthworks;
- Construction; and
- Trackout.

The assessment methodology considers three separate dust impacts with account being taken of the sensitivity of the area that may experience these effects:

- Annoyance due to dust soiling;
- The risk of health effects due to an increase in exposure to PM_{10}; and
- Harm to ecological receptors.

The first stage of the assessment involves a screening review to determine if there are sensitive receptors within threshold distances of the site activities associated with the construction phase of the scheme. A detailed assessment is required where a:

- Human receptor is located within 250m of the Site, and/or within 50m of routes used by construction vehicles, up to 250m from the site entrance(s); and/or
- Ecological receptor is located within 50m of the Site, and/or within 50m of routes used by construction vehicles, up to 250m from the site entrance(s).

The dust emission class (or magnitude) for each activity is determined on the basis of the guidance, indicative thresholds and professional judgement by a technically competent assessor. The risk of dust effects arising is based upon the relationship between the dust emission magnitude and the sensitivity of the area. The risk of impact is then used to determine the appropriate mitigation requirements, whereby through effective application, residual effects are considered to be 'not significant'.

Given the short-term nature of the construction phase and the low volume of vehicle movements that will likely arise when compared to the operational phase, it is unlikely that significant air quality effects from construction traffic will arise. These effects have therefore been scoped out of the assessment, which is a standard approach for a scheme of this nature and scale, and effects on air quality are considered to be 'insignificant' in accordance with the applied EPIC & IAQM guidance.

3.3 Operational Phase

3.3.1 Detailed Assessment of Road Traffic Emissions

In order to appropriately assess road traffic emission impacts associated with the operation of the Proposed Development, detailed dispersion modelling has been undertaken using the Cambridge Environmental Research Consultants (CERC) ADMS-Roads v5.1 dispersion model, focussing on concentrations of NO_2, PM_{10} and $PM_{2.5}$ for the following scenarios:

- 2025 Base Case (2025 BC) – Base flows for the model verification exercise ;
- 2032 Do Minimum (2032 DM) – Future baseline flows for the assumed year of completion, inclusive of any relevant committed development flows; and
- 2032 Do Something (2032 DS) – 'Do Minimum' flows, plus all trips associated with the Proposed Development for the proposed year of opening.

For the above scenarios, concurrent emission factors and background pollutant concentrations have been used. Traffic flows associated with the wider developments mentioned within Section 1.0 are included within the 2032 DM scenario, therefore allowing for a cumulative assessment.

Details of model inputs are discussed in turn below and traffic data input is presented in Appendix A.

3.3.1.1 Traffic Inputs

Traffic data was provided by Charles & Associates (C&A), the appointed transport consultant to the Applicant. It should be noted that the traffic data provided has been based on 130 units, and is therefore considered to be robust against the 'up to 125 units' which has been applied for.

To inform the spatial extent of the model, changes in traffic volumes on the local road network were compared to the relevant 'indicative criteria for assessment' provided by the EPIC & IAQM guidance. These are as follows:

- Outside of an AQMA:
  - A change of Light-Duty Vehicle (LDV: <3.5t) flows of >500 as 24-hour Annual Average Daily Traffic (AADT); and/or
  - A change of Heavy-Duty Vehicle (HDV: >3.5t) flows of >100 as 24-hour AADT.
- Within, or within 200m of, an AQMA:
  - A change of LDV flows of more than 100 as a 24-hour AADT; and/or
  - A change of HDV flows of more than 25 as a 24-hour AADT.

For those links where distributed operational phase Proposed Development trips fall below the EPIC & IAQM indicative criteria for assessment, it can be concluded that at adjacent receptor locations trips will result in an 'insignificant' effect on air quality. For trips which are in excess of the above thresholds, detailed assessment has been undertaken to quantify impacts on air quality and absolute air pollutant concentrations.

Where available, neighbouring road links (i.e. links within 200m of a modelled receptor) were also included within the dispersion model to facilitate a robust assessment, rather than rely on their individual contributions being represented within the appropriate background datasets.

Traffic speeds were modelled at the relevant speed limit for each road and, where appropriate, reduced to simulate queues at junctions, traffic lights and other locations where queues or slower traffic are known to be an issue, in accordance with LAQM.TG(22).

The Emissions Factors Toolkit (EFT) version 14.1 developed by Defra[24] has been used to determine vehicle emission factors for input into the ADMS-Roads dispersion model.

In order to provide a conservative and robust assessment, it has been assumed that the total predicted trip generation is present on all internal Site roads (i.e. Link 2 in Table R of Appendix A, and as shown on Figure B). This approach is likely to result in an overprediction of pollutant concentrations at receptors within 200m of the internal roads. However, in the absence of detailed trip distribution data, it is considered an appropriately conservative assumption.

Full details of the traffic flows used in this assessment are provided in Appendix A, whilst the modelled roads in relation to the Site are presented in Figure B.

3.3.1.2 Meteorological Data

To calculate pollutant concentrations at identified sensitive receptor locations the dispersion model uses sequential hourly meteorological data, including wind direction, wind speed, temperature, cloud cover and stability, which exert significant influence over atmospheric dispersion.

The dispersion modelling has been undertaken using Numerical Weather Prediction (NWP) data for the 2025 period. The NWP dataset has been centred on the NGR: x512600, y116500 (i.e. that of the Site).

In respect of using NWP data for dispersion modelling, LAQM.TG(22) states:

> *"NWP data may be a useful alternative to OBS* [standard meteorological observations data] *data where there are no suitable meteorological data available, or where OBS data are unlikely to represent local meteorological conditions around the modelled source."*

The determination of surface roughness utilised the CORINE (Coordination of Information on the Environment) Land Cover dataset from the European Environment Agency's Copernicus Land Monitoring Service[25]. A surface roughness value of 0.5m was used to represent the Site locale (corresponding to 'parkland and open suburbia').

A wind rose for NWP dataset is presented in Figure A.

[24] Defra, EFT v14.1, May 2026. Available at: https://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html.

[25] Copernicus, CORINE Land Cover. Available at: https://land.copernicus.eu/en/products/corine-land-cover, accessed May 2026.

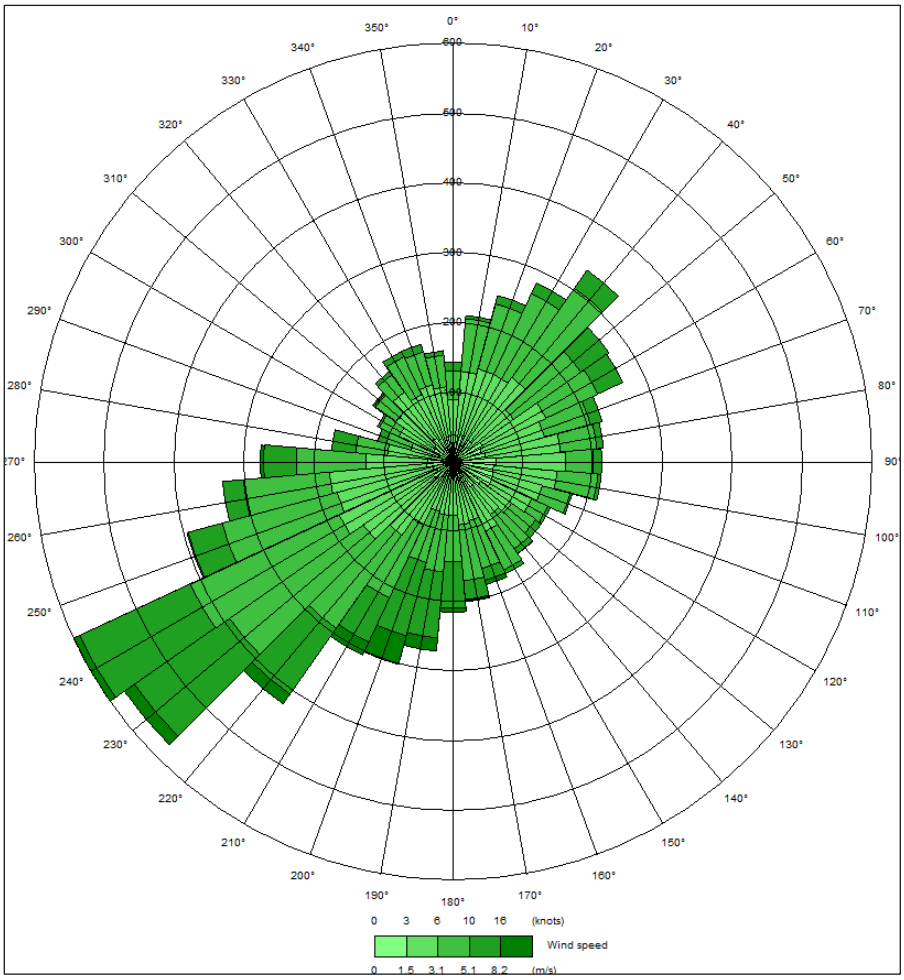

Figure A: Wind Rose for the Applied NWP Dataset (2025)

3.3.2 Background Concentrations

In the absence of available locally representative background monitoring sites with a 2025 annual mean dataset, annual mean background concentrations used for the purposes of the assessment have been obtained from the Defra supplied background maps (2021 reference year)[26], based on the 1km grid squares which cover the modelled area. Further detail on these datasets can be found in Section 4.0.

3.3.3 Sensitive Receptors

Human receptors considered in the assessment of road traffic emissions are shown Table C, whilst their locations are illustrated in Figure B.

Receptors ER1-ER8 are representative of worst-case exposure locations at existing receptors within the Site locale, relative to the affected road network discussed.

[26] Defra, Background Mapping data for local authorities – reference year of 2021. Available at: https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021.

New receptors introduced as a result of the Proposed Development, PR1-PR4 and SB1, are selected as locations of worst-case exposure across the Site, based upon the Outline Masterplan (Parameter)[27] supplied by Urban Place Lab, the project's masterplanner.

Receptors were considered in relation to exposure at breathing height for adults relative to the adjacent modelled road at ground level (i.e. 1.5m height). Where a receptor is representative of a school or young children, the modelled height has been reduced to 1.0m.

Receptor locations represent relevant exposure to the annual mean AQAL, in accordance with LAQM.TG(22) presented in Table B.

Table C: Receptor Locations Considered

Receptor		NGR (m)		Height (m)
ID	Description	X	Y	
Existing Receptors				
ER1	Residential dwelling adjacent to Rectory Lane	512407	116447	1.5
ER2		512614	116414	1.5
ER3		512711	116455	1.5
ER4		512779	116467	1.5
ER5	Chanctonbury Play School	512933	116423	1.0
ER6	Residential dwelling adjacent to Rectory Lane	512991	116399	1.5
ER7		513175	116367	1.5
ER8	Residential dwelling adjacent to Rectory Lane / London Road junction	513262	116370	1.5
Proposed Receptors				
PR1	Proposed dwelling adjacent to Rectory Lane	512749	116474	1.5
PR2		512659	116465	1.5
PR3		512571	116444	1.5
PR4		512417	116474	1.5
SB1	Site boundary location adjacent to Site Access / Rectory Lane junction (A)	512740	116468	1.5

Note:
(A) SB1 is not located at an existing or proposed location of relevant public exposure, but has been utilised to determine worst-case absolute pollutant concentrations across the Site.

3.3.4 Baseline Air Quality Monitoring

HDC undertake air quality monitoring at one location within Ashington; a diffusion tube located adjacent to Church Lane approximately 660m to the south-east of the Site at an 'urban background' site classification[28] (diffusion tube ID: Ashington 1). Ashington 1 is located outside of the affected road network and is not considered to represent a suitable monitoring dataset to support the verification of the operational phase road traffic emissions assessment, by virtue of its site classification.

[27] Urban Place Lab, Outline Masterplan (Parameter); Drawing No.: 26001-06 (Rev. D), July 2026.

[28] Urban Background site classification defined by LAQM.TG(22) as: "*An urban location distanced from sources and therefore broadly representative of city-wide background conditions*".

As such, site-specific baseline NO_2 monitoring was completed at roadside locations in proximity to the Site to support the verification of the operational phase road traffic emissions assessment.

As per LAQM.TG(22) guidance, NO_2 concentrations alone can be used to verify road-traffic related pollutants. As such, monitoring of NO_2 using passive diffusion tubes has solely been undertaken using passive diffusion tubes.

The scope, methodology and results of the NO_2 diffusion tube monitoring survey can be found in the supporting Appendix C. The locations of the monitors are shown in Figure B.

3.3.5 Model Outputs

The background pollutant concentrations discussed in Section 4.3 have been used in conjunction with the concentrations predicted by the ADMS-Roads model to calculate predicted total annual mean concentrations of NO_2, PM_{10} and $PM_{2.5}$ for each respective scenario.

For the prediction of annual mean NO_2 concentrations for all modelled scenarios at receptor locations, the road-NOx contributions (adjusted as per Appendix A) have been converted to total NO_2 following the methodology in LAQM.TG(22) using the latest version of Defra's NOx to NO_2 conversion tool (v9.1)[29]. The traffic mix within the calculator was set to "*All non-urban UK traffic*" and "*Horsham*" was selected as the local authority. The modelled NO_2 road contribution was then added to the appropriate NO_2 background concentration value to obtain an overall total annual mean NO_2 concentration.

For the prediction of short-term NO_2 impacts, LAQM.TG(22) advises that it is valid to assume that exceedences of the 1-hour mean NO_2 AQAL are unlikely to occur where the annual mean NO_2 concentration is <60µg/m^3. This approach has thus been adopted for the purposes of this assessment, at relevant receptor locations with an applicable exposure period.

For the prediction of short-term PM_{10}, LAQM.TG(22) provides an empirical relationship between the annual mean and the number of exceedences of the 24-hour mean AQAL for PM_{10} that can be calculated as follows:

$$\textit{No. 24-hour mean exceedences} = -18.5 + 0.00145 \times \textit{annual mean}^3 + \left(\frac{206}{\textit{annual mean}}\right)$$

This relationship has thus been adopted to determine whether exceedences of the short-term PM_{10} AQAL are likely in this assessment.

Verification of the ADMS-Roads assessment has been undertaken as per Appendix B. All results presented in the assessment are calculated following the process of model verification.

3.3.6 Assessing Significance

Guidance for determining operational phase effects associated with air quality is provided by EPIC & IAQM.

3.3.6.1 Existing Receptors

When describing the developmental impact at a specific existing receptor, the resultant total concentration as well as the magnitude of change in relation to respective AQALs are both considered using the approach detailed in Table D.

[29] Defra, NOx to NO_2 Calculator v9.1, August 2024. Available at: https://laqm.defra.gov.uk/air-quality/air-quality-assessment/nox-to-no2-calculator/.

Table D: Impact Descriptor Matrix for Receptors

Long Term Average Concentration at Receptor in Assessment Year	Change in Concentration relative to AQAL			
	1% [(A)]	2-5%	6-10%	>10%
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76-94% of AQAL	Negligible	Slight	Moderate	Moderate
95-102% of AQAL	Slight	Moderate	Moderate	Substantial
103-109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

Note:
[(A)] Changes <0.5% will be described as Negligible.

Following derivation of impacts at all receptor locations assessed, the overall significance of the developmental 'effect' is determined based upon consideration, as necessary, of the following factors:

- The existing and future air quality in the absence of the Proposed Development;
- The extent of current and future population exposure to the impacts;
- The worst-case assumptions adopted when undertaking the prediction of impacts; and
- The extent to which the Proposed Development has adopted best practice to eliminate and minimise emissions.

3.3.6.2 Proposed Receptors

To determine the significance of predicted air quality impacts based upon a site-suitability assessment, the EPIC & IAQM guidance states:

> *"Where the air quality is such that an air quality objective at the building façade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means."*

In line with this, modelled pollutant concentrations predicted at future receptors have been compared with the relevant AQALs to determine whether further consideration is required or whether effects can be considered 'not significant'.

3.3.7 Uncertainty

Dispersion modelling is inherently uncertain and is principally reliant on the accuracy and representativity of its inputs. In acknowledgement of this, the ADMS-Roads dispersion model has been verified with the site-specific monitoring survey data undertaken as part of this assessment (see Appendix C). Following verification, all model output statistical parameters (used to evaluate model performance and uncertainty) are within Defra's LAQM.TG(22) prescribed tolerances. Details of the verification exercise are shown in Appendix B.

In addition, historically there is a widely acknowledged disparity between emission factors and ambient monitoring data[30]. To help minimise any associated uncertainty when forming conclusions from the results, this assessment has utilised the latest EFT version 14.1 utilising COPERT v5.9.1 emission factors, and associated tools/datasets published by Defra.

[30] Carslaw, et al., Trends in NOx and NO_2 emissions and ambient measurements in the UK, March 2011.

The IAQM published a Position Statement on '*Dealing with Uncertainty in Vehicle NOx Emissions Within Air Quality Assessments*' in July 2018[31] within which it was suggested to include a sensitivity test to account for predicted large reductions in NOx emissions that were not borne out in measured roadside concentrations. However, the latest iterations of the EFT (from version 9 onwards), reflect the real-world NOx emissions more accurately. As such, the IAQM has withdrawn its position statement saying as such and including:

> *"It is judged that an exclusively vehicle emissions-based sensitivity test is no longer necessary.*
>
> *On this basis, the EFT may be used for future year modelling with greater confidence when considering the per vehicle emission, provided that the assessment is verified against measurements made in the year 2016 or later."*

Given the above further sensitivity modelling is not considered relevant or appropriate.

3.3.8 Defra $PM_{2.5}$ Interim Planning Guidance

In addition to assessing compliance with statutory air quality objectives, this assessment also considers Defra's $PM_{2.5}$ Targets: Interim Planning Guidance.

The guidance marks a shift away from focusing solely on quantifying compliance with statutory limits and instead promotes the integration of mitigation measures at the design stage, with the aim of reducing emissions and minimising exposure wherever reasonably practicable.

Pending more detailed guidance, applicants should demonstrate that key sources of $PM_{2.5}$ and its precursors within the development have been identified and appropriate measures taken to minimise emissions. If quantitative evidence is not available, a qualitative approach may be taken.

To support this process, the guidance recommends addressing two core questions:

1. How has exposure to $PM_{2.5}$ been considered when selecting the development site?
2. What actions and/or mitigations have been considered to reduce $PM_{2.5}$ exposure for development users and nearby receptors (houses, hospitals, schools etc.) and to reduce emissions of $PM_{2.5}$ and its precursors?

These questions are addressed in Section 6.3.4 and 7.2.2.

[31] IAQM, Dealing with Uncertainty in Vehicle NOx Emissions Within Air Quality Assessments, July 2018.

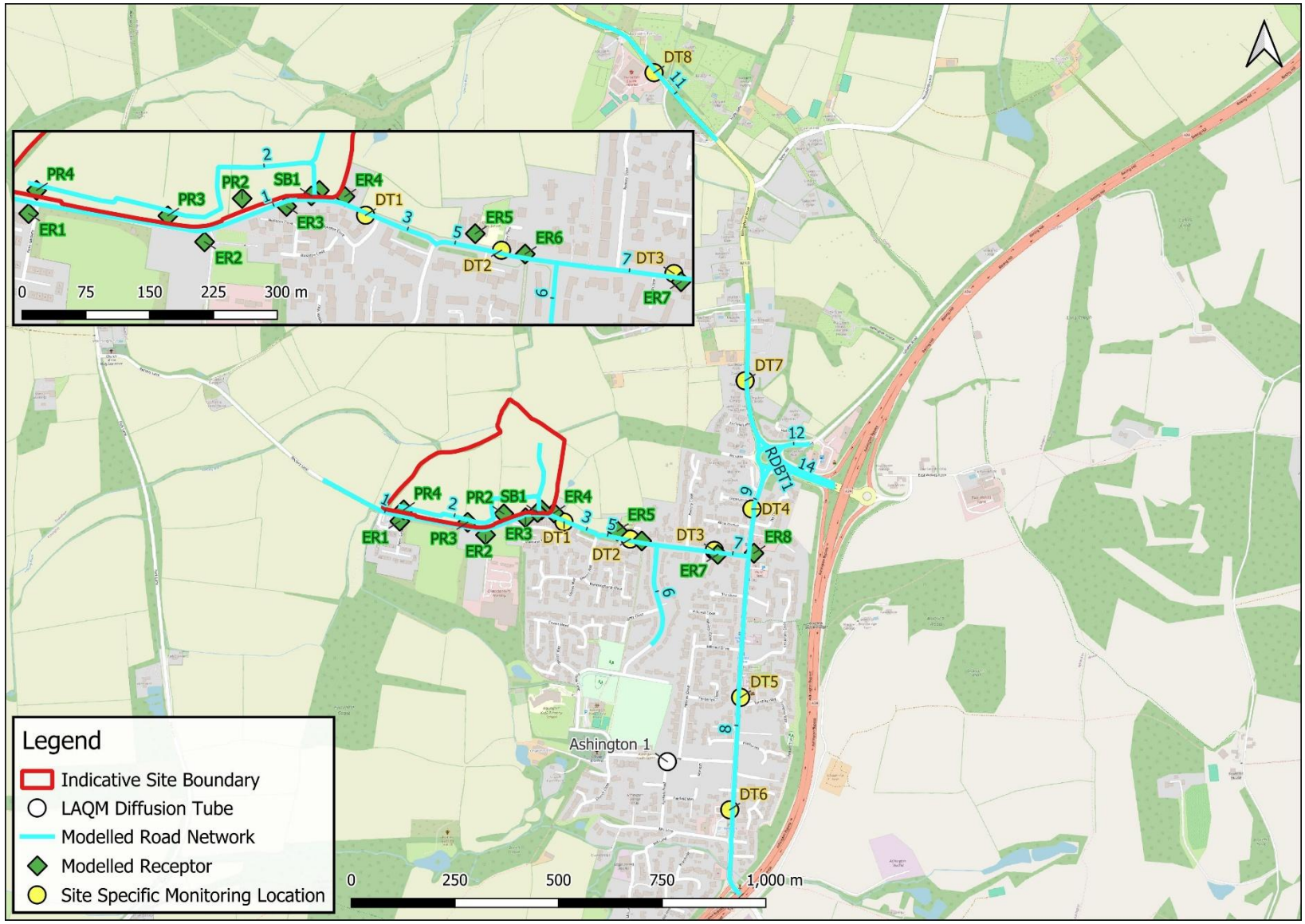

Figure B: Site Setting, Modelled Road Network, Receptors, Air Quality Monitoring & Verification Sites

4.0 Baseline Environment

4.1 LAQM Review and Assessment

HDC, in fulfilment of statutory requirements, has conducted an ongoing exercise to review and assess air quality within its administrative area. The latest publicly available LAQM report for HDC at the time of writing is the 2025 Air Quality Annual Status Report (ASR)[32] (the '2025 ASR'), inclusive of 2020-2024 monitoring datasets.

HDC currently has a single AQMA within its administrative area, the Storrington AQMA, located approximately 4km south-west of the Site. The Storrington AQMA was declared in 2010 for exceedances of the annual mean NO_2 AQAL at locations of relevant exposure. Within the 2025 ASR, the Storrington AQMA is described as: "*Storrington town centre incorporating West Street, the High Street, and part of School Hill and Manleys Hill*".

4.2 Review of Air Quality Monitoring

4.2.1 Automatic Air Quality Monitoring

HDC undertook automatic monitoring at three locations within its administrative area during 2024. The nearest automatic monitor to the Site is 'HO4' which is located approximately 4km south-west at a 'roadside'[33] site classification. Given the separation distance between this monitor and the Site, and the differences in local characteristics, comparable pollutant concentrations are not anticipated. Therefore, no further consideration has been given to the HDC automatic monitoring network within this assessment.

The HO4 automatic monitor is also associated with the Automatic Urban and Rural Network (AURN); however, as per the above, has not been considered within this assessment.

4.2.2 Passive Diffusion Tube Monitoring

As discussed in Section 3.3.4, passive NO_2 diffusion tube monitoring is currently undertaken by HDC at one location within the Site locale.

The details and results of this monitoring location are presented in Table E and Table F, respectively, whilst its location is illustrated in Figure B. All monitoring data presented has been ratified by HDC.

Table E: Local NO_2 Diffusion Tube Monitoring Sites: Details

Site ID	Site Type	NGR (m)		Height (m)	Within, or within 200m of, AQMA?	Distance and Direction to Site (m)
		X	Y			
Ashington 1	Urban Background [28]	509083	114198	2.0	No	660, SE

Table F: Local NO_2 Diffusion Tube Monitoring Sites: Results

Site ID	2024 Data Capture %	Annual Mean NO_2 Concentration (µg/m^3)				
		2020	2021	2022	2023	2024
Ashington 1	92.5	-	-	-	-	7.7

[32] Horsham District Council, Air Quality Annual Status Report 2025, July 2025.

[33] 'Roadside' site defined by LAQM.TG(22) as: "*A site sampling typically within one to five metres of the kerb of a busy road (although distance can be up to 15 m from the kerb in some cases)*".

Diffusion tube ID 'Ashington 1' is located approximately 660m to the south-west of the Site, adjacent to the Church Lane / Fairfield Road, but of an Urban Background[28] site classification by virtue of its setting in a residential area where there is likely to be minimal traffic movements and limited other associated emission contribution. It is therefore considered to represent a suitable dataset to inform background annual mean NO_2 concentrations likely to be found at the Site.

The 'Ashington 1' monitoring location was commissioned in 2024 and therefore only has a single year of annual mean NO_2 concentrations. In 2024, 'Ashington 1' recorded an annual mean NO_2 concentration of 7.7µg/m^3, representing 19.3% of the AQAL (40µg/m^3) (i.e. 'well-below' (<75% of the AQAL)).

The empirical relationship given in LAQM.TG(22) states that exceedences of the 1-hour mean NO_2 AQAL is unlikely to occur where annual mean concentrations are <60µg/m^3. This indicates that an exceedence of the 1-hour mean AQAL was unlikely to have occurred at the above location in 2024.

4.2.3 Site-Specific NO_2 Diffusion Tube Monitoring

As referenced in Section 3.3.4, Site specific passive NO_2 diffusion tube monitoring was completed at roadside locations in proximity to the Site to support the verification of the road traffic emissions dispersion modelling assessment.

All monitoring data presented has been annualised and bias adjusted where possible in accordance with LAQM.TG(22). The scope, methodology and results of the NO_2 diffusion tube monitoring survey can be found in the supporting Appendix C.

The details and results of the monitoring are presented in Table G, whilst monitoring locations are shown in Figure B.

Table G: Site-Specific NO_2 Diffusion Tube Monitoring: Details & Results

Site ID	LAQM Site Type	NGR (m)		2025 Annual Mean NO_2 Concentration (µg/m^3)	Percentage of Annual Mean AQAL (%)
		X	Y		
DT1 (A)	Kerbside [34]	512804	116445	6.3	15.7
DT2	Roadside [33]	512964	116404	8.0	20.1
DT3	Roadside [33]	513166	116377	9.1	22.7
DT4	Roadside [33]	513257	116477	9.5	23.7
DT5	Roadside [33]	513230	116022	9.8	24.5
DT6	Roadside [33]	513204	115751	9.8	24.6
DT7	Roadside [33]	513241	116786	9.3	23.2
DT8	Roadside [33]	513021	117529	8.6	21.5

Notes:

(A) The results obtained from DT1 have been presented, but are to be discounted due to a 3-week road closure along Rectory Lane (West of Meiros Way) occurring over the monitoring period 07/01/2026 – 04/02/2026.

[34] 'Kerbside' site classification defined by LAQM.TG(22) as: "*A site sampling within one metre of the kerb of a busy road*".

In reference to the above, there were no concentrations above the annual mean NO_2 AQAL recorded at any of the monitoring locations, with all locations recording <25% of the AQAL (i.e. 'well-below').

The highest annualised NO_2 concentration of 9.84µg/m^3 (values rounded in Table G) (i.e. 24.6% of the annual mean AQAL) was recorded at monitoring location DT6. Monitoring location DT6 is located on London Road approximately 840m to the south-east of the Site.

The empirical relationship given in LAQM.TG(22) states that exceedences of the 1-hour mean NO_2 AQAL are unlikely to occur where annual mean concentrations are <60µg/m^3. This indicates that an exceedence of the 1-hour mean AQAL was unlikely to have occurred at the diffusion tube monitoring locations.

4.3 Defra Mapped Background Concentrations

Defra maintains a nationwide model of existing and future background air quality concentrations at a 1km grid square resolution. The latest datasets include annual average concentration estimates for NOx, NO_2, PM_{10} and $PM_{2.5}$ using a reference year of 2021 (the year in which comparisons between modelled and monitored concentrations are made).

Defra mapped background concentrations matching the HDC monitoring datasets (2024), the assessment base year (2025) and the earliest predicted opening year of the Proposed Development (2032) are presented in Table H below.

All of the mapped background concentrations presented are 'well-below' the respective annual mean AQALs.

Table H: Defra Mapped Background Pollutant Concentrations

Grid Square (X, Y) (m)	Year	Annual Mean Concentration (µg/m^3)			
		NOx	NO_2	PM_{10}	$PM_{2.5}$
512500, 116500	2024	9.2	7.2	10.6	6.0
	2025	8.9	7.0	10.5	5.9
	2032	7.0	5.5	10.0	5.5
513500, 116500	2024	11.0	8.5	10.8	6.2
	2025	10.5	8.2	10.7	6.1
	2032	7.7	6.1	10.2	5.6
AQAL		**-**	***40***	***40***	***20***

5.0 Construction Phase Assessment

This section presents the potential air quality impacts and effects associated with the construction of the Proposed Development.

5.1 Construction Dust Assessment

Where figures relating to area and volume of the Site, approximate number of construction vehicles or distances to receptors are given, these relate to thresholds as defined in the IAQM Construction Dust guidance to guide the assessor to define the dust emissions magnitude and sensitivity of the area.

5.1.1 Assessment Screening

There are human receptors within 250m of the Site and within 50m of the roads up to 250m from the Site access anticipated to witness construction traffic movements. No designated habitat sites are located within 50m of the Site boundary or roads up to 250m from the Site access. Therefore, only an assessment of construction dust on human receptors is required.

5.1.2 Potential Dust Emissions Magnitude

5.1.2.1 Demolition

The Site currently comprises open agricultural land with no buildings or structures which require demolition. As such, dust impacts associated with demolition have been scoped out of this assessment.

5.1.2.2 Earthworks

The total Site area is approximately 73,900m^2 and therefore earthworks are anticipated to be required for an area of 18,000-110,000m^2. In addition, it is estimated that 5-10 heavy earth moving vehicles could be active at any one time. As such, the dust emission magnitude for earthworks is considered to be ‘medium’.

5.1.2.3 Construction

The proposals constitute the construction of up to 120 dwellings and associated infrastructure. The total building volume associated with the Proposed Development is predicted to be <75,000m^3, based on a typical house height and footprint. Building materials are anticipated to be as standard brick masonry. As such, the dust emission magnitude for construction is considered to be ‘medium’.

5.1.2.4 Trackout

Construction vehicles are expected to access the Site via Rectory Lane. No details are available at the time of assessment regarding the number of HDV movements associated with construction works. However, the peak number of predicted outward HDV movements is estimated to be between 20-50 per day. In addition, the unpaved road length is likely to be between 50-100m at any given time, as internal roads are expected to be constructed early on in the scheme. As such, the dust emission magnitude for trackout is considered to be ‘medium’.

5.1.2.5 Summary

A summary of the potential dust emission magnitude for each of the activities is displayed in Table I.

Table I: Potential Dust Emission Magnitude

Activity	Dust Emission Magnitude
Demolition	N/A
Earthworks	Medium
Construction	Medium
Trackout	Medium

5.1.3 Sensitivity of the Area

5.1.3.1 Dust Soiling Impacts

Overall, there are estimated to be 10-100 residential properties (receptors of 'high' sensitivity) within 20m of the Site.

Furthermore, there are estimated to be 10-100 residential receptors within 20m of the trackout route up to 250m of the Site accesses.

The sensitivity of the area with respect to dust soiling effects on people and property in relation to earthworks, construction and trackout is therefore considered to be 'high'.

5.1.3.2 Human Health Impacts

The maximum background PM_{10} concentration for the $1km^2$ grid squares which cover the development is estimated to be 10.5µg/m³, based upon 2025 mapped background estimates (i.e. falls into the <24µg/m^3 class).

Given the above information regarding the number and nature of surrounding receptors within specified screening distances of the Site boundary and trackout route, the sensitivity of the area with respect to human health impacts in relation to earthworks, construction and trackout is considered to be 'low'.

5.1.3.3 Summary

A summary of the sensitivity of the area defined for each potential impact is displayed in Table J, whereas the spatial densities of receptors discussed in relation to the Site and access route are illustrated in Figure C.

Table J: Sensitivity of the Area

Potential Impact	Sensitivity of the Surrounding Area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	N/A	High	High	High
Human Health	N/A	Low	Low	Low

5.1.4 Risk of Impacts (Unmitigated)

The outcome of the assessment of the potential 'magnitude of dust emissions', and the 'sensitivity of the area' are combined in Table K below to determine the risk of impact which is used to inform the selection of appropriate mitigation.

Table K: Risk of Dust Impacts (Unmitigated)

Potential Impact	Demolition	Earthworks	Construction	Trackout
Dust Soiling	N/A	Medium Risk	Medium Risk	Medium Risk

Potential Impact	Demolition	Earthworks	Construction	Trackout
Human Health	N/A	Low Risk	Low Risk	Low Risk

5.1.5 Mitigation

Following the construction dust assessment, the Site is found to be at worst 'medium risk' in relation to dust soiling effects on people and property, and 'low risk' in relation to human health impacts (Table K). However, potential dust effects during the construction phase are considered to be temporary in nature and may only arise at particular times (i.e. certain activities and/or meteorological conditions).

Nonetheless, commensurate with the above designation of dust risk, best practice mitigation measures as identified by IAQM Construction Dust guidance are required to ensure that any potential impacts arising from the construction phase of the Proposed Development are reduced and, where possible, completely removed. In accordance with IAQM Construction Dust guidance, providing effective mitigation measures are implemented, such as those outlined in Section 7.1, residual construction dust effects are considered to be 'not significant'.

5.1.6 Potential for Cumulative Effects

Cumulative dust effects arising from construction activities could be experienced where construction activities from more than one scheme overlap either sequentially or concurrently and at an affected receptor, dependent on the impact as defined by the IAQM Construction Dust Guidance (e.g. dust soiling, human health and ecological, for example). The potential for cumulative effects could occur from the wider development mentioned in Section 1.0, for example.

However, all schemes which are considered to pose a risk of cumulative effects will have had to undertake a construction dust assessment separately relating to their own site activities and associated risks, with the recommendation of best practice mitigation to remedy residual effects as 'not significant'. As such, it is not anticipated that there would be significant cumulative effects associated with construction phase dust emissions.

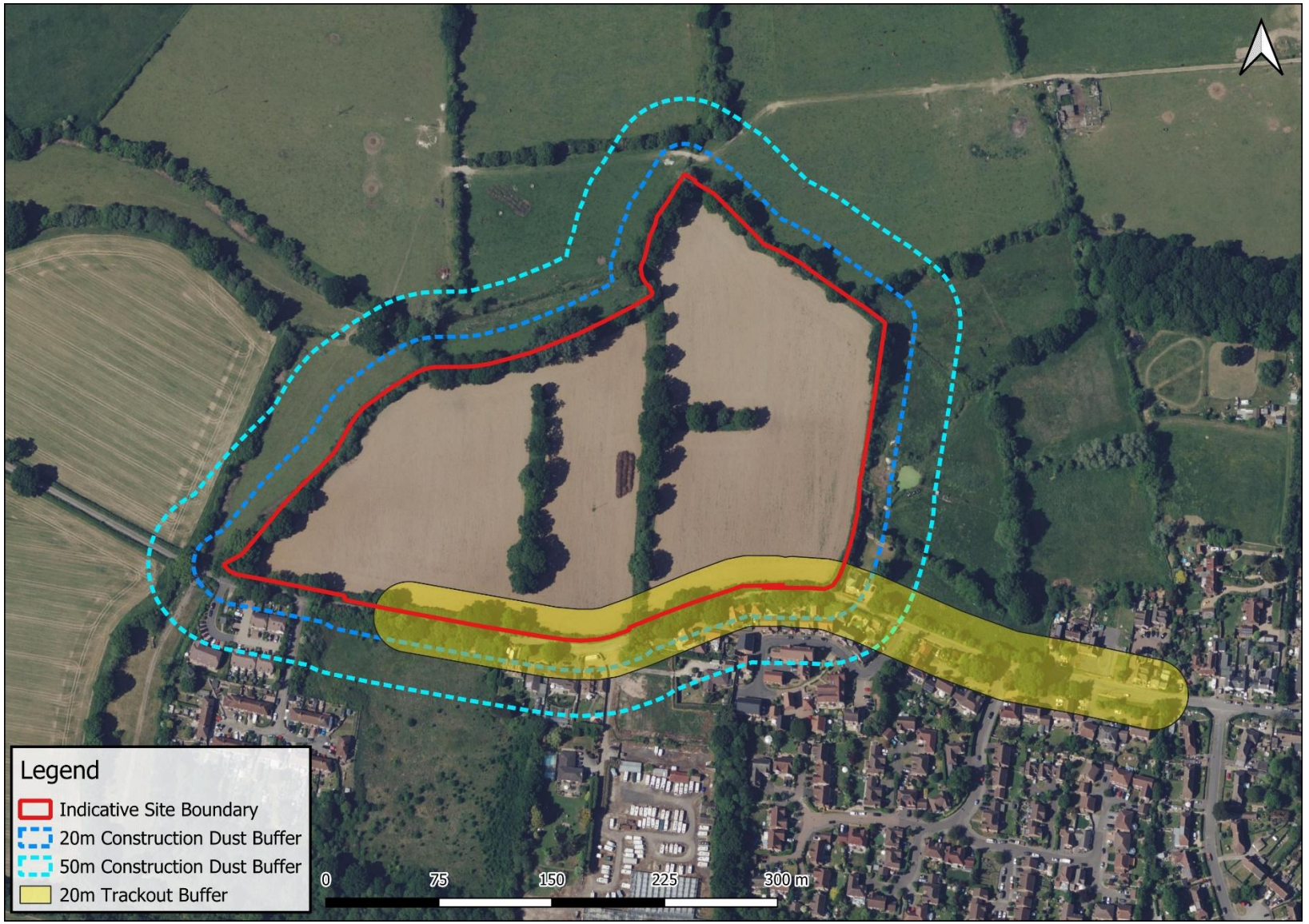

Figure C: Construction Dust Assessment Buffers

6.0 Operational Phase Assessment

This section presents the potential air quality impacts and effects associated with the operation of the Proposed Development.

6.1 NO_2 Modelling Results

Table L presents the annual mean NO_2 concentrations predicted at all assessed receptor locations for the 2025 BC, 2032 DM and 2032 DS scenarios.

Table L: Predicted Annual Mean NO_2 Concentrations

Receptor	Predicted Annual Mean NO_2 Concentration (µg/m^3)			% Change of AQAL	% of 2032 DS Relative to AQAL	EPIC & IAQM Impact Descriptor
	2025 BC	2032 DM	2032 DS			
Existing Receptors						
ER1	7.1	5.6	5.6	+<0.1	14.0	Negligible
ER2	7.1	5.6	5.6	+<0.1	14.0	Negligible
ER3	7.2	5.6	5.7	+<0.1	14.3	Negligible
ER4	7.3	5.7	5.7	+0.1	14.3	Negligible
ER5	7.3	5.7	5.7	+<0.1	14.3	Negligible
ER6	7.7	5.8	5.9	+0.1	14.8	Negligible
ER7	9.2	6.5	6.6	+0.1	16.5	Negligible
ER8	9.4	6.6	6.6	+<0.1	16.5	Negligible
Site-suitability Receptors						
PR1	-	-	5.7	-	14.3	-
PR2	-	-	5.6	-	14.0	-
PR3	-	-	5.7	-	14.3	-
PR4	-	-	5.6	-	14.0	-
SB1	-	-	5.8	-	14.5	-

6.1.1 2025 BC

The maximum predicted 2025 annual mean NO_2 concentration was at Receptor ER8 with a predicted concentration of 9.44µg/m^3, representing 23.5% of the AQAL. Receptor ER8 is a residential dwelling adjacent to the Rectory Lane / London Road junction, and is therefore subject to the emission contribution from both of these roads more so than any other considered receptor location.

6.1.2 2032 DS vs DM

The maximum predicted annual mean NO_2 concentration at existing receptors with the Proposed Development in place (2032 DS) was at Receptor ER8 with a predicted concentration of 6.64µg/m^3, representing 16.5% of the AQAL (i.e. 'well-below'). The change in the annual mean NO_2 concentration at this location, due to the Proposed Development (2032 DS vs. 2032 DM) relative to the AQAL was <0.1% (i.e. 0.03µg/m^3).

The maximum observed increase in annual mean NO_2 concentrations at all existing receptors as a result of the Proposed Development (2032 DS vs. 2032 DM) was +0.13% (i.e. 0.05µg/m^3) at Receptors ER6 and ER7. The resultant concentration predicted at ER6 and

ER7 with the Proposed Development in place (2032 DS) is 5.89µg/m^3 and 6.59µg/m^3, respectively, representing 14.8% and 16.5% of the AQAL. Both receptors represent residential dwellings adjacent to Rectory Lane.

The maximum predicted annual mean NO_2 concentration (2032 DS) at the Site was 5.72µg/m^3, representing 14.3% of the AQAL (i.e. 'well-below'). This is at Receptor PR1, which is positioned adjacent to the junction of the Site Access to Rectory Lane. The predicted annual mean NO_2 concentration at the Site boundary is 5.77µg/m^3, representing 14.5% of the AQAL.

6.1.3 NO_2 Conclusions

In accordance with EPIC & IAQM guidance, the impact of the Proposed Development on annual mean NO_2 concentrations at all assessed existing receptors is considered to be 'negligible'. Given the marginal increase in annual mean NO_2 concentrations associated with the Proposed Development, and that there are no predicted exceedances of the annual mean NO_2 AQAL, unmitigated effects associated with annual mean NO_2 concentrations at all existing assessed receptor locations are therefore considered to be 'not significant'.

No exceedences of the annual mean NO_2 AQAL are predicted at proposed receptor locations or at the Site boundary. As such, the Site is considered to be suitable for residential development in relation to NO_2 concentrations and unmitigated effects from air quality would be considered 'not significant'.

It is unlikely that an exceedance of the 1-hour mean NO_2 AQAL will occur in reference to the empirical relationship given in LAQM.TG(22) and predicted maximum absolute annual mean NO_2 concentrations. Effects associated with likely 1-hour mean NO_2 concentrations at all assessed receptor locations (including those at the Site's boundary) are therefore considered to be 'not significant'.

6.2 PM_{10} Modelling Results

Table M presents the annual mean PM_{10} concentrations predicted at all assessed receptor locations for the 2025 BC, 2032 DM and 2032 DS scenarios.

Table M: Predicted Annual Mean PM_{10} Concentrations

Receptor	Predicted Annual Mean PM_{10} Concentration (µg/m^3)			% Change of AQAL	% of 2032 DS Relative to AQAL	EPIC & IAQM Impact Descriptor
	2025 BC	2032 DM	2032 DS			
Existing Receptors						
ER1	10.5	10.0	10.0	+<0.1	25.0	Negligible
ER2	10.5	10.0	10.0	+<0.1	25.0	Negligible
ER3	10.5	10.0	10.1	+<0.1	25.3	Negligible
ER4	10.6	10.1	10.1	+<0.1	25.3	Negligible
ER5	10.6	10.1	10.1	+<0.1	25.3	Negligible
ER6	10.7	10.2	10.2	+0.1	25.5	Negligible
ER7	11.0	10.5	10.6	+<0.1	26.5	Negligible
ER8	11.1	10.6	10.6	+<0.1	26.5	Negligible
Site-suitability Receptors						
PR1	-	-	10.1	-	25.3	-
PR2	-	-	10.0	-	25.0	-

Receptor	Predicted Annual Mean PM_{10} Concentration (µg/m³)			% Change of AQAL	% of 2032 DS Relative to AQAL	EPIC & IAQM Impact Descriptor
	2025 BC	2032 DM	2032 DS			
PR3	-	-	10.1	-	25.3	-
PR4	-	-	10.0	-	25.0	-
SB1	-	-	10.1	-	25.3	-

6.2.1 2025 BC

The maximum predicted annual mean PM_{10} concentration at all existing receptors during the 2025 BC scenario was at Receptor ER8 with a predicted concentration of 11.08µg/m³, representing 27.7% of the AQAL.

6.2.2 2032 DS vs DM

The maximum predicted annual mean PM_{10} concentration at existing receptors with the Proposed Development in place (2032 DS) was at Receptor ER8 with a predicted concentration of 10.63µg/m³, representing 26.5% of the AQAL (i.e. 'well-below'). The change in the annual mean PM_{10} concentration at this location, due to the Proposed Development (2032 DS vs. 2032 DM) relative to the AQAL was <0.1% (i.e. 0.02µg/m³).

The maximum observed increase in annual mean PM_{10} concentrations at all existing receptors as a result of the Proposed Development (2032 DS vs. 2032 DM) was +0.1% (i.e. 0.04µg/m³) at Receptor ER6. The resultant concentration predicted at ER6 with the Proposed Development in place (2032 DS) is 10.24µg/m³, representing 25.5% of the AQAL.

The maximum predicted annual mean PM_{10} concentration (2032 DS) at the Site was 10.1µg/m³, representing 25.3% of the AQAL (i.e. 'well-below') (Receptor PR1). The predicted annual mean PM_{10} concentration at the Site boundary is 10.13µg/m³, representing 25.3% of the AQAL.

6.2.3 PM_{10} Conclusions

In accordance with EPIC & IAQM guidance, the impact of the Proposed Development on annual mean PM_{10} concentrations at all assessed existing receptors is considered to be 'negligible'. Given the marginal increase in annual mean PM_{10} concentrations associated with the Proposed Development, and that there are no predicted exceedances of the annual mean PM_{10} AQAL, unmitigated effects associated with annual mean PM_{10} concentrations at all existing assessed receptor locations are therefore considered to be 'not significant'.

No exceedences of the annual mean PM_{10} AQAL are predicted at proposed receptor locations or at the Site boundary. As such, the Site is considered to be suitable for residential development in relation to PM_{10} concentrations and unmitigated effects from air quality would be considered 'not significant'.

Based upon the maximum predicted annual mean PM_{10} concentration of 10.63/m³ (predicted at Receptor ER8 – 2032 DS), this equates to <1 day where 24-hour mean PM_{10} concentrations are predicted to be greater than 50µg/m³. This is below the 35 permitted 24-hour mean concentrations in excess of 50µg/m³ prescribed within the 24-hour mean AQAL. Effects associated with likely 24-hour mean PM_{10} concentrations at all assessed receptor locations (including those on Site) are therefore considered to be 'not significant'.

6.3 $PM_{2.5}$ Modelling Results

Table N presents the annual mean $PM_{2.5}$ concentrations predicted at all assessed receptor locations for the 2025 BC, 2032 DM and 2032 DS scenarios.

Table N: Predicted Annual Mean $PM_{2.5}$ Concentrations

Receptor	Predicted Annual Mean $PM_{2.5}$ Concentration (µg/m^3)			% Change of AQAL	% of 2032 DS Relative to AQAL	EPIC & IAQM Impact Descriptor
	2025 BC	2032 DM	2032 DS			
Existing Receptors						
ER1	5.9	5.5	5.5	+<0.1	27.5	Negligible
ER2	5.9	5.5	5.5	+<0.1	27.5	Negligible
ER3	6.0	5.5	5.5	+<0.1	27.5	Negligible
ER4	6.0	5.6	5.6	+0.1	28.0	Negligible
ER5	6.0	5.6	5.6	+<0.1	28.0	Negligible
ER6	6.1	5.6	5.7	+0.1	28.5	Negligible
ER7	6.3	5.9	5.9	+0.1	29.5	Negligible
ER8	6.3	5.9	5.9	+<0.1	29.5	Negligible
Site-suitability Receptors						
PR1	-	-	5.6	-	28.0	-
PR2	-	-	5.5	-	27.5	-
PR3	-	-	5.5	-	27.5	-
PR4	-	-	5.5	-	27.5	-
SB1	-	-	5.6	-	28.0	-

6.3.1 2025 BC

The maximum predicted annual mean $PM_{2.5}$ concentration at all existing receptors during the 2025 BC scenario was at Receptor ER8 with a predicted concentration of 6.32µg/m^3, representing 31.6% of the AQAL.

6.3.2 2032 DS vs DM

The maximum predicted annual mean $PM_{2.5}$ concentration at existing receptors with the Proposed Development in place (2032 DS) was at Receptor ER8 with a predicted concentration of 5.90µg/m^3, representing 29.5% of the AQAL (i.e. 'well-below'). The change in the annual mean $PM_{2.5}$ concentration at this location, due to the Proposed Development (2032 DS vs. 2032 DM) relative to the AQAL was <0.1% (i.e. 0.01µg/m^3).

The maximum observed increase in annual mean $PM_{2.5}$ concentrations at all existing receptors as a result of the Proposed Development (2032 DS vs. 2032 DM) was +0.13% (i.e. 0.026µg/m^3) at Receptor ER6 and ER7. The resultant concentration predicted at ER6 and ER7 with the Proposed Development in place (2032 DS) is 5.66µg/m^3 and 5.88µg/m^3, respectively, representing 28.5% and 29.5% of the AQAL.

The maximum predicted annual mean $PM_{2.5}$ concentration (2032 DS) at the Site was 5.57µg/m^3, representing 28.0% of the AQAL (i.e. 'well-below') (Receptor PR1). The predicted annual mean $PM_{2.5}$ concentration at the Site boundary is 5.59µg/m^3, representing 28.0% of the AQAL. It is noted that this is below both the 10µg/m^3 target annual mean concentration by 2040, and the interim target of 12µg/m^3 by January 2028.

6.3.3 $PM_{2.5}$ Conclusions

In accordance with EPIC & IAQM guidance, the impact of the Proposed Development on annual mean $PM_{2.5}$ concentrations at all assessed existing receptors is considered to be 'negligible'. Given the marginal increase in annual mean $PM_{2.5}$ concentrations associated with the Proposed Development, and that there are no predicted exceedances of the annual mean PM_{10} AQAL, unmitigated effects associated with annual mean $PM_{2.5}$ concentrations at all existing assessed receptor locations are therefore considered to be 'not significant'.

No exceedences of the annual mean $PM_{2.5}$ AQAL are predicted at proposed receptor locations or at the Site boundary. As such, the Site is considered to be suitable for residential development in relation to $PM_{2.5}$ concentrations and unmitigated effects from air quality would be considered 'not significant'.

6.3.4 $PM_{2.5}$ Appraisal

The Defra $PM_{2.5}$ IPG emphasises the need to assess exposure to $PM_{2.5}$ concentrations and requires applicants to minimise exposure to $PM_{2.5}$ emission sources whenever feasible and appropriate.

The following addresses the question one as listed in Section 3.3.8: "*How Has $PM_{2.5}$ Exposure Been Considered When Selecting the Site?".*

$PM_{2.5}$ has been considered in relation to the Site selection using publicly available air quality data reported by central and local government agencies (Section 4.0). This considered the existing environment and exposure for future occupants. However, as presented in Section 6.3, the assessment of $PM_{2.5}$ concentrations at worst-case locations representing the Site boundary with Rectory Lane predicts no exceedences of the annual mean AQAL in due consideration of road traffic emission contributions and background concentrations. Furthermore, at proposed receptor locations more representative of proposed residential developable areas, the predicted annual mean $PM_{2.5}$ concentrations are 'well-below' the AQAL.

A review of aerial imagery in the Site locale identifies no further pollution sources of $PM_{2.5}$ emission contribution which warrant further assessment.

7.0 Mitigation Measures

This section presents any proportionate mitigation measures required during the construction and operation of the Proposed Development.

7.1 Construction Dust

As discussed in Section 5.0, construction impacts associated with the Proposed Development would result in the generation of dust and PM_{10}.

In order to control potential impacts, Table O presents a range of mitigation measures which could be applied and align with the IAQM Construction Dust guidance. With the effective application of the dust mitigation measures, residual effects will be 'not significant'.

It is noted that the IAQM Construction Dust guidance refers to "*for construction as a whole, it is recommended that the average $PM_{2.5}$ content of PM_{10} should be assumed to be 10%*". Therefore, it is considered that the application of mitigation measures which are targeted specifically in relation to PM_{10} and dust soiling would also result in a consequential and beneficial reduction in $PM_{2.5}$ emissions and impacts.

Table O: Construction Dust Mitigation Measures

Site Application	Mitigation Measures
Highly Recommended	
Communications	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
	Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
	Display the head or regional office contact information.
	Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority.
Construction	As far as practicable, ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
Monitoring	Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.
	Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
Operating Vehicle/Machinery and Sustainable Travel	As far as practicable, ensure all vehicles switch off engines when stationary - no idling vehicles.
	Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
Operations	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
	Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.

Site Application	Mitigation Measures
	Use enclosed chutes and conveyors and covered skips.
	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
	Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Preparing and Maintaining the Site	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
	Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
	Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
	Avoid site runoff of water or mud.
	Keep site fencing, barriers and scaffolding clean using wet methods.
	Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
	As far as practicable, cover, seed or fence stockpiles to prevent wind whipping.
Site Management	Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
	Make the complaints log available to the local authority when asked.
	Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.
Trackout	Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site.
	Avoid dry sweeping of large areas.
	Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
	Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
	Record all inspections of haul routes and any subsequent action in a site log book.
	Install hard surfaced haul routes where practicible, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
	Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
	Access gates to be located at least 10m from receptors where possible.
Waste Management	Avoid bonfires and burning of waste materials.
Desirable	

Site Application	Mitigation Measures
Construction	Avoid scabbling (roughening of concrete surfaces) if possible.
	Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
	For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.
Earthworks	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
	Use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable
	Only remove the cover in small areas during work and not all at once.
Monitoring	Undertake regular on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary.
Operating Vehicle/Machinery and Sustainable Travel	Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).
	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).

7.2 Operational Phase

7.2.1 Emissions Mitigation Assessment

Pollutant emissions costs associated with additional operational development trips over a 5-year period (from the first year of completion – i.e. 2032 to 2036) have been calculated to indicate potential mitigation requirements. The latest version of the EFT (presently v14.1) has been used to determine vehicle emission factors as input into the Damage Cost Calculation.

Development-generated trips were provided by C&A. In summary, the Proposed Development is predicted to generate a total of +704 AADT (all as LDV, i.e. no predicted trip generation as HDV as an AADT).

Reference should be made to Table P and Table Q for a presentation of the emission calculation inputs and outputs, respectively.

Table P: Damage Cost Calculation - Inputs

Input Parameter	Inputs
Total trips (AADT)	704 (0% HDV)
Average trip length (km) [A]	10
Speed (kph)	50
2025 Base Damage cost NOx (£ per tonne) [B] [C]	£5,944

Input Parameter	Inputs
2025 Base Damage cost $PM_{2.5}$ (£ per tonne) (B)	£49,192
Notes: (A) Average trip length from the National Travel Survey and as presented in the Sussex-air guidance. (B) 'Damage Cost' is based upon 'Road Transport Rural'[35]. (C) Applied Price Base Year: 2026.	

Table Q: Damage Cost Calculation - Outputs

Output Parameter	Year					5-Year Total
	2032	2033	2034	2035	2036	
Annual NOx Emissions (tonnes/year)	0.167	0.137	0.112	0.092	0.077	0.586
Annual $PM_{2.5}$ Emissions (tonnes/year)	0.042	0.041	0.041	0.040	0.040	0.204
NOx contribution (£) (rounded up)	1,011	815	659	534	440	3,459
$PM_{2.5}$ contribution (£) (rounded up)	2,098	2,034	1,976	1,923	1,875	9,907
Total contribution (£) (rounded up)	3,109	2,849	2,635	2,457	2,315	13,366

In summary, over a 5-year period (commencing from 2032, the assumed opening year of development), an emission cost has been calculated at £13,366.

The above damage costs provide an indicator of the financial commitment required to mitigate or offset emissions. The amount determined is not a direct indication of the monetary contribution required to off-set impacts upon air quality. Rather, the scale of damage cost will determine the level of appropriate mitigation required for specific proposals.

It is anticipated that commensurate mitigation to address the calculated damage costs can be secured through planning condition.

Although not an exhaustive list, nor in order of preference, example mitigation measures are included within the Sussex-air guidance:

- Invest in EV charging infrastructure within the development over and above the current recommended parking standards;
- Provide vouchers for alternatives to private car use;
- Provide public transport subsidy for residents;
- Set up a car club within the development or contribute to the cost of a local car club;
- Set up or join an existing car sharing scheme for residents;
- Designate parking spaces for car club/car sharing vehicles;
- Designate parking spaces for low emission vehicles;
- Provide electric bikes;
- Improve cycle paths to link to the existing local cycle network;

[35] In accordance with the Department for Transport, TAG Unit A5.4 Marginal External Costs (November 2025). As referenced in the Gov.UK: 'Air Quality Appraisal: Damage Cost Guidance (December 2025).

- Provide secure cycle storage Invest in additional evergreen infrastructure to reduce particulates and other pollutants;
- Contribute to local low or zero emission vehicle refuelling/recharging infrastructure;
- Contribute to low emission bus service provision or waste collection services;
- Contribute to local bike/e-bike hire schemes Contribute to renewable fuel and energy generation projects; and
- Fund incentives for the take-up of low emission technologies and fuels.

7.2.2 Mitigation Measures

In accordance with the EPIC & IAQM guidance, road traffic impacts associated with the operation of the Proposed Development can be considered as having a 'not significant' effect on local air quality. Furthermore, the Proposed Development is found to be suitable for residential purposes in accordance with the site-suitability aspect of the Operational Phase Assessment. As such, long-term scheme-specific mitigation measures in relation to operational effects arising from road traffic emissions are therefore not considered to be necessary.

Notwithstanding the above, embedded mitigation should comply with the Sussex-air guidance for 'Major' residential development. Furthermore, a Travel Plan is provided in support of the planning application which sets out a package of measures and actions to encourage sustainable and active modes of travel. As these seek to reduce private car use, there is a co-benefit to local air quality. Reference should be made to the submitted Travel Plan for information on these measures.

In addition, the Proposed Development will implement an all-electric approach to hot water and heating provision through the use of technologies such as Air Source Heat Pumps (ASHPs), for example. Each dwelling will also be provided with an electric vehicle (EV) charge point commensurate with the requirements of Approved Document S: Infrastructure for Charging Electric Vehicles of the Building Regulations[36]. The specific detail for such will come forward post-planning as a building control requirement.

The following section addresses question two as listed in Section 3.3.8: "*What Measures Have Been Incorporated to Reduce and Limit Exposure?".*

In terms of reducing exposure to $PM_{2.5}$ (and other pollutants), the residential parcels are set back from the Rectory Lane (considered to be the predominant pollutant source in the area) by a minimum separation distance of 10m. However, as shown in Section 6.0, the emission contribution from Rectory Lane is minimal. Furthermore, the proposed scheme seeks to retain existing vegetation as far as reasonably practicable and proposes to plant new vegetation/woodland around the perimeter of the development where existing vegetation does not already exist, creating a physical barrier between pollution external to the Site and the proposed receptors.

[36] Ministry of Housing, Communities and Local Government, Infrastructure for charging electric vehicles: Approved Document S, April 2023. Available at: https://www.gov.uk/government/publications/infrastructure-for-charging-electric-vehicles-approved-document-s.



8.0 Conclusions

SLR Consulting Ltd has been commissioned by Taylor Wimpey Strategic Land (a division of Taylor Wimpey UK Ltd) to undertake an Air Quality Assessment to accompany the planning application for a proposed residential development comprising up to 120 dwellings and associated infrastructure, located on Land North of Rectory Lane, Ashington.

8.1 Construction Phase

A qualitative assessment of the potential dust impacts during the construction of the Proposed Development has been undertaken following the IAQM Construction Dust guidance.

Following the construction dust assessment, the Site is found to be at worst ‘medium risk’ in relation to dust soiling effects on people and property and ‘low risk’ in relation to human health impacts. Providing effective mitigation measures are implemented, such as those outlined in Section 7.1 of this report, residual effects from dust emissions during the construction phase would be ‘not significant’.

8.2 Operational Phase

The assessment of operational phase effects considered impacts on all relevant receptors from road traffic emissions associated with the Proposed Development.

The ADMS-Roads dispersion model was used to determine the likely NO_2, PM_{10}, and $PM_{2.5}$ concentrations at all assessed existing and proposed receptor locations for a series of scenarios, in accordance with technical guidance published in LAQM.TG(22). Predicted pollutant concentration changes at relevant receptor locations are a result of the Proposed Development were assessed using the EPIC & IAQM significance criteria.

In accordance with EPIC & IAQM guidance, the impact of the Proposed Development on NO_2, PM_{10} and $PM_{2.5}$ concentrations at all existing assessed receptor locations are considered to be ‘negligible’. Unmitigated effects associated with NO_2, PM_{10} and $PM_{2.5}$ concentrations at all assessed receptor locations are therefore considered to be ‘not significant’. Furthermore, the predicted pollutant concentrations at the Site boundary and proposed residential parcels indicate that the Site is suitable for residential development with no predicted exceedances of the NO_2, PM_{10} and $PM_{2.5}$ AQALs at proposed receptors. Effects associated with likely exposure of future occupants are considered to be ‘not significant’.

$PM_{2.5}$ exposure has been assessed in the Site selection process in line with Defra’s $PM_{2.5}$ Interim Planning Guidance and is not considered to be a constraint to development. Existing background concentrations are well below the relevant air quality standards and both the 2040 target and 2028 interim target, and modelled impacts from traffic are anticipated to be ‘negligible’, as mentioned above. The Proposed Development incorporates a robust design and relevant transport measures to minimise emissions and limit exposure. Overall, the Proposed Development is consistent with air quality objectives and provides a sustainable framework for future occupants and the surrounding environment.

In accordance with the Sussex-air guidance, an estimation of the pollutant emission costs associated with the Proposed Development has been undertaken. The calculated damage cost is £13,366.

Appendix A Traffic Data

Land North of Rectory Lane, Ashington

Air Quality Assessment

Taylor Wimpey Strategic Land (a division of Taylor Wimpey UK Ltd)

SLR Project No.: 402.065738.00001

20 October 2026

A.1 Traffic Data

Table R details the traffic data used within the assessment.

Table R: Traffic Data Used within the Assessment

Road Link		Proposed Development		2025 BC		2032 DM		2032 DS		Speed (kph) [A]
ID	Description	Total AADT	HDV AADT	Total AADT	HDV %	Total AADT	HDV %	Total AADT	HDV %	
1	Rectory Lane (West of Site Access)	143	0	594	0.0	806	0.0	949	0.0	35
2	Site Access	704	0	0	0.0	0	0.0	704	0.0	32
3	Rectory Lane (between Site Access and Meiros Way)	561	0	1,207	3.6	1,986	2.3	2,547	1.8	35
5	Rectory Lane (between Meiros Way and The Sands)	561	0	1,697	4.7	2,506	3.4	3,067	2.8	35
6	The Sands	0	0	457	1.4	485	1.3	485	1.3	32
7	Rectory Lane (between The Sands and London Road)	561	0	2,502	3.2	3,385	2.5	3,946	2.1	35
8	London Road South	126	0	6,288	1.9	7,650	1.6	7,776	1.6	48
9	London Road North	435	0	7,205	2.5	8,985	2.2	9,420	2.1	48
11	Billinghurst Road	68	0	9,131	3.7	9,919	3.6	9,987	3.6	48 / 97
12	London Road north of B2133 Billinghurst Road Roundabout	0	0	3,534	4.7	3,755	4.7	3,755	4.7	48
14	B2133	367	0	9,618	4.3	11,355	3.9	11,722	3.7	48
RDBT1 [B]	Links 9, 11, 12 & 14	435	0	14,744	3.7	17,007	3.4	17,442	3.3	32

Notes:

[A] Traffic speeds were modelled at either the relevant speed limit for each road, or the average speed taken from a period of Automatic Traffic Counts (ATC). Traffic speeds have been adjusted to take into account queues and congestion in accordance with LAQM.TG(22).

[B] Roundabout traffic flows have been calculated following the methodology prescribed by LAQM.TG(22).

Appendix B Model Verification

Land North of Rectory Lane, Ashington

Air Quality Assessment

Taylor Wimpey Strategic Land (a division of Taylor Wimpey UK Ltd)

SLR Project No.: 402.065738.00001

20 October 2026

B.1 Model Verification

The ADMS-Roads dispersion model has been widely validated for this type of assessment and is specifically listed in the Defra's LAQM.TG(22) guidance as an accepted dispersion model.

Model validation undertaken by the software developer (CERC) will not have included validation in the vicinity of the Site. It is therefore necessary to perform a comparison of modelled results with local monitoring data at relevant locations. This process of verification attempts to minimise modelling uncertainty and systematic error by correcting modelled results by an adjustment factor to gain greater confidence in the final results.

Prior to undertaking model verification, model setup parameters and input data were reviewed to maximise the performance of the dispersion model in relation to the real-world conditions.

B.1.1 NOx / NO_2 Verification

NOx / NO_2 verification relates to the comparison and adjustment of modelled road-NOx (as output from the ADMS-Roads dispersion model), relative to monitored road-NOx.

For NOx / NO_2 model verification, the annualised 2025 annual mean NO_2 monitoring dataset obtained from the site-specific diffusion tube monitoring has been used (see Appendix C). Table S presents the site-specific annualised monitoring data available for model verification.

Note, the dataset obtained from monitoring location DT1 has been discounted due to a 3-week road closure along Rectory Lane (West of Meiros Way) occurring over the monitoring period 07/01/2026 – 04/02/2026. This would have reduced the emission contribution from the adjacent road and resulted in an atypical monitored concentration for this period.

Table S: Site-Specific Monitoring Data Available for Model Verification

Site ID	NGR (m)		2024 Annual Mean NO_2 Concentration (µg/m^3)	Percentage of Annual Mean AQAL (%)
	X	Y		
DT2	512964	116404	8.0	15.7
DT3	513166	116377	9.1	20.1
DT4	513257	116477	9.5	22.7
DT5	513230	116022	9.8	23.7
DT6	513204	115751	9.8	24.5
DT7	513241	116786	9.3	24.6
DT8	513021	117529	8.6	23.2

NOx was back calculated using the latest version of Defra's NOx to NO_2 Calculator (v9.1) for all monitors given the absence of data. The NOx to NO_2 Calculator was also used to facilitate the conversion of modelled road-NOx (as output from the ADMS-Roads dispersion model) into road-NO_2.

Verification was completed using the 2025 Defra background mapped concentrations (2021 base year) for the relevant 1km^2 grid squares (i.e. those within which the model verification locations are located), as discussed in Section 4.3.

Comparison of the modelled vs. monitored road-NOx contribution at the verification locations detailed in Table S is provided in Table T. An adjustment factor of 0.976 has been derived, based on a linear regression forced through zero as shown in Figure D.

Table T: NOx / NO_2 Model Verification

Site ID	Monitored Road NOx ($\mu g/m^3$)	Modelled Road NOx ($\mu g/m^3$)	Ratio (Monitored vs. Modelled Road NOx)	Adjustment Factor	Adjusted Modelled Total NO_2 ($\mu g/m^3$)	Monitored Total NO_2 ($\mu g/m^3$)	% Difference (Adjusted Modelled NO_2 vs Monitored NO_2)
DT2	2.1	1.1	1.8	0.956	7.5	8.0	-6.0
DT3	1.8	1.7	1.1		9.0	9.1	-1.1
DT4	2.7	3.1	0.8		9.6	9.5	+1.7
DT5	3.3	2.6	1.3		9.4	9.8	-4.4
DT6	4.3	1.9	2.3		8.6	9.8	-12.3
DT7	2.3	3.7	0.6		9.9	9.3	+6.8
DT8	2.9	3.8	0.8		9.0	8.6	+3.9

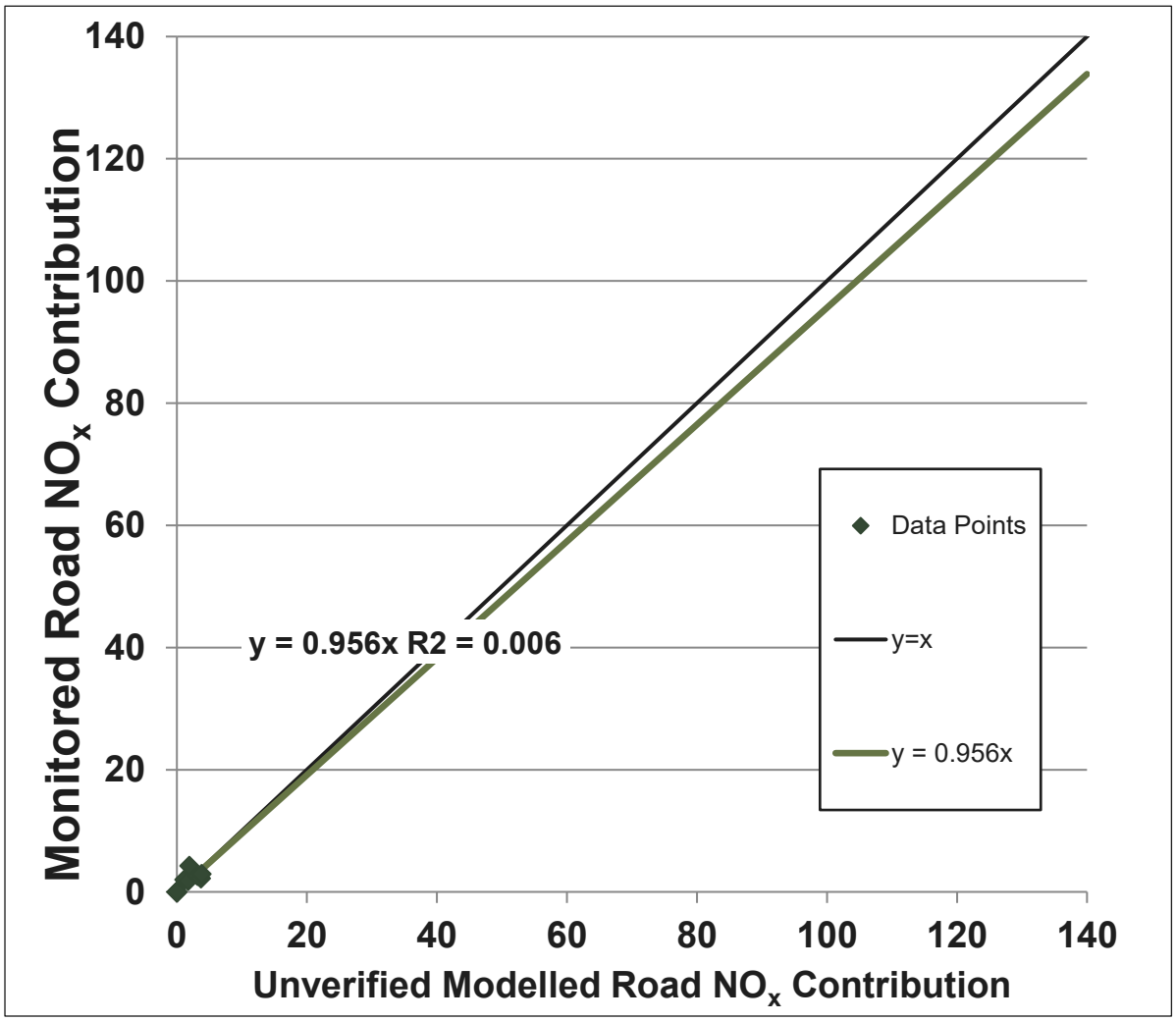

Figure D: Comparison of Modelled vs. Monitored Road-NOx Contribution

LAQM.TG(22) states that:

> *"In order to provide more confidence in the model predictions and the decisions based on these, the majority of results should be within 25% of the monitored concentrations as a minimum, preferably within 10%".*

As shown in Table T, the difference between the adjusted modelled NO_2 and monitored NO_2 is within ±10% at six of the seven locations and therefore within LAQM.TG(22) preferred limit. DT6 is slightly outside of the LAQM.TG(22) preferred limit, but well within the prescribed limit of ±25%.

In addition, a verification factor of 0.956 reduces the Root Mean Square Error (RMSE) from a value of 0.591µg/m^3 to 0.586µg/m^3 (i.e. 1.47% of the annual mean NO_2 AQAL), well within the preferred LAQM.TG(22) preferred limit of 10%.

However, the application of a verification factor of less than 1.000 ultimately reduces the absolute modelled concentrations. Therefore, to provide a robust assessment of pollutant concentrations at sensitive receptors, the applied verification factor has been increased to 1.000.

On this basis, the applied verification factor (1.000) was considered acceptable and was subsequently applied to all road-NOx concentrations predicted (as output of the ADMS Roads dispersion model).

B.1.2 PM_{10} / $PM_{2.5}$ Verification

The adjustment factor of 1.000 was also applied to road-PM_{10} and $PM_{2.5}$ concentrations (as output of the ADMS-Roads dispersion model), following the recommendations of LAQM.TG(22), in the absence of local particulate monitoring.

Appendix C Site-Specific Baseline NO_2 Monitoring

Land North of Rectory Lane, Ashington

Air Quality Assessment

Taylor Wimpey Strategic Land (a division of Taylor Wimpey UK Ltd)

SLR Project No.: 402.065738.00001

20 October 2026

C.1 Site-Specific Baseline NO_2 Monitoring

Baseline NO_2 monitoring was completed at roadside locations within immediacy to the Site, to support the verification of the road traffic emissions dispersion modelling assessment.

As per LAQM.TG(22) guidance, NO_2 concentrations alone can be used to verify road-traffic related pollutants. As such, monitoring of NO_2 has solely been undertaken using passive diffusion tubes

C.1.1 Monitoring Methodology

The baseline monitoring survey and ratification of results has been undertaken in accordance with guidance published by AEA Energy and Environment[17], the Defra LAQM web pages[37] and LAQM.TG(22)[20].

Site-specific monitoring of ambient NO_2 concentrations was undertaken using passive diffusion tubes over a 3-month period. All diffusion tubes used for the purposes of the monitoring survey were prepared using 20% triethanolamine (TEA) absorbent in water, with NO_2 concentrations determined through spectrophotometrical analysis.

Diffusion tubes were supplied and analysed by Gradko International, which participates in the National Diffusion Tube Inter-laboratory scheme. As per this scheme, Gradko International is subject to an independent analytic performance test on a quarterly basis, titled AIR-PT, where a series of diffusion tubes are circulated to the relevant laboratories with a known nitrate amount for testing within agreed analytical ranges. Based upon the most recent reported AIR-PT scheme data[38] covering the period February 2024 to February 2026, Gradko International were deemed to be 'satisfactory' (where results are binary as either 'satisfactory' or 'unsatisfactory'). In addition, Gradko International is a UKAS accredited laboratory, which ensures conformance with the requirements of ISO/IEC 17025.

C.1.2 Monitoring Programme

The NO_2 monitoring programme has been undertaken following Defra's National Diffusion Tube Monitoring Network Calendar[39]. Monitoring was undertaken between 7th January 2026 to 1st April 2026, relating to three discrete exposure periods, as detailed in Table U.

Table U: Diffusion Tube Exposure Dates

Monitoring Period	Monitoring Period – Start Date	Monitoring Period – End Date
January 2026	07/01/2026	04/02/2026
February 2026	04/02/2026	05/03/2026
March 2026	05/03/2026	01/04/2026

C.1.3 Monitoring Site Selection

Site selection for the diffusion tube monitoring locations targeted roadside locations surrounding the Site. Early discussion was undertaken with C&A, Transport Consultant to the Applicant, to understand the Proposed Development's trip assignment / distribution to inform the future road traffic emissions dispersion modelling assessment. As such, the use of the immediate area surrounding the Site as the principal monitoring study area is

[37] Defra, Diffusion Tubes. Available at: https://laqm.defra.gov.uk/diffusion-tubes/diffusion-tubes.html.

[38] Summary of Laboratory Performance in AIR NO_2 Proficiency Testing Scheme (February 2024 – February 2026). Available at: https://laqm.defra.gov.uk/wp-content/uploads/2026/03/AIR-PT-Rounds-62-to-74-February-2024-February-2026.pdf

[39] Defra, NO_2 Diffusion Tube Monitoring Calendar. Available at: https://laqm.defra.gov.uk/air-quality/air-quality-assessment/diffusion-tube-monitoring-calendar/.

anticipated to improve the representativeness and certainty of the applied verification factor as part of the dispersion modelling.

Monitoring sites were selected in accordance with the methodology outlined within established guidance and are as presented in Table V and illustrated in Figure B.

Diffusion tubes were deployed as duplicates in order to increase the confidence of concentrations reported.

Table V: Diffusion Tube Monitoring: Details

Site ID	Location Description	LAQM Site Type	NGR (m)		Height Above Ground Level (m)
			X	Y	
DT1	Adjacent to Rectory Lane, west of Blakiston Close	Kerbside [34]	512804	116445	2.2
DT2	Adjacent to Rectory Lane, outside of Chanctonbury Play School	Roadside [33]	512964	116404	2.3
DT3	Adjacent to Rectory Lane, between Windmill Close and London Road	Roadside [33]	513166	116377	2.3
DT4	Adjacent to London Road, between Alicia Avenue and Greenacres	Roadside [33]	513257	116477	2.4
DT5	Adjacent to London Road, outside of Co-op Food	Roadside [33]	513230	116022	2.3
DT6	Adjacent to London Road, outside of Ashington Parmacy	Roadside [33]	513204	115751	2.4
DT7	Adjacent to Billingshurst Road, approx. 170m north of the Billingshurst Road / London Road roundabout	Roadside [33]	513241	116786	2.4
DT8	Adjacent to Billingshurst Road, outside of The Sussex Equine Hospital	Roadside [33]	513021	117529	2.0

C.1.4 Raw Monitored Concentrations

Table W presents a summary of raw monthly / period mean monitoring results from the average of the duplicate diffusion tubes.

Reference should be made to Figure E for a graphical illustration of the monthly mean variation in monitored NO_2 concentrations, based upon a numerical average of the duplicate exposures at each monitoring location.

Table W: Raw NO_2 Monitoring Results

Site ID	Raw NO_2 Concentration (µg/m^3)			
	January 2026	February 2026	March 2026	Period Mean
DT1	9.5	8.5	8.1	8.7
DT2	12.9	10.7	9.9	11.2
DT3	13.3	12.6	11.9	12.6
DT4	14.4	13.6	11.5	13.2
DT5	13.4	13.7	13.7	13.6
DT6	14.4	13.5	13.2	13.7
DT7	14.0	13.2	11.5	12.9
DT8	13.1	10.7	12.1	12.0

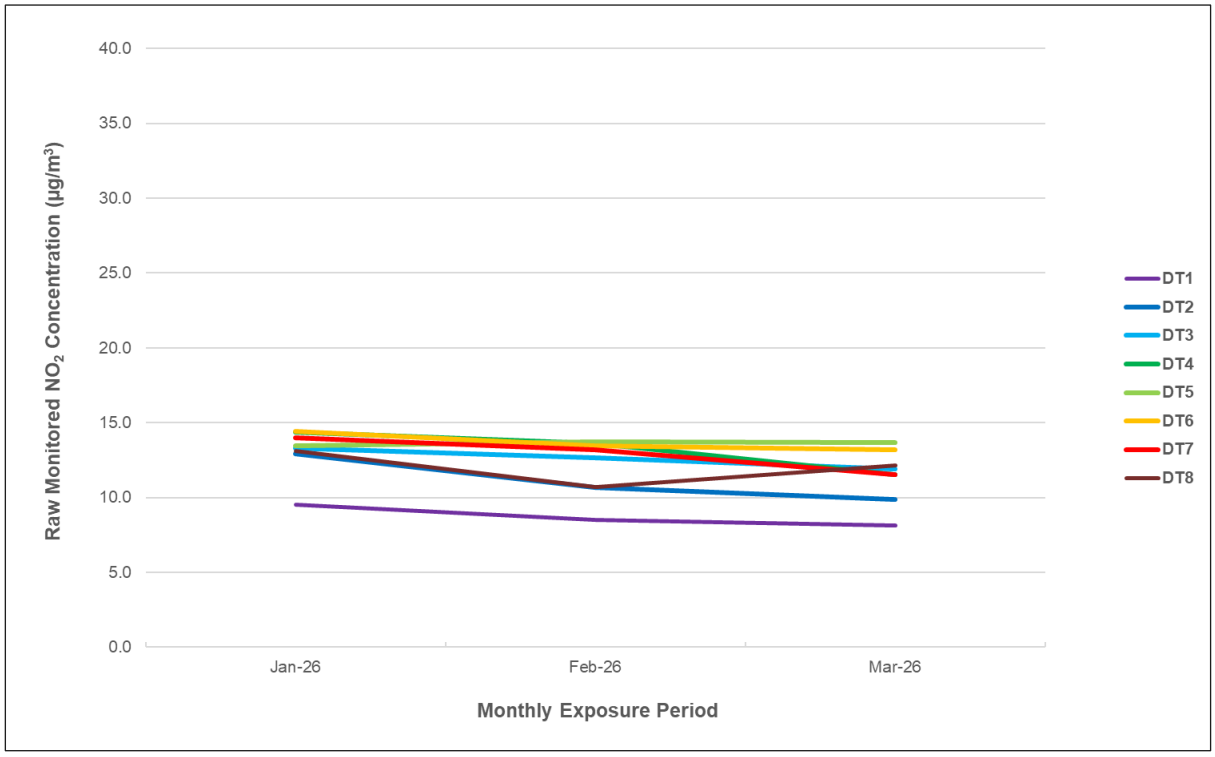

Figure E: Raw Monitored NO_2 Concentrations – Monthly Exposure

C.1.5 Diffusion Tube Precision

LAQM.TG(22) requires 'precision' to be calculated whilst monitoring via diffusion tubes. Precision is an indication of how similar the results of the duplicate tubes are to each other. A tool has been prepared by Defra for the calculation of precision[40], for the purposes of identifying a suitable local bias adjustment factor.

The results of the precision analysis are presented in Figure F to Figure M and calculate a 'good' overall precision over each discrete exposure period of monitoring.

It is noted that collocation with an automatic / continuous monitor was not possible and therefore the 'accuracy' of the diffusion tube dataset cannot be determined.

Adjustment of DUPLICATE or TRIPLICATE Tubes AEA Energy & Environment From the AEA group

Diffusion Tubes Measurements										Data Quality Check
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 μgm^{-3}	Tube 2 μgm^{-3}	Tube 3 μgm^{-3}	Triplicate Average	Standard Deviation	CV	95% CI mean	Diffusion Tubes Precision Check
1	07/01/2026	04/02/2026	10.0	9.1		9.5	0.61	6.37	5.46	Good
2	04/02/2026	05/03/2026	8.0	9.0		8.5	0.75	8.81	6.73	Good
3	05/03/2026	01/04/2026	7.9	8.4		8.1	0.38	4.70	3.43	Good
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Site Name/ ID:	DT1

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Figure F: Diffusion Tube Monitoring Location DT1 – Precision Analysis

[40] Defra, Precision and Accuracy. Available at: https://laqm.defra.gov.uk/air-quality/air-quality-assessment/precision-and-accuracy/.

Adjustment of DUPLICATE or TRIPLICATE Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements										Data Quality Check
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 μgm^{-3}	Tube 2 μgm^{-3}	Tube 3 μgm^{-3}	Triplicate Average	Standard Deviation	CV	95% CI mean	Diffusion Tubes Precision Check
1	07/01/2026	04/02/2026	13.1	12.7		12.9	0.29	2.24	2.60	Good
2	04/02/2026	05/03/2026	11.1	10.3		10.7	0.52	4.89	4.70	Good
3	05/03/2026	01/04/2026	10.4	9.4		9.9	0.71	7.16	6.35	Good
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Site Name/ ID:	DT2

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Figure G: Diffusion Tube Monitoring Location DT2 – Precision Analysis

Adjustment of DUPLICATE or TRIPLICATE Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements										Data Quality Check
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 μgm^{-3}	Tube 2 μgm^{-3}	Tube 3 μgm^{-3}	Triplicate Average	Standard Deviation	CV	95% CI mean	Diffusion Tubes Precision Check
1	07/01/2026	04/02/2026	13.6	13.0		13.3	0.40	3.03	3.62	Good
2	04/02/2026	05/03/2026	12.0	13.3		12.6	0.87	6.88	7.81	Good
3	05/03/2026	01/04/2026	11.9	11.9		11.9	0.00	0.00	0.00	Good
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Site Name/ ID:	DT3

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Figure H: Diffusion Tube Monitoring Location DT3 – Precision Analysis

Adjustment of DUPLICATE or TRIPLICATE Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements										Data Quality Check
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 μgm^{-3}	Tube 2 μgm^{-3}	Tube 3 μgm^{-3}	Triplicate Average	Standard Deviation	CV	95% CI mean	Diffusion Tubes Precision Check
1	07/01/2026	04/02/2026	14.2	14.5		14.4	0.24	1.67	2.16	Good
2	04/02/2026	05/03/2026	13.3	13.9		13.6	0.43	3.17	3.88	Good
3	05/03/2026	01/04/2026	11.9	11.2		11.5	0.49	4.29	4.45	Good
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Site Name/ ID:	DT4

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Figure I: Diffusion Tube Monitoring Location DT4 – Precision Analysis

Adjustment of DUPLICATE or TRIPLICATE Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements										Data Quality Check
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 μgm^{-3}	Tube 2 μgm^{-3}	Tube 3 μgm^{-3}	Triplicate Average	Standard Deviation	CV	95% CI mean	Diffusion Tubes Precision Check
1	07/01/2026	04/02/2026	13.5	13.4		13.5	0.01	0.11	0.13	Good
2	04/02/2026	05/03/2026	12.8	14.7		13.7	1.34	9.79	12.07	Good
3	05/03/2026	01/04/2026	13.5	13.8		13.7	0.23	1.65	2.03	Good
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Site Name/ ID:	DT5

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Figure J: Diffusion Tube Monitoring Location DT5 – Precision Analysis

Adjustment of DUPLICATE or TRIPLICATE Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements										Data Quality Check
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 μgm^{-3}	Tube 2 μgm^{-3}	Tube 3 μgm^{-3}	Triplicate Average	Standard Deviation	CV	95% CI mean	Diffusion Tubes Precision Check
1	07/01/2026	04/02/2026	15.1	13.7		14.4	0.99	6.86	8.89	Good
2	04/02/2026	05/03/2026	13.5	13.4		13.5	0.04	0.32	0.38	Good
3	05/03/2026	01/04/2026	12.7	13.7		13.2	0.68	5.15	6.10	Good
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Site Name/ ID:	DT6

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Figure K: Diffusion Tube Monitoring Location DT6 – Precision Analysis

Adjustment of DUPLICATE or TRIPLICATE Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements										Data Quality Check
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 μgm^{-3}	Tube 2 μgm^{-3}	Tube 3 μgm^{-3}	Triplicate Average	Standard Deviation	CV	95% CI mean	Diffusion Tubes Precision Check
1	07/01/2026	04/02/2026	13.8	14.1		14.0	0.23	1.62	2.03	Good
2	04/02/2026	05/03/2026	13.6	12.7		13.2	0.62	4.67	5.53	Good
3	05/03/2026	01/04/2026	11.3	11.7		11.5	0.28	2.46	2.54	Good
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Site Name/ ID:	DT7

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Figure L: Diffusion Tube Monitoring Location DT7 – Precision Analysis

Adjustment of DUPLICATE or TRIPLICATE Tubes AEA Energy & Environment From the AEA group

Diffusion Tubes Measurements										Data Quality Check
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 μgm^{-3}	Tube 2 μgm^{-3}	Tube 3 μgm^{-3}	Triplicate Average	Standard Deviation	CV	95% CI mean	Diffusion Tubes Precision Check
1	07/01/2026	04/02/2026	13.1	13.1		13.1	0.01	0.11	0.13	Good
2	04/02/2026	05/03/2026	10.8	10.5		10.7	0.23	2.12	2.03	Good
3	05/03/2026	01/04/2026	12.0	12.3		12.1	0.16	1.34	1.46	Good
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Site Name/ ID:	DT8

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Figure M: Diffusion Tube Monitoring Location DT8 – Precision Analysis

C.1.6 Monitoring Data Year Adjustment

LAQM.TG(22) provides a methodology for processing short-term diffusion tube monitoring data where data capture is less than 75% of the calendar year. Where a diffusion tube monitoring survey has been completed in the present year (2026, at the time of writing), data adjustment to the previous year (2025, the baseline year) is required to aid the derivation of an annual mean concentration (annualisation).

As part of this methodology, for roadside sites, national roadside NO_2 projection factors should be applied to the monitoring data to compensate for the general trend of decreasing concentrations in future years. As such, in line with LAQM.TG(22), 2026 monitoring data were adjusted to 2025 using the 2021-reference roadside NO_2 projection factors[41] (i.e. ratio of 2025/2026 roadside projection factors).

The roadside NO_2 projection factors are location and fleet-composition specific. Appropriate factors for 'Rest of UK (HDV<10%) have been applied based upon the Site locale and traffic data received from C&A (see Appendix A). A factor of 1.059 has been derived.

Derivation of the roadside adjustment factors and calculated ratio used are presented in Table X.

Table X: Defra Roadside NO_2 Projection Factors

Year	Defra's Roadside NO_2 Projection Factors (Rest of UK (HDV <10%))
2025	0.828
2026	0.782
Ratio 2025/2026	1.059
Applicable to which monitors	All

[41] Defra, Roadside NO_2 Projection Factors (2021-reference). Available at: https://laqm.defra.gov.uk/air-quality/air-quality-assessment/roadside-no2-projection-factors/.

C.1.7 Annualisation

As the period means presented in Table W relate to 3-months of monitoring, data has been annualised in accordance with LAQM.TG(22) in order to derive an annual mean estimate. The approach is based on the principle that regional patterns in ambient pollutant concentrations are usually consistent and therefore considers the relationship between period means and annual means at background monitoring stations in the same region as the site of interest. The use of background sites ensures localised influences are minimised and are not inherently applied when adjustment is made.

Data was collated from the UK Automatic Urban and Rural Network (AURN), which is a countrywide network of air quality monitoring stations operated on behalf of the Defra, used primarily in support of the UK's national compliance reporting against EU directives. Monitoring data for AURN sites is publicly available via the UK Air Information Resource (AIR) website[42].

As per the requirements of LAQM.TG(22), only those 'background' AURN monitoring sites (of either 'suburban', 'urban' or 'rural' classification) with a minimum data capture of 85% and within 50 miles have been considered as part of this calculation. Following a review of suitable AURN monitors relative to the deployed monitoring locations, four AURN monitors with 'rural'[43] and 'urban background'[28] classification were selected.

Table Y presents the Annual:Period mean ratio factor calculated in accordance with LAQM.TG(22).

Table Y: Annual:Period Mean Adjustment Calculation

Background AURN Monitor	2025 Data Capture %	2025 NO_2 Annual Mean Concentration ($\mu g/m^3$) (A)	NO_2 Period Mean Concentration ($\mu g/m^3$) (B)	Annual:Period Mean Ratio
Brighton Preston Park (Urban Background)	99.1	15.4	18.9	0.81
Chilbolton Observatory (Rural)	96.4	13.9	19.3	0.72
Lullington Heath (Rural)	93.6	22.5	26.8	0.84
Portsmouth (Urban Background)	94.9	12.5	18.4	0.68
Average Ratio				0.76

Notes:

(A) The annual mean NO_2 concentrations were calculated using the 2025 calendar year (i.e. 01/01/2025 to 31/12/2025) – in accordance with LAQM.TG(22).

(B) The period mean NO_2 concentrations were calculated using the diffusion tube exposure start and end dates shown in Table U (i.e. 07/01/2026 – 01/04/2026).

As presented within Table Y, an average ratio factor (Ra) of 0.76 has been calculated, in order to derive an annual mean estimate. It is noted that all considered AURN monitors

[42] Defra, UK Air Information Resource (UK-AIR). Available at: http://uk-air.defra.gov.uk/.

[43] 'Rural' site defined by LAQM.TG(22) as: "*An open countryside location, in an area of low population density distanced as far as possible from roads, populated and industrial areas*".

report an Annual:Period mean ratio of <1 (i.e. period mean concentrations are higher than annual mean concentrations).

C.1.8 Bias Correction

Due to the inherent bias associated with passive diffusion tubes when used for the purposes of monitoring NO_2 concentrations, it is necessary to apply an adjustment factor to derive a corrected concentration. This is typically achieved by calculating the deviation in diffusion tube monitored concentrations relative to a co-located continuous monitor, with the latter monitoring method employing a greater level of quality assurance, quality control and overall confidence.

Bias adjustment can either be undertaken using a locally derived bias adjustment factor (i.e. a locally operated co-location study), or use of a national adjustment factor specific to the monitoring period, laboratory and preparation method employed (i.e. a repository of returned local bias adjustment factors from around the UK derived using orthogonal regression).

As per Defra's latest National Bias Adjustment Spreadsheet[44], a bias adjustment of 0.89 for the year 2025 (based on 28no. studies), supplied by Gradko International utilising the 20% TEA absorbent in water preparation method, has been derived.

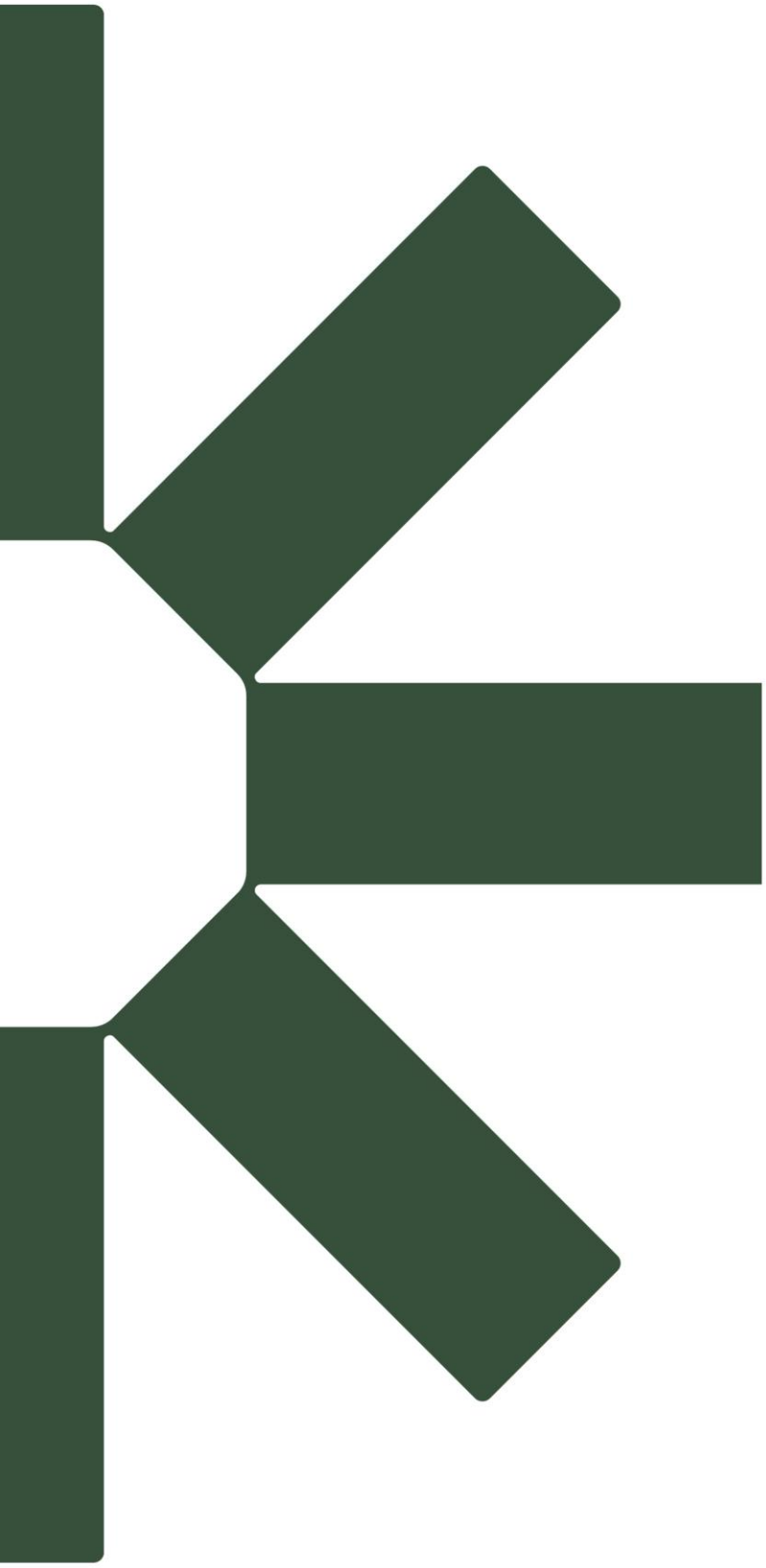
C.1.9 Monitoring Summary

The adjusted NO_2 monitoring concentrations are summarised in Table Z.

Table Z: Adjustment of NO_2 Monitoring Data: Summary

Site ID	Raw NO_2 Period Mean Concentration ($\mu g/m^3$)	2025/2026 Roadside NO_2 Projection Factor	Annualisation Factor	National Bias Adjustment Factor	2025 Annual Mean NO_2 Concentration ($\mu g/m^3$)	Percentage of Annual Mean AQAL (%)
DT1	8.7	1.059	0.76	0.89	6.3	15.7
DT2	11.2				8.0	20.1
DT3	12.6				9.1	22.7
DT4	13.2				9.5	23.7
DT5	13.6				9.8	24.5
DT6	13.7				9.8	24.6
DT7	12.9				9.3	23.2
DT8	12.0				8.6	21.5

[44] Defra, Diffusion Tube Bias Adjustment Factor Spreadsheet v03/26. Available at: https://laqm.defra.gov.uk/air-quality/air-quality-assessment/national-bias/.



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