

Forest Farm, Chippenham

Environmental Statement

July 2026

Technical appendix C:
Air quality



Forest Farm, Chippenham

Air Quality Assessment

Date: 17 July 2026

Client: Gleeson Land
Sentinel House
Harvest Cres,
Fleet
GU5 12UZ

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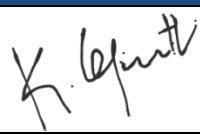
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1	18 February 2025	Revised following comments from EIA team. Changes have included reducing the number of data sets shown in the main text, to those most relevant to the site, changes to the construction dust risk assessment following more information and some minor corrections and typos.
2	28 April 2026	Updated to align with revised drawings.
3	2 July 2026	Updated to align with revised drawings, adjusted ADMS model based upon revised scheme and traffic data
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For Information

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1.0 INTRODUCTION

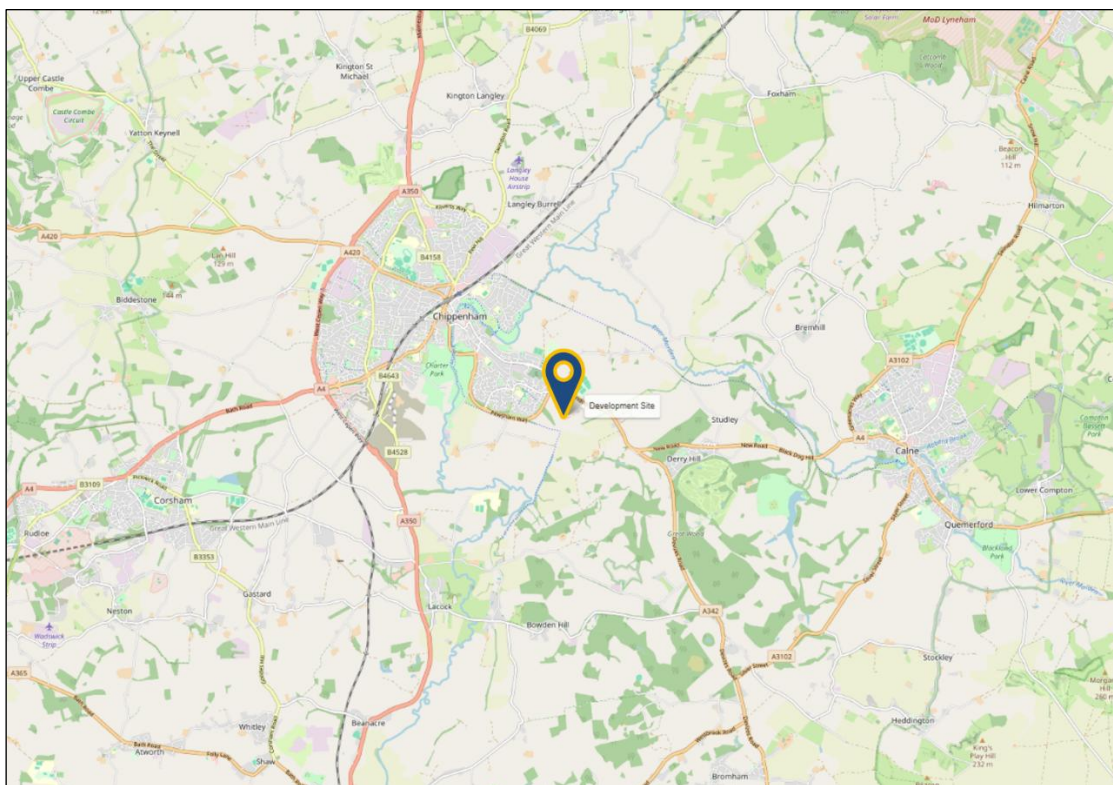
- 1.1 Quantum Acoustics trading as Quantum Air has been commissioned by Gleeson Land to prepare this Air Quality Assessment to support an *outline planning application with all matters reserved except access from the A4/London Road for up to 600 dwellings, together with land for a local centre (Use Classes E and F), areas of open space and landscaping, associated infrastructure.*
- 1.2 When considering the potential air quality impacts in relation to such development, there are four fundamental air quality considerations:
- First, the significance of existing, baseline levels of pollutants and whether existing pollutant concentrations pose a health risk for or nuisance to existing and future receptors.
 - Second, the potential significance of pollutants arising during the construction stage of the development and whether pollutant emissions will have health impacts or create nuisance for existing receptors (and future receptors, should these come into being during the proposed construction programme);
 - Third, the potential significance of pollutants arising during the operational stage of the development, including pollution associated with additional traffic that may be generated by the development and emissions associated with the building services such as heating and;
 - Fourth, the potential significance of pollutants during the construction and operational phases of the development in the context of any neighboring protected habitats / sites.
- 1.3 This report therefore presents a review of existing baseline pollutant concentrations at the site and construction, transport and any other operational emissions to determine whether this raises any health concerns in the context of air quality objectives for England.
- 1.4 This report is structured as follows:
- **Section 2** describes the location of the site;
 - **Section 3** presents the development proposals for the site;
 - **Section 4** provides a commentary on air quality related legislation, governmental and regional air quality strategies and policies and national and local planning guidance;
 - **Section 5** reviews background concentrations of pollutants;
 - **Section 6** assesses the significance of pollutants based on Air Quality Objectives for England;
 - **Section 7** assesses the construction dust and its mitigation;

- **Section 8** assesses the transport emissions due to the proposed development site;
- **Section 9** assesses the operational impacts at the proposed development site;
- Conclusions are presented in **Section 10**.

2.0 SITE DESCRIPTION

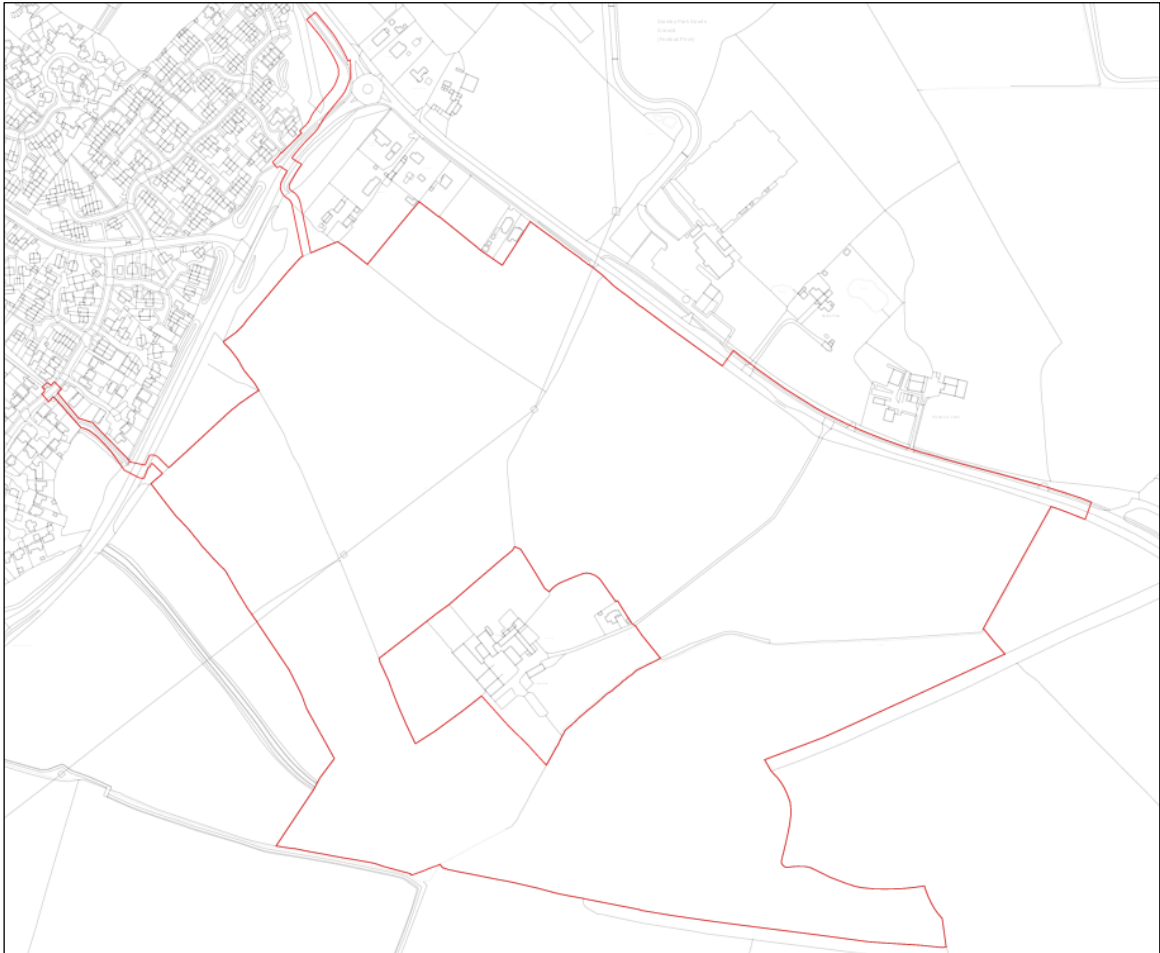
- 2.1 The 38.9 ha site lies on the southeastern edge of Chippenham (figure 1), to the southwest of the A4 London Road, and comprises seven grassland fields associated with Forest Farm.
- 2.2 The site slopes gently from approximately 65 m above Ordnance datum (AOD) in the north to around 55 m AOD in the south.

Site Location Plan (© OpenStreetMap Contributors,2024)



- 2.3 The farm buildings and fields immediately surrounding them in the south of the site are excluded from the planning application boundary. An access track to the farm buildings runs across the site from the A4 London Road.
- 2.4 The site is bordered to the north by several dwellings and to the northeast by the A4 London Road, beyond which lie Wedmore Farm, Stanley Park sports ground and more fields. An area of grassland and trees lies to the northwest of the site, beyond which are the A4 Pewsham Way and the residential area of Pewsham. An area of woodland lies to the west of the site, while to the south and southeast there are more fields.

Red Line Boundary of Application Area (tor&co drawing ref. TOR-PP-001A)



3.0 PROPOSED DEVELOPMENT

- 3.1 The proposed development will comprise of outline planning application with all matters reserved except access from the A4/London Road for up to 600 dwellings, together with land for a local centre (Use Classes E and F), areas of open space and landscaping, associated infrastructure.
- 3.2 Wiltshire Council submitted a draft Local Plan for examination in November 2024. Following examination hearings in 2025, the Inspectors raised fundamental concerns regarding the soundness of the plan, including in relation to insufficient housing allocations, uncertainty over the deliverability of the plan's major housing proposals, and the risk that the plan would become out of date shortly after adoption.
- 3.3 Following further discussions, the draft Local Plan was withdrawn at Full Council on 19 May 2026.
- 3.4 Notwithstanding its withdrawal, the draft plan previously identified the Application Site as forming part of the South Chippenham allocation (Policy 7), which proposed a mixed-use development comprising approximately 2,520 dwellings, approximately 15ha of employment land, a district and local centre, education provision, and a transport corridor linking the A4 and the A350 (the Southern Distributor Road).
- 3.5 The withdrawal of the draft Local Plan was not attributable to any specific concerns relating to Policy 7 but instead reflected wider issues concerning the overall soundness and deliverability of the plan as a whole. The initial feasibility and technical work undertaken by the Council and the landowners confirm both the need, availability, and general acceptability of development at Forest Farm and the wider site for a mixed-use development.
- 3.6 This outline planning application has been prepared to bring forward development on this part of the site, previously identified and assessed by Wiltshire Council in the withdrawn Local Plan Review as suitable for housing-led development.
- 3.7 Land has been safeguarded within the Application Site to accommodate a section of the potential Southern Distributor Road. The safeguarded corridor has been retained to ensure that the proposed development would not prejudice its future provision.

3.8 The Parameter Plan Land Use and Landscape is shown below:

Proposed Parameter Plan (tor&co drawing TOR-PP-002-C)



3.10 The proposed Illustrative Masterplan is shown below:

Illustrative Masterplan (tor&co drawing TOR-SK009-C)



- 3.11 The existing hedgerows and trees on the site will be retained where practicable and new areas of informal public open space will be created, including children's play areas. Appropriate easements will be retained for the fuel pipeline and the overhead power lines. Sustainable drainage systems (SUDs), including attenuation basins and swales, will be used to manage surface water runoff.
- 3.12 An Energy & Sustainability Statement has been prepared for the proposed development, outlining principles for a sustainable, low-carbon community. It includes highly energy-efficient, zero-carbon-ready buildings with a 'fabric first' approach, no natural gas connection, and potential for a community energy hub with heat pumps and photovoltaic panels. The plan supports low-carbon transport by reducing the need for travel through high-quality broadband, promoting sustainable transport options, and providing extensive EV charging infrastructure. Climate resilience is addressed through passive cooling strategies—such as shading, natural ventilation, high-performance insulation, and building orientation—along with open spaces and Sustainable Urban Drainage Systems (SuDS) to reduce flood risk, enhance biodiversity, and improve water quality. Water efficiency measures aim for a 30% reduction in potable water use, while sustainable materials and waste management align with the Waste Hierarchy. Complying with national and local policies, including the Wiltshire Core Strategy and Chippenham Neighbourhood Plan, the development is designed for long-term sustainability and climate adaptation.

4.0 LEGISLATION AND PLANNING POLICY CONTEXT

Legislation

The Environment Act 1995

- 4.1 Part IV of the Environment Act 1995 (as amended) requires the UK Government to publish an “*Air Quality Strategy*” (AQS) every five years. The AQS is required to set out air quality standards, objectives and measures for improving ambient air quality within the UK. In addition to the protection of human health, the AQS must also set standards and objectives for the protection of vegetation and ecosystems.
- 4.2 The Act also sets out requirements for the Local Air Quality Management (LAQM) regime, which imposes duties on Local Authorities to regularly review and assess air quality within its area.

The Air Quality (England) Regulations 2000 (as amended)

- 4.3 The Air Quality (England) Regulations 2000 set out quantitative Air Quality Objectives (AQO's) for England. Pollutants covered include benzene, 1,3-butadiene, carbon monoxide, lead, nitrogen dioxide particulate matter (PM10) and sulphur dioxide.
- 4.4 The Air Quality (England) (Amendment) Regulations 2002 introduced amended AQO's for benzene and carbon monoxide.
- 4.5 All Air Quality Objectives (AQO's) objectives include compliance dates, taking account of the economic considerations, practicability and technical feasibility of their delivery.
- 4.6 AQO's apply at locations where members of the public are regularly present. Where any of the prescribed AQO's are not likely to be achieved within any part of a Local Authority's area, the authority concerned must designate that part of its area as an “Air Quality Management Area” (AQMA). An action plan covering the designated area will then have to be prepared setting out how the authority intends to exercise its powers in relation to the designated area in pursuit of the achievement of the prescribed AQO's.

Air Quality Standards Regulations (2010) (as amended)

- 4.7 The Air Quality Standards Regulations 2010 transpose AQO's defined in EU Ambient Air Quality Directive (2008/50/EC) and the Fourth Daughter Directive (2004/107/EC) into UK legislation.
- 4.8 The Air Quality Standards (Amendment) Regulations 2016 amend the 2010 Regulations, including updated definitions for Directive 2008/50/EC and Directive 2004/107/EC: adjustments to the criteria for the location and operation of air quality monitoring stations and new requirements for documents and reviewing the selection of monitoring sites.

Conservation of Habitats and Species Regulations 2017 (as amended)

- 4.9 The Conservation of Habitats and Species Regulations (as amended) are a key piece of UK Legislation aimed at conserving biodiversity by protecting habitats and species. The Regulations essentially transpose the requirements of EU Wild Birds Directive (2009/147/2009) and EU Habitats Directive (92/43/EEC).
- 4.10 The Regulations require the designation of protected habitats sites, protection of listed species and ensuring that any project that might have a significant adverse effect on a protected site is appropriately assessed and, if required, effects mitigated.
- 4.11 The Regulations were amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 to ensure the continued effectiveness of the 2017 Regulations, but transferring responsibilities previously held by EU Institutions to UK bodies and other legal and practical continuity updates.

The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020

- 4.12 The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020 were introduced to address minor errors and ensure the continued effectiveness of environmental laws in the UK post-Brexit.
- 4.13 The most significant amendment was to the AQO for PM_{2.5}, to ensure that this aligned with the UK's air quality objectives.

Environment Act 2021

- 4.14 The Environment Act 2021 introduces several significant measures aimed at improving air quality management in the UK, including:
- 4.15 The setting of short-term and long-term air quality targets. Of particular note, is a legally binding target for reducing fine particulate matter (PM_{2.5}) in ambient air;
- 4.16 A requirement for the Secretary of State to review the air quality strategy at least every five years and produce an annual report to Parliament on progress towards meeting air quality objectives;
- 4.17 Enhancing the LAQM framework requiring greater cooperation between local authorities and other relevant public bodies to improve air quality;
- A requirement for Local Authorities to declare Air Quality Management Areas (AQMA's) within 12 months of identifying an exceedance of air quality objectives and produce an Air Quality Action Plan within 18 months;

- Amendments to the Clean Air Act 1993 to allow local authorities to impose civil penalties for breaches in smoke control areas, replacing the existing criminal offence. This specifically aims to reduce PM_{2.5} emissions from domestic stoves and fires;
- Creating power for the recall of vehicles and engines that do not meet environmental standards, including air emissions standards; and
- Designating National Highways as a “*Relevant Public Authority*” and creating a legal requirement for it to work with local authorities to meet air quality standards and objectives on road networks.

Environmental Targets (Fine Particulate Matter) (England) Regulations 2023

- 4.18 These Regulations set out specific targets for the reduction of fine particulate matter (PM_{2.5}). Key targets include:
- 4.19 A requirement to reduce the annual mean concentration of PM_{2.5} to 10 µg/m³ nationwide by 2040, with an interim target of 12 µg/m³ to be achieved by January 2028; and
- 4.20 A 35% reduction in average population exposure to PM_{2.5} by 2040, with an interim target of a 22% reduction by January 2028 (both compared to 2018 baseline concentrations).
- 4.21 These new targets have been imposed to drive reductions in the worst PM_{2.5} hotspots across the country, whilst ensuring an overall nationwide improvement in air quality.

Environmental Protection Act 1990

- 4.22 Construction works may give rise to dust emissions, including coarse (PM₁₀) and fine (PM_{2.5}) particular matter. The unreasonable exposure of individuals to dust is a matter that can be directly enforced through the provision of the Environmental Protection Act 1990, where it is held that such emissions constitute a “statutory nuisance”. For the purposes of the regulations, statutory nuisances related to air quality matters include:
- *“...b - smoke emitted from premises so as to be prejudicial to health or a nuisance.*
 - *c - fumes or gases emitted from premises so as to be prejudicial to health or a nuisance.*
 - *d - any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance...”*
- 4.23 Section 79 of the Act requires that, where a complaint regarding air quality matters falling within the remit of the Act is made by a person living within its area, a Local Authority must take reasonably practicable steps to investigate the complaint. There are no numerical thresholds which define “acceptability”, however, where the Local Authority is satisfied that a statutory nuisance exists (or could occur), it is required to service an

“Abatement Notice” under Section 80 of the Act (subject to a period of seven days when alternative steps for the abatement of the nuisance can be explored).

- 4.24 Section 82 of the Act gives an aggrieved individual the power to apply directly to a Magistrates Court to seek an order for the abatement of an alleged nuisance.

Governmental Air Quality Policies and Strategies

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

- 4.25 The Air Quality Plan for Nitrogen Dioxide (NO₂) in the UK outlines the government’s strategy to reduce roadside NO₂ concentrations and meet statutory air quality limits. Key objectives include:

- Reducing NO₂ emissions from vehicles, particularly diesel cars;
- Requiring local authorities to develop and implement measures to achieve compliance with NO₂ limits in the shortest possible time;
- Promotes the adoption of cleaner transport options, such as electric vehicles and public transportation;
- The implementation of enhanced monitoring and reporting mechanisms to track progress and ensure transparency.
- To protect public health, particularly in urban areas where pollution levels are highest.

Clean Air Strategy (2019)

- 4.26 DEFRA published its “Clean Air Strategy” in 2019 to tackle air pollution comprehensively across the UK. Key objectives include:

- Reducing exposure of harmful pollutants, most particularly fine particulate matter (PM_{2.5}) and nitrogen dioxide (NO₂);
- Reducing pollutant emissions from transport, industry, agriculture and domestic heating;
- Promoting the development and adoption of environmentally cleaner technologies and practices to support economic growth;
- Reducing the impact of air pollution on the natural environment, including ecosystems and biodiversity; and
- Improving the monitoring and reporting of air quality to promote transparency and accountability in progress towards cleaner air.

Environment Improvement Plan (2023)

4.27 DEFRA's "*Environmental Improvement Plan (EIP) 2025*" is the revised statutory plan under the Environment Act 2021, replacing the 2023 Environmental Improvement Plan. It builds upon the UK's 25 Year Environment Plan and establishes a strengthened framework for improving England's natural environment through to 2043, with revised interim targets, delivery plans and enhanced monitoring arrangements. The Plan focuses on the following key objectives:

- Restoring nature and halting biodiversity loss through large-scale habitat creation and restoration, species recovery, woodland expansion, peatland restoration, and nature recovery initiatives.
- Improving environmental quality by enhancing air and water quality, reducing pollution, addressing chemicals of concern (including PFAS), improving waste management, and strengthening environmental regulation.
- Supporting a circular economy by improving resource efficiency, reducing waste, increasing recycling, and promoting sustainable production and consumption.
- Strengthening environmental security and climate resilience by improving flood resilience, adapting to climate change, protecting natural resources, and supporting nature-based solutions that contribute to climate mitigation.
- Increasing access to nature and supporting sustainable economic growth by improving public access to green and blue spaces, supporting sustainable farming and land management, creating green jobs, and encouraging investment in natural capital and environmental recovery.

Air Quality Strategy (2023)

4.28 The latest "*Air Quality Strategy*" was published by DEFRA in April 2023. The strategy aims to improve air quality across England by setting out a comprehensive framework for local authorities. Key objectives include:

- Achieving long term air quality goals, including ambitious targets in relation to fine particulate matter (PM_{2.5}).
- Providing guidance and tools to help local council's effectively use their powers to reduce pollution and improve air quality;
- A focus on the reduction of emissions from industrial sources, domestic burning and transportation, including the stricter enforcement of environmental permits and promoting cleaner fuels;
- Promoting training, guidance and knowledge sharing among local authorities to ensure they are equipped to tackle air quality issues.

4.29 As noted earlier, this report seeks to present an air quality assessment for the proposed development. When considering the potential significance of pollution from construction, and construction traffic, the principal

pollutants of concern are nitrogen dioxide (NO₂) and particulate matter of size 10 and 2.5 microns (PM₁₀ and PM_{2.5}). Relevant Air Quality Objectives for these pollutants set out in the AQS are summarised in Table overleaf.

Air Quality Objectives in the UK

Pollutant	Concentration	Measured As	Date to be achieved by (and maintained thereafter)
Nitrogen Dioxide (NO ₂)	200 µg/m ³	1-hour mean not to be exceeded more than 18 times per year	31/12/2005
	40 µg/m ³	Annual mean	31/12/2005
Particles (PM ₁₀)	50 µg/m ³	24-hour mean not to be exceeded more than 35 times per year	31/12/2004
	40 µg/m ³	Annual mean	31/12/2004
Particles (PM _{2.5})	20 µg/m ³	Annual mean	2020
	Target of 15% reduction in concentrations at urban background		Between 2010 and 2020
	12 µg/m ³	Interim annual mean target to be achieved by 2028	2028*
	Target of 22% reduction in average population exposure		
	10 µg/m ³	Legally binding nationwide annual mean target to be achieved by 2040	2040**
	Target of 35% reduction in average population exposure		

*Note: Interim PM_{2.5} targets are to be achieved by 2028.

*Note: Legally binding PM_{2.5} targets are to be achieved by 2040.

National Planning Policy

National Planning Policy Framework

4.30 The latest version of the NPPF was published in December 2024. The overall environmental objective of national planning policy is *"to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."*

4.31 Section 9 promotes sustainable transport. In relation to air quality, paragraph 109 states that:

"Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:...

...

- c) understanding and addressing the potential impacts of development on transport networks;*
- e) identifying and pursuing opportunities to promote walking, cycling and public transport use;*
- f) identifying, assessing and taking into account the environmental impacts of traffic and transport infrastructure – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains..."*

4.32 Additionally, paragraph 110 states:

"The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health..."

4.33 Section 15 'Conserving and enhancing the natural environment' sets out the following policy requirements in relation to air quality:

4.34 Paragraph 187:

"Planning policies and decisions should contribute to and enhance the natural and local environment by:...

...e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans..."

4.35 Paragraph 198:

"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development..."

4.36 Paragraph 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"

4.37 In relation to the decision-making process, paragraph 56 and 57 of the NPPF states:

"Local planning authorities should consider whether otherwise unacceptable development could be made acceptable through the use of conditions or planning obligations. Planning obligations should only be used where it is not possible to address unacceptable impacts through a planning condition. Planning conditions should be kept to a minimum and only imposed where they are necessary, relevant to planning and the development to be permitted, enforceable, precise and reasonable in all other respects...."

[Planning Practice Guidance – Air Quality](#)

4.38 The Planning Practice Guidance (PPG) is used to support the National Planning Policy Framework and is published online. The guidance on air quality was originally published in 2014 and updated in November 2019. The PPG provides various principles on how planning can take account of the impact of new development on air quality. Relevant guidance includes:

4.39 Paragraph 001 Reference ID : 32-001-20191101: sets out what air quality considerations the planning regime need to address. This includes references to relevant legislation, government policy, guidance, datasets and tools which can be utilised when assessing Air Quality.

"What air quality considerations does planning need to address?"

Planning must consider air quality impacts where pollution levels exceed or approach legal limits, ensuring new developments do not worsen air quality. It should account for national emission

reduction commitments, particularly for pollutants like PM_{2.5}, NO_x, and SO₂, which affect public health, biodiversity, and contribute to ozone formation. Local authority air quality assessments and action plans in designated management areas must be considered, along with potential odour and dust effects on local amenity. Additionally, planning should address impacts on nationally and internationally significant habitats, using tools like the Air Pollution Information System and Natural England's 'Impact Risk Zones' to assess risks and determine when consultation with Natural England is required".

4.40 Paragraph 002 Reference ID : 32-002-20191101:

"What is the role of plan-making with regard to air quality?"

It is important to take into account air quality management areas, Clean Air Zones, and other areas including sensitive habitats or designated sites of importance for biodiversity where there could be specific requirements or limitations on new development because of air quality".

4.41 Paragraph 005 Reference ID : 32-005-20191101:

"When could air quality consideration be relevant to the development management process?"

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 plans and/or breach legal obligations (including those relating to the conservation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity.

Where air quality is a relevant consideration the local planning authority may need to establish:

- the 'baseline' local air quality, including what would happen to air quality in the absence of the development;*
- whether the proposed development could significantly change air quality during the construction and operational phases (and the consequences of this for public health and biodiversity); and*

5.1 whether occupiers or users of the development could experience poor living conditions or health due to poor air quality..."

4.42 Paragraph 006 Reference ID : 32-006-20191101:

"What specific issues may need to be considered when assessing air quality impacts?"

Considerations that may be relevant to determining a planning application include whether the development would:

- *Lead to changes (including any potential reductions) in vehicle-related emissions in the immediate vicinity of the proposed development or further afield. This could be through the provision of electric vehicle charging infrastructure; altering the level of traffic congestion; significantly changing traffic volumes, vehicle speeds or both; or significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal involves the development of a bus station, coach or lorry park; could add to turnover in a large car park; or involve construction sites that would generate large Heavy Goods Vehicle flows over a period of a year or more;*
- *Introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; biomass boilers or biomass-fuelled Combined Heat and Power plant; centralised boilers or plant burning other fuels within or close to an air quality management area or introduce relevant combustion within a Smoke Control Area; or extraction systems (including chimneys) which require approval or permits under pollution control legislation;*
- *Expose people to harmful concentrations of air pollutants, including dust. This could be by building new homes, schools, workplaces or other development in places with poor air quality;*
- *Give rise to potentially unacceptable impacts (such as dust) during construction for nearby sensitive locations;*
- *Have a potential adverse effect on biodiversity, especially where it would affect sites designated for their biodiversity value."*

4.43 Paragraph 007 Reference ID : 32-007-20191101:

"How detailed does an air quality assessment need to be?"

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)...".

4.44 Paragraph 008 Reference ID : 32-008-20191101:

"How can an impact on air quality be mitigated?"

"Mitigation option will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact. It is important that local planning authorities work with the applicants to consider appropriate mitigation so as to ensure new development is appropriate for its location and unacceptable risks are prevented..."

Air Quality Strategy for Wiltshire

4.45 The Air Quality Strategy for Wiltshire was published in 2019 (Wiltshire Council, 2019), superseding the former strategy from 2015 (Wiltshire Council, 2011), and provides four strategic priorities with regard to Air Quality in the county:

- To secure the air quality objectives in the AQMAs,
- To maintain good air quality across the rest of the county,
- To lead by example through Wiltshire Council's own actions and,
- To communicate and disseminate information to residents and other stakeholders.

4.46 The Wiltshire Core Strategy, adopted in January 2015 (Wiltshire Council, 2015), included both a general policy regarding air quality and specific policies regarding housing growth and job creation across the county. Core Policy 55 provides the overarching information on air quality, which states:

Core policy 55

“Development proposals, which by virtue of their scale, nature or location are likely to exacerbate existing areas of poor air quality, will need to demonstrate that measures can be taken to effectively mitigate emission levels in order to protect public health, environmental quality and amenity. Mitigation measures should demonstrate how they will make a positive contribution to the aims of the Air Quality Strategy for Wiltshire and where relevant, the Wiltshire Air Quality Action Plan. Mitigation may include:

- i. landscaping, bunding or separation to increase distance from highways and junctions;*
- ii. possible traffic management or highway improvements to be agreed with the local authority;*
- iii. abatement technology and incorporating site layout/separation and other conditions in site planning;*
- iv. traffic routing, site management, site layout and phasing; and*
- v. where appropriate, contributions will be sought toward the mitigation of the impact a development may have on levels of air pollutants.”*

4.47 The Core Strategy was influenced by the third Local Transport Plan (LTP3) (Wiltshire Council, 2011), the strategic objectives of which include:

- SO2: to provide, Support and/or promote a choice of sustainable transport alternatives including walking, cycling, buses, and rail.
- SO3: To reduce the impact of traffic on people's quality of life and Wiltshire's built and natural environment.
- SO11: To reduce the level of air pollutant and climate change emissions from transport.
- SO13: to reduce the need to travel, particularly by private car.
- SO14: To promote travel modes that are beneficial to health.

Air Quality Action Plan for Wiltshire

- 4.48 The Air Quality Action Plan (AQAP) (Wiltshire AQAP, 2024) has been developed by the local authority in recognition of the legal requirement to work towards National Air Quality Strategy (NAQS) objectives under Part IV of the Environment Act 1995 (UK Legislation, 1995), as amended by the Environment Act 2021 (UK Legislation, 2021); to meet relevant regulations made under that Act, and to meet the requirements of the Local Air Quality Management (LAQM) statutory process.
- 4.49 Air quality in Wiltshire is predominantly very good with the majority of the county having clean air compliant with the Air Quality Objectives (AQOs). However, some locations with the combination of traffic volume, road layout and topography have resulted in pollutants being trapped allowing concentrations to increase to unacceptable levels, following the declaration of Wiltshire council's AQMAs. There are 8 AQMAs in total and working towards compliance with air quality objectives.
- 4.50 The council's AQAP aims to restate and increase the commitment, to achieve compliance with air quality standards, and work towards continual improvement in the city's air quality over the next 5 years.
- 4.51 The AQAP is updated regularly to ensure it remains up to date and in line with the Council's priorities.
- 4.52 Progress on the measures presented in action plans and monitoring data is reported on yearly through Annual Status Reports.

Non-Regulatory Thresholds

- 4.53 The World Health Organization (WHO) released its "*Air Quality Guidelines Global Update*" in 2005, which was published in 2006. The update included "*Air Quality Guidelines*" (AQG's) to reduce public health impacts from the adverse effects of air pollution including health impacts such as respiratory and cardiovascular diseases and premature death.

- 4.54 The guidelines were updated in 2021, in response to more recent epidemiological studies which indicate adverse effects at lower levels than had previously observed. In recognition of the difficulty of meeting the AQGs in many jurisdictions, the WHO guidance also proposed a series of Interim Targets (IT's) which represent steps towards achieving the AQG's.

4.55 The AQG's are set out in the table below.

WHO Guidelines and Interim Targets

Pollutant	Time Period	Interim Target Level, $\mu\text{g}/\text{m}^3$				Air Quality Guideline Level, $\mu\text{g}/\text{m}^3$
		1	2	3	4	
Nitrogen Dioxide NO_2	1-hour mean	-	-	-	-	200
	24-hour mean	120	50	-	-	25
	Annual mean	40	30	20	-	10
Particulate Matter PM_{10}	24-hour mean	150	100	75	50	45
	Annual mean	70	50	30	20	15
Particulate Matter $\text{PM}_{2.5}$	24-hour mean	75	50	37.5	25	15
	Annual mean	35	25	15	10	5

4.56 It is important to note that the AQG's and IT's do not represent legally binding values for England. The legal requirements for the UK are set out in relevant legislation and accompanying governmental Air Quality Strategy. The WHO values do have provide aspirational non-statutory benchmark reference values against which air quality impacts can be assessed.

5.0 BACKGROUND CONCENTRATIONS OF POLLUTANTS

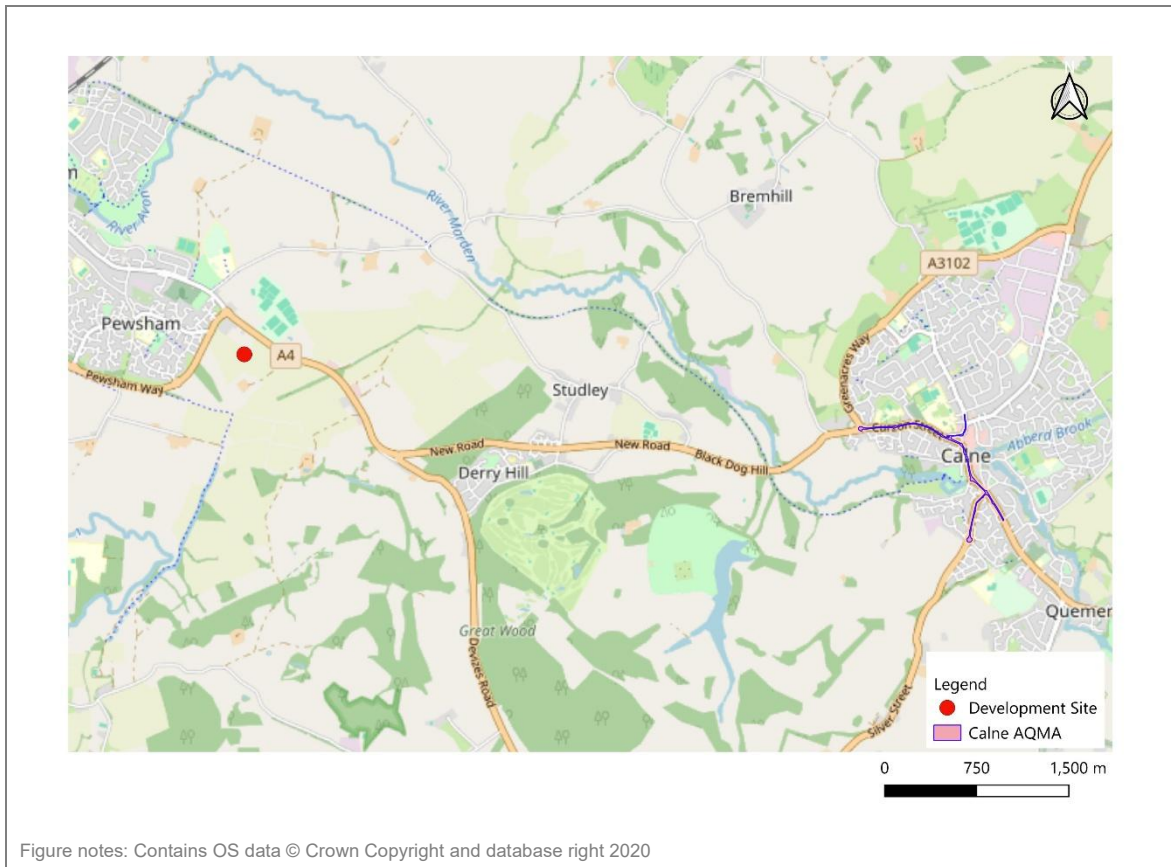
- 5.1 The proposed development falls under the jurisdiction of Wiltshire Council. Wiltshire Council does not have any Automatic Urban and Rural Network (AURN), managed by DEFRA. However, the nearest AURN with respect to the site are:
- Bath A4 (urban traffic site), ~12 miles SW of the site.
 - Swindon Walcot (urban background site), ~16 miles NE of the site.
- 5.2 Wiltshire council has four automatic monitoring stations that are locally managed and are not part of DEFRA's national network. The locally managed automatic monitoring sites are:
- Bradford-on-Avon, Masons Lane (urban traffic site), ~9.6 miles SW of the site.
 - Devizes, Sidmouth Street (urban traffic site), ~7.6 miles SE of the site.
 - Marlborough London Road 2 (urban traffic site), ~15.8 miles E of the site.
 - Salisbury, Exeter Street (urban traffic site), ~29.1 miles SE of the site.
- 5.3 The air quality baseline has been reviewed using the concentrations of nitrogen dioxide (NO₂), concentrations of particulate matter less than 10 micrometres in diameter (PM₁₀), and the concentrations of particulate matter less than 2.5 micrometres in diameter (PM_{2.5}). This desktop study was undertaken using the Information on existing air quality, that has been obtained by collating the results of monitoring carried out by DEFRA, local authority and other available monitoring networks. This covers both the application site (if there is any) and the surrounding area, the latter being used to provide context for the assessment.
- The annual mean background concentrations of NO₂ and particulate matter (PM₁₀ and PM_{2.5}) have been identified using the ambient air quality interactive map published by (DEFRA, 2024). These cover the whole of the country on a 1x1 km² grid of average concentrations.
 - The annual mean roadside concentrations of NO₂ and particulate matter (PM₁₀ and PM_{2.5}) have been obtained from the results of pollution climate mapping (PCM) model for Wiltshire council provided by (DEFRA, 2024a).
- 5.4 The air quality strategy, states that the local authorities have a duty to consider air quality within their boundaries and produce an annual status report.
- 5.5 A review of the annual status report (ASR) produced by Wiltshire Council (Wiltshire Council, 2025) clearly states that the air quality within their boundaries is generally good. However, exceedances of NO₂ in former years led to an implementation of eight different Air Quality Management Areas (AQMAs) which are listed in the table below:

List of AQMA's in Wiltshire Council and its description

Name of AQMA	Date of Declaration	Pollutants Monitored	City/Town	Distance from the site
AQMA 1 Salisbury City Centre	23/11/2007	NO ₂	Salisbury	~ 29 miles SE of the site
AQMA 2 Salisbury London Road	11/11/2007	NO ₂	Salisbury	~ 29 miles SE of the site
AQMA 3 Salisbury Wilton Road (extended)*	03/03/2016	NO ₂	Salisbury	~ 28 miles SE of the site
AQMA 4 Bradford-on-Avon	26/11/2001**	NO ₂	Bradford-on-Avon	~ 10 miles SW of the site
AQMA 5 Westbury	26/11/2001	NO ₂	Westbury	~ 14 miles S of the site
AQMA 6 Marlborough	12/05/2011	NO ₂	Marlborough	~16 miles E of the site
AQMA 7 Devizes	23/11/2007***	NO ₂	Devizes	~ 8 miles SE of the site
AQMA 8 Calne	21/02/2013	NO ₂	Calne	~ 4 miles E of the site
* Wilton Road AQMA in Salisbury amended in March 2016 to cover a wider extent of roads including A36 trunk road between St Pauls roundabout Skew Bridge, and portion of Devizes Road. ** During April 2021 the Bradford-on-Avon AQMA was amended to remove Particulate Matter PM10 as a pollutant of concern with continued compliance with the relevant National Air Quality Objectives. *** AQMA amended in November 2009 to cover main roads within Devizes				

- 5.6 In this study, we have selected Calne AQMA out of the 8 AQMAs based on it's proximity to the development site.
- 5.7 The proposed development site and the neighbouring AQMA (Calne) is illustrated in the figure below.

The proposed development site location in reference to the nearest AQMA.



- 5.8 Wiltshire council operates a network of 64 non-automatic monitoring sites during 2023, strategically positioned to estimate the concentrations of NO₂. The nearest sites are DT-13, DT-14, DT-15, DT-16, DT-17, DT-18, DT-19, and DT-20 which are located within 4 miles from the development site. Out of these, sites DT-18, and DT-20 are located within 2 miles of the development site. All these sites are roadside type sites which recorded no exceedances of the annual mean NO₂ objective in 2024. The mean NO₂ concentrations of all the 64 sites, and their location types are given in detail in the table below.

Annual Mean NO₂ Concentrations of Diffusion Tubes for the years 2020 to 2024.

Diffusion Tube ID	X	Y	Site Type	Annual Mean NO ₂ Concentrations (µg/m ³)				
				2020	2021	2022	2023	2024
DT-1	400000	161109	Urban Background	7.1	6.9	7.6	5.5	5.6
DT-2	399924	161729	Roadside	31.6	30.9	30.6	26.8	25.3
DT-3	399763	161717	Kerbside	31.6	33.1	30.8	27.3	26.4
DT-4	400210	161623	Roadside	30.9	33	30.8	28.5	26.1
DT-5	401778	162414	Roadside	16.5	17.8	16.9	14.9	12.6
DT-6	400635	160982	Roadside	28.2	28.5	26.4	24.7	21.8
DT-7	400807	161389	Roadside	29.8	29.6	28.1	25.3	23.3
DT-8	418942	169384	Roadside	37.8	40.4	37	34	32.3

DT-9	418053	169224	Roadside	25.3	32.5	28.7	25.6	24.1
DT-10	419296	168760	Roadside	24	27.7	25.6	23	21.3
DT-11	419011	169012	Urban Background	11.2	7.8	8.5	6.6	6.2
DT-12	419152	169083	Roadside	25.2	25.5	24.6	22.3	21.4
DT-13	400126	170745	Urban Background	7.8	7.8	7.4	6.2	7.4
DT-14	399873	170737	Roadside	40.8	42.6	33.9	28.4	27.6
DT-15	399988	170587	Roadside	23.4	25.7	21.7	19.8	18
DT-16	399657	171164	Roadside	19.5	20.9	19.9	16.7	15.7
DT-17	399650	171164	Roadside	-	32.9	31.1	27.6	26
DT-18	391712	173286	Roadside	23.7	25	23.3	21.6	19.7
DT-19	392467	172055	Urban Background	8.5	8.8	9.5	8.3	7.8
DT-20	391925	173579	Roadside	26.3	28.6	27.7	24.9	23.4
DT-21	387240	151163	Roadside	29.9	33.3	30	25.9	23.5
DT-22	387155	150874	Roadside	36.3	40.4	36	31.6	29.9
DT-23	387269	151507	Roadside	25.1	26.1	24.9	21.4	19.7
DT-24	386737	150105	Suburban	8.3	8.3	8.9	8.5	6.5
DT-25	382716	161228	Roadside	51.2	57	42.9	40	38.8
DT-26, 27, 28	382538	161122	Roadside	23.2	24.3	23.3	22.2	22
DT-29	382544	161085	Kerbside	36.6	38.6	38.9	33.1	32.7
DT-30	381878	160836	Urban Background	6.4	7.8	8	6.1	6.1
DT-31	383188	161006	Urban Centre	-	9.4	9.2	7.8	7.3
DT-32	382711	161007	Roadside	-	23.5	29	26.4	24.1
DT-33	382844	160985	Roadside	-	17.2	18.8	16	15.1
DT-34	382595	161445	Roadside	-	32.2	32.7	24.4	24.1
DT-35	382552	160781	Roadside	-	-	-	-	22.4
DT-36	382575	160501	Roadside	-	-	-	-	16.2
DT-37	390118	164878	Roadside	27	29	27.2	22.2	21.8
DT-38	382559	147817	Roadside	-	-	-	-	11
DT-39	385575	160710	Roadside	-	-	-	10.9	12.7
DT-40	385973	160321	Roadside	-	-	-	13.6	15.4
DT-41	384343	157806	Urban Background	8.2	8	8	6.9	6.4
DT-42	385244	157541	Kerbside	24.4	25.2	23	20.2	19.4
DT-43	386130	157762	Roadside	20.6	20.2	19.7	16.8	16
DT-44	386321	170604	Roadside	-	25.1	24.1	21.6	20.4
DT-45	415105	130641	Roadside	29.8	29	29.3	26.5	23.9
DT-46	414373	129979	Kerbside	29.6	32.2	29.8	30.1	29.1
DT-47	414500	130105	Roadside	21.1	23.4	21.5	18.8	18.8
DT-48	414602	130054	Roadside	24.1	25.7	25.1	22.9	21.4
DT-49	413828	130142	Roadside	33	33.4	30.1	26	23.8
DT-50	415167	130789	Roadside	-	-	-	21.6	21
DT-51, 52, 53	414547	129575	Roadside	26.9	27.9	25.1	21.5	21.4
DT-54	413690	130362	Roadside	45.7	45.7	43.1	36.1	35.3
DT-55	413669	130503	Roadside	32.4	31.8	31.2	24.1	16.9
DT-56	414550	129523	Roadside	27.3	31.3	29.3	24.8	24.9
DT-57	414551	129815	Roadside	26.4	30	28.2	25	22.7

DT-58	414312	130651	Roadside	30.1	31.6	28.2	27.9	29.1
DT-59	412572	130673	Roadside	32.4	36.1	31.9	29.6	29.2
DT-60	413038	130526	Roadside	25.9	28.6	26.7	21.6	20.7
DT-61	413517	130698	Roadside	25	24.9	24.1	22	20.5
DT-62	414320	130879	Roadside	24.6	25.3	24.1	21.1	18.4
DT-63	409600	131236	Roadside	21	22.4	21.8	19.4	17.7
DT-64	415182	130804	Roadside	-	-	-	20.1	19.9

Table notes:

a Annual mean NO₂ concentrations from the non-automatic monitoring sites (Diffusion tubes) at 64 different locations deployed by Wiltshire Council.

Source: https://www.wiltshire.gov.uk/media/18209/Wiltshire-Council-2025-ASR-Sep2025/pdf/FINAL_Wiltshire_Council_2025_ASR-Sep2025.pdf?m=1759748589390

- 5.10 The nearest non-automatic monitoring site is Bourne House, Bath Rd, which is ~1.6 miles NNW of the site, has an average NO₂ concentrations of 19.7 µg/m³, shows that the air quality around the development site is well under the air quality objective limits.
- 5.11 In summary, the annual NO₂ concentrations at all the non-automatic monitoring sites (DT-13, DT-14, DT-15, DT-16, DT-17, DT-18, DT-19, and DT-20) close to the proposed development site are well under the AQO, indicating good air quality in the vicinity of the site.
- 5.12 The annual mean background concentrations of NO₂ and particulate matter (PM₁₀ and PM_{2.5}) have been identified using the ambient air quality interactive map by DEFRA (DEFRA, 2024) which contains data from the Pollution Climate Mapping (PCM) for 1x1 km² grid squares. The data in the table below is taken by using the option named as “click on the feature” and find the respective concentrations. The site is located in a grid of 1 km × 1km (Four-digit grid reference: ST 9371, ST 9372, ST9471), hence we obtained the concentration data from the grid (eastings and northings are X: 393772, Y: 171514, X: 393708, Y: 172135, and X: 394128, Y: 171645) and presented the annual mean concentrations in the table below.

DEFRA annual mean roadside and background concentrations for 2024

Pollutant	Limit Values ($\mu\text{g}/\text{m}^3$)	Roadside Concentrations ($\mu\text{g}/\text{m}^3$) ^a	Background Concentrations ($\mu\text{g}/\text{m}^3$) ^b	Compliance with Limit Values
NO ₂	40	14.8	5.6	✓
PM ₁₀	40	12.2	10.8	✓
PM _{2.5}	20	6.9	5.9	✓

Table notes:

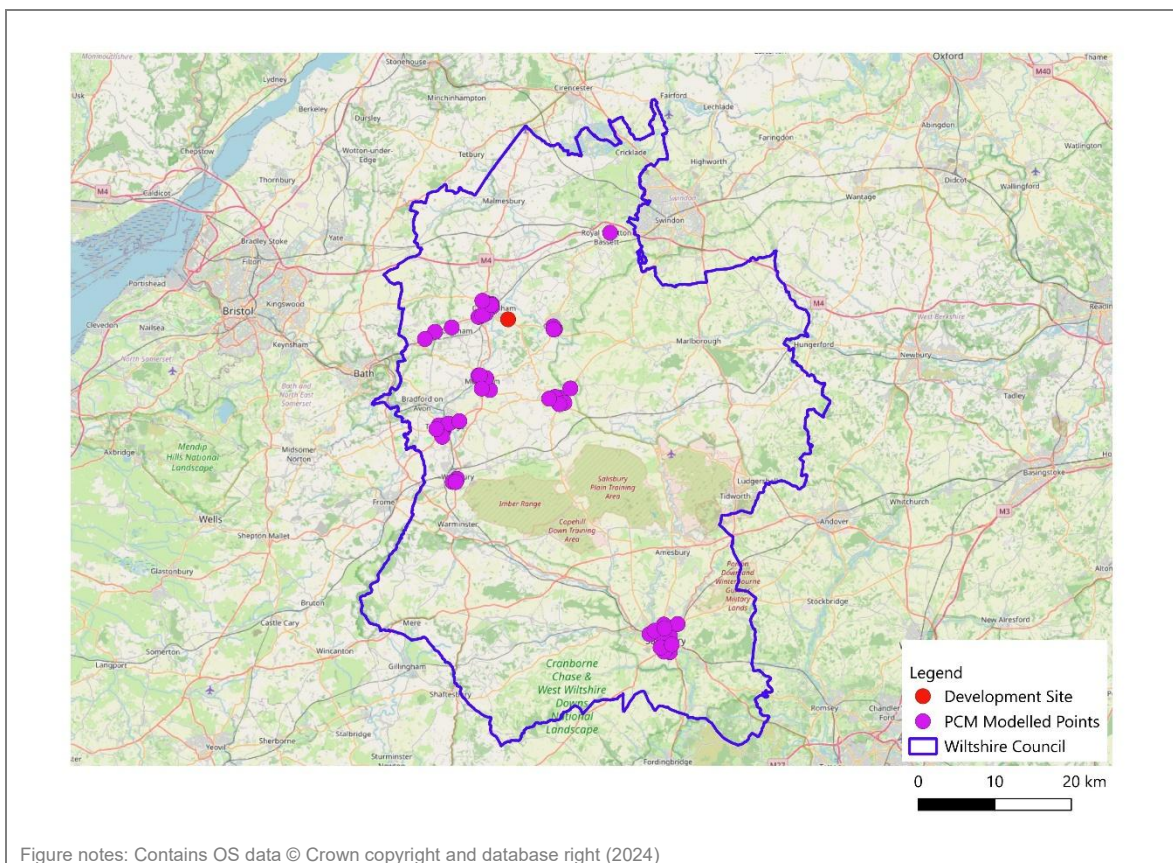
^a Annual mean roadside concentrations obtained from 56 different roadside points used by the PCM model as critical exposure points for Wiltshire County Council

^b Annual mean background concentrations from UK ambient air quality interactive map with 1 Kilometre Grid Square Selection.

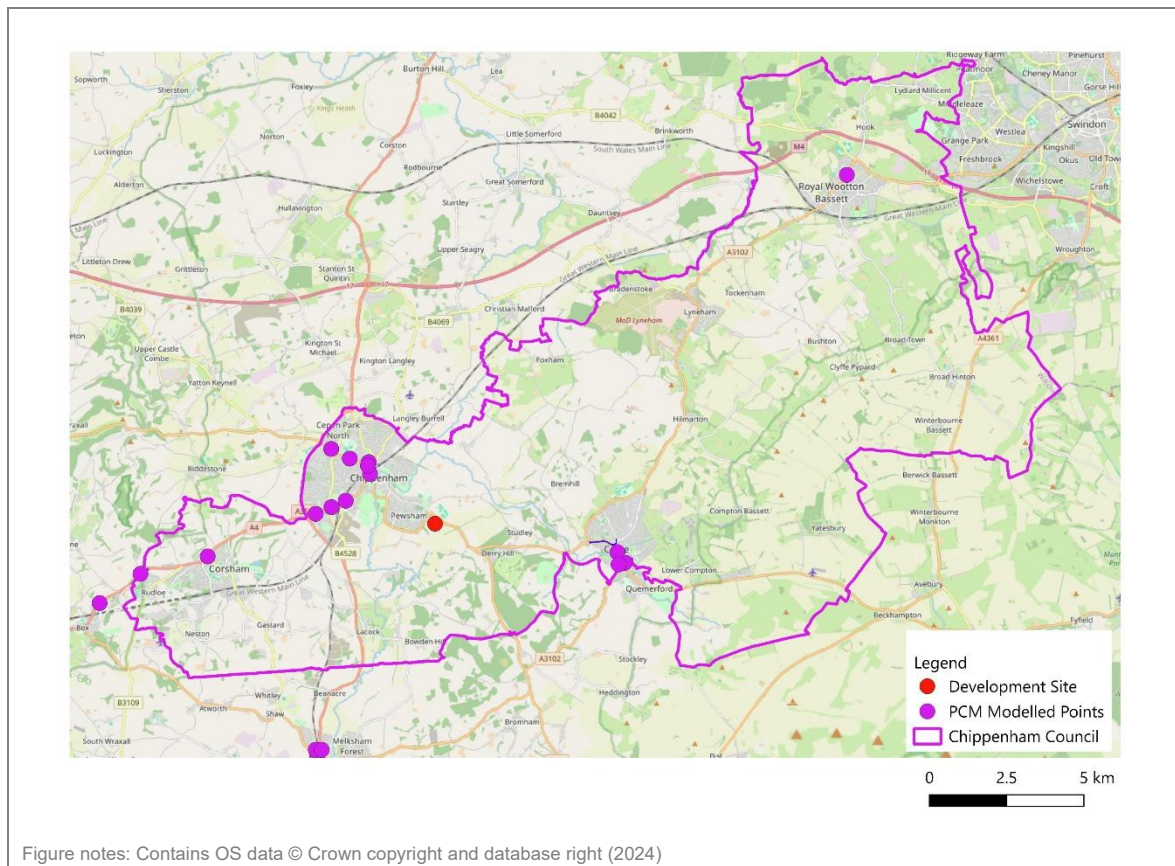
Source: UK AIR: Air Information Resource; Link: <https://uk-air.defra.gov.uk/data/gis-mapping/>

5.13 The roadside concentrations of NO₂ and particulate matter (PM₁₀ and PM_{2.5}) were obtained from the results of PCM model by (DEFRA, 2024a) for the local authority Wiltshire Council. The Wiltshire council has 56 different roadside points used by the PCM model as critical exposure points for Wiltshire council.

PCM modelling points for roadside concentrations for NO₂ and PM (PM₁₀ and PM_{2.5}) for Wiltshire council in relation to the site



PCM modelling points for roadside concentrations for NO₂ and PM (PM₁₀ and PM_{2.5}) for Chippenham town council located in close vicinity in relation to the site



- 5.14 Wiltshire council published their latest Air Quality Annual Status Report (ASR) in June 2025 (Wiltshire Council, 2025) which provides annual mean concentrations of NO₂ up to 2024 monitored by the local authority. The local authority uses diffusion tube samplers to monitor the NO₂ levels within their boundaries. The location of non-automatic monitoring sites managed by Wiltshire council is illustrated in the figure below, and their corresponding NO₂ levels are mentioned in the table below.

Location of Non-Automatic Monitoring Sites in Wiltshire Council

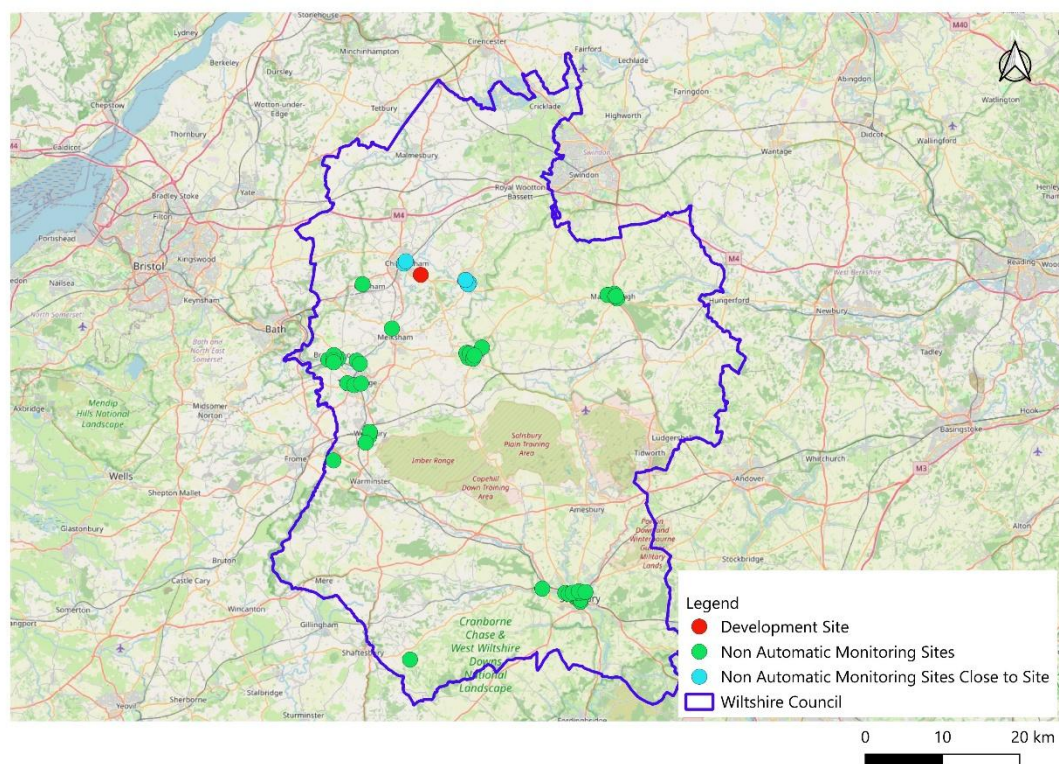


Figure notes: Contains OS data © Crown copyright and database right (2024).

Location of Non-Automatic Monitoring Sites in close vicinity to the development site

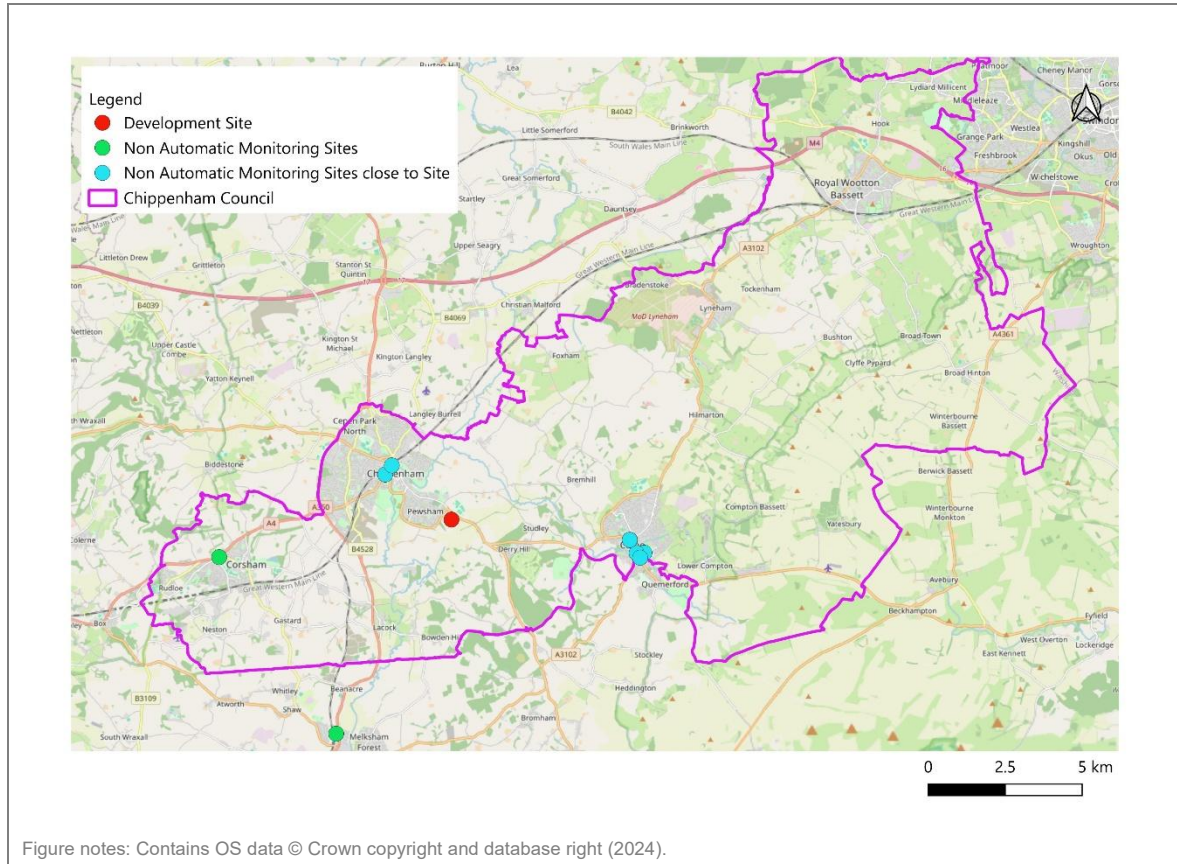
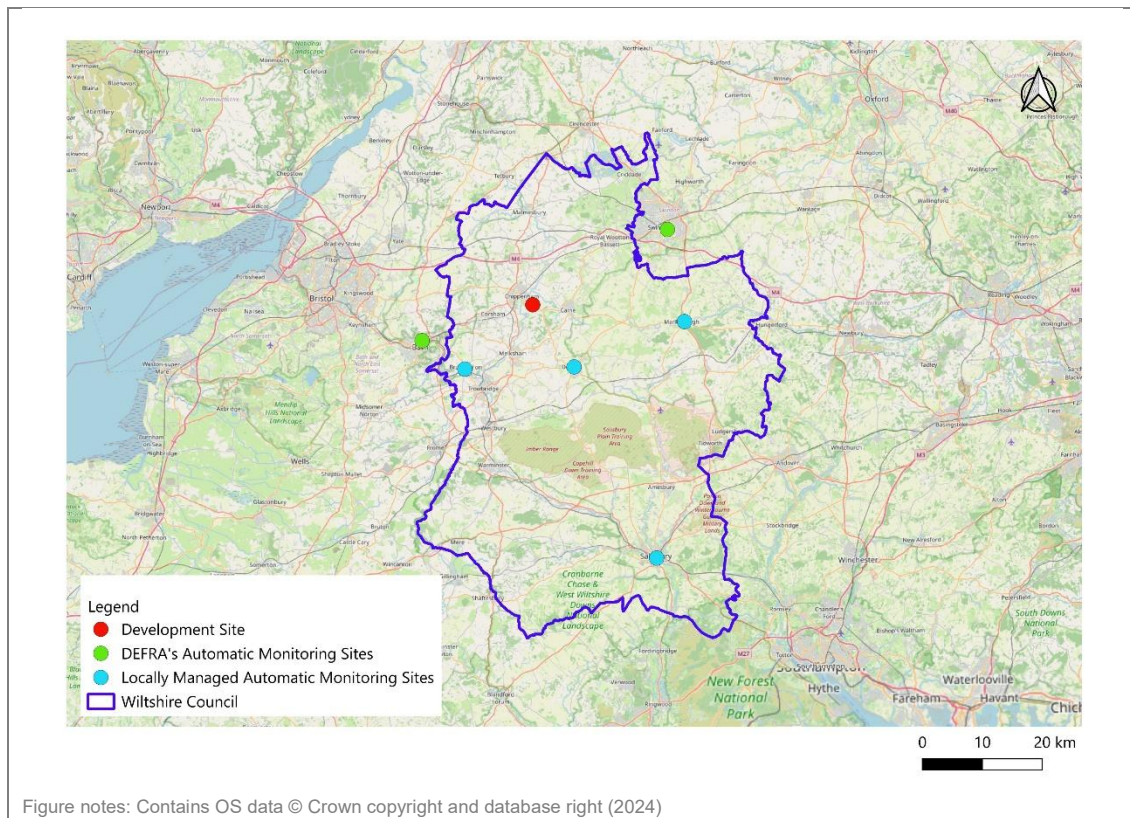


Figure notes: Contains OS data © Crown copyright and database right (2024).

- 5.15 As previously stated, six different automatic monitoring sites out of which two are managed by DEFRA and other four are locally managed by Wiltshire council. The sites which belong to AURN are namely Bath A4 and Swindon Walcot representing urban traffic and urban background sites, and the locally managed sites namely Bradford-on-Avon, Masons Lane, Devizes, Sidmouth Street, Marlborough London Road 2, and Salisbury, Exeter Street representing an urban traffic site characteristics are taken into consideration for reviewing the baseline conditions of the site.

- 5.16 The AURN site Swindon Walcot measures NO_2 , PM_{10} , and $\text{PM}_{2.5}$ concentrations and Bath A4 measures only NO_2 concentrations. Whereas the locally managed sites measure only NO_2 and PM_{10} concentrations, except for Marlborough London Road 2 which does not measure NO_2 , but measures $\text{PM}_{2.5}$. The AURN and locally managed automatic site locations in relation to the proposed development site is illustrated in the figure below.

Location of Proposed Development Site in relation to Automatic Monitoring Sites managed by DEFRA and Local Authority



- 5.17 The AURN automatic monitoring sites NO₂ and PM₁₀ and PM_{2.5} annual mean concentrations (DEFRA, 2024b) during 2018-2024 are provided in the table below.

Annual mean concentrations of NO₂, PM₁₀, and PM_{2.5} and at the automatic monitoring sites in Wiltshire Council for the years 2018-2024.

Automatic Urban and Rural Network (AURN)										
Site Name	Coordinates	Site Type	Pollutant	Annual Mean Concentrations (µg/m3)						
				2018	2019	2020	2021	2022	2023	2024
^a Bath A4	375394, 165825	Urban Traffic	NO ₂	-	39.5	27.9	26.9	24.9	23.6	19.6
			PM ₁₀	-	-	-	-	-	-	-
			PM _{2.5}	-	-	-	-	-	-	-
^b Swindon Walcot	416341, 184379	Urban Background	NO ₂	13.3	13.6	9.9	10.3	10.2	9.0	6.3
			PM ₁₀	-	-	-	-	11.9	11.0	10.2
			PM _{2.5}	-	-	-	-	6.9	6.7	6.0
Locally Managed Automatic Monitoring Network										
^c Bradford-on-Avon, Masons Lane	382528, 161109	Urban Traffic	NO ₂	31.3	30.8	24.9	27.1	23.4	28.0	30.4
			PM ₁₀	24.1	23.2	18.0	17.2	23.4	24.3	24.1
			PM _{2.5}	-	-	-	-	-	-	-
^c Devizes, Sidmouth Street	400764, 161458	Urban Traffic	NO ₂	41.3	37.1	28.7	30.2	30.3	29.0	31.9
			PM ₁₀	-	-	-	-	-	-	-
			PM _{2.5}	-	-	-	-	-	-	-
^c Marlborough London Road 2	419204, 169021	Urban Traffic	NO ₂	-	-	-	-	-	-	-
			PM ₁₀	16.2	13.7	19.3	23.1	18.8	14.9	10.8
			PM _{2.5}	6.2	4.9	8.3	6.5	8.1	7.0	5.1
^c Salisbury, Exeter Street	414546, 129566	Urban Traffic	NO ₂	34.9	29.9	25.9	27.5	20.4	24.9	22.3
			PM ₁₀	21.9	20.4	21.4	19.1	20.4	21.3	23.8
			PM _{2.5}	-	-	-	-	-	-	-

Table notes: The values in bold represent the exceedances in air quality objective

Data obtained from DEFRA UK AIR: Information resource.

^a Link: https://uk-air.defra.gov.uk/data/flat_files?site_id=BHA4

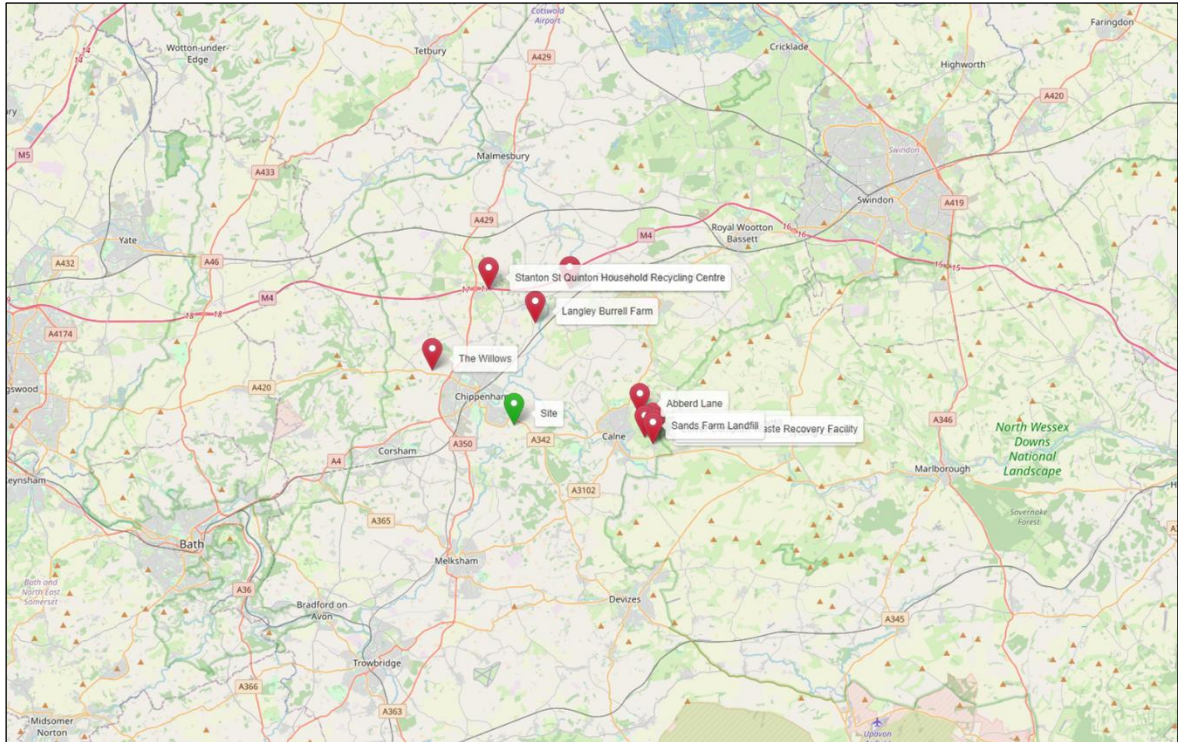
^b Link: https://uk-air.defra.gov.uk/data/flat_files?site_id=SWHO

^c Link: https://www.airqualityengland.co.uk/local-authority/?la_id=394

Industrial Uses

- 5.18 The UK Pollutant Release and Transfer Register (PRTR) datasets (DEFRA, 2022a) identify the industrial air pollutant sources in Wiltshire council originating from the following industrial sectors: Treatment and disposal of non-hazardous waste, gas manufacturing, motor vehicle manufacturing, organic basic chemicals, and poultry. In 2023, the UKPRTR recorded pollutant data from 64 facilities in Wiltshire County, with 28 of these facilities located in Chippenham Town. However, we have considered 10 industrial facilities, which are located at a distance of around 5 miles from the site. The figure below illustrates the locations of these 10 facilities in close proximity to the site.

Location of industrial facilities in close proximity to the development site



- 5.19 Further, out of these 28 facilities 10 of them are located within ~5 miles distance from the development site. We have taken these 10 sites into consideration and identified two facilities releasing pollutants into the air. The type of industry and their emissions in comparison with total UK emissions for the year 2023 are given below:

List of Industries and their emissions

Name of the facility	Type of Industry	Release to Air	Emissions	%contribution to UK emissions
28 Main Road	Treatment and disposal of non-hazardous waste	No data	No data	No data
Abberd Lane	Treatment and disposal of non-hazardous waste	No data	No data	No data
Honeyball Household Recycling Centre	Treatment and disposal of non-hazardous waste	No data	No data	No data
Langley Burrell Farm	Raising of poultry	No data	No data	No data
Lower Compton Landfill	Treatment and disposal of non-hazardous waste	Chlorofluorocarbons (CFCs)	65 kg	No data
		Hydrochlorofluorocarbons (HCFCs)	51 kg	No data
		Methane (CH ₄)	1,370,000 kg	0.28%
Lower Compton Waste Recovery Facility	Treatment and disposal of non-hazardous waste	No data	No data	No data
Porter Metals & Skip Hire Ltd	Treatment and disposal of non-hazardous waste	No data	No data	No data
Sands Farm Landfill	Treatment and disposal of non-hazardous waste	Methane (CH ₄)	550,000 kg	0.11%
Stanton St Quinton Household Recycling Centre	Treatment and disposal of non-hazardous waste	No data	No data	No data
The Willows	Treatment and disposal of non-hazardous waste	No data	No data	No data
Link: https://prtr.defra.gov.uk/facility-results?view=facilities&q=1296782				

- 5.20 The presence of CFCs and HCFCs would likely come from leakage, improper disposal, illegal use, or long-lasting atmospheric presence rather than new legal production in the UK. Since the UK in alignment with the Montreal Protocol and subsequent amendments, has implemented stringent measures to phase out HCFCs. These regulations have led to a significant decline in CFCs and HCFCs emissions within the UK (DEFRA, 2022b).
- 5.21 Traces of CFCs and HCFCs near the site originate from improper disposal of old equipment (e.g., refrigerators, air conditioners, foams) and degradation of insulation materials. Our study detected these gases in the lower Compton landfill, about 5 miles east. Though present in small amounts, they significantly impact the ozone layer and global warming due to their high Global Warming Potential (GWP), which is the primary measure of their impact rather than immediate health effects (DEFRA, 2022b).
- 5.22 The methane emissions from both landfills are significantly less compared to the total UK methane emissions from landfills in year 2022, which is 485.9639 kilotons (NAEI, 2023). This quantity when compared with the emissions from Lower Compton and Sands Farmland fill is *not significant*.
- 5.23 This report focuses on air quality assessment and its related health effects concerning the proposed development. Based on the available data, the health impacts from industrial sources in the area are negligible or insignificant and are not considered further.

6.0 ASSESSMENT

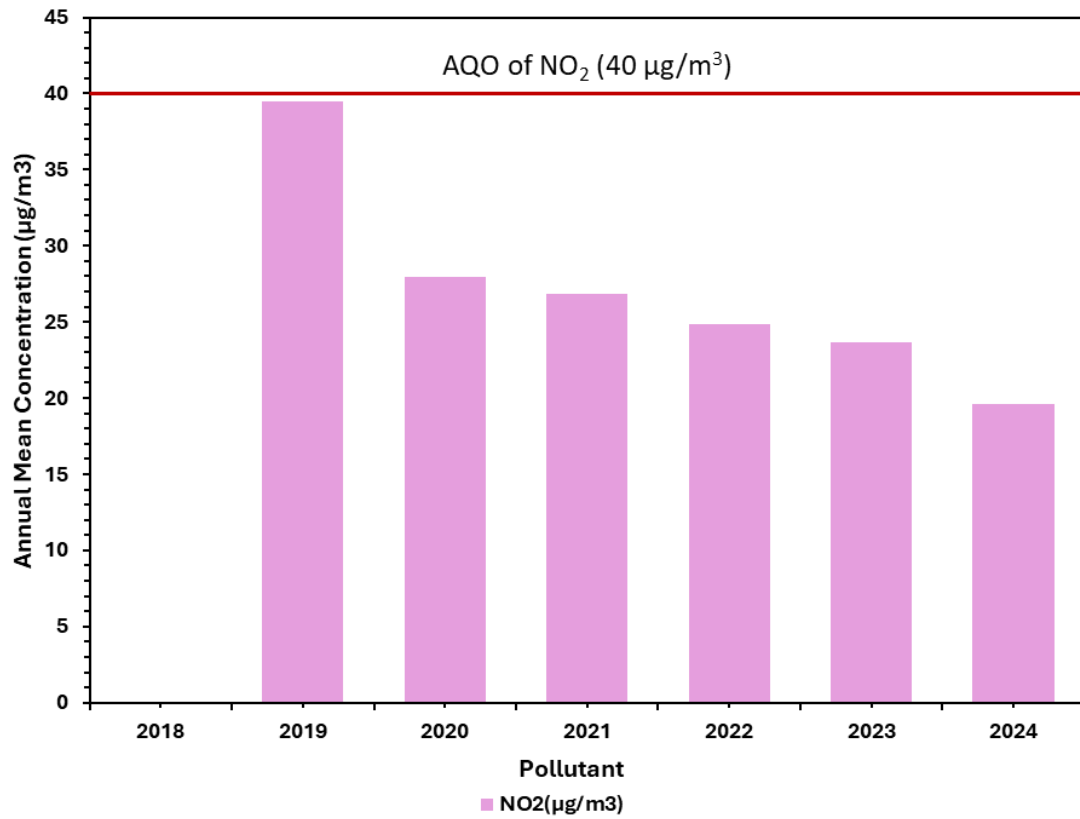
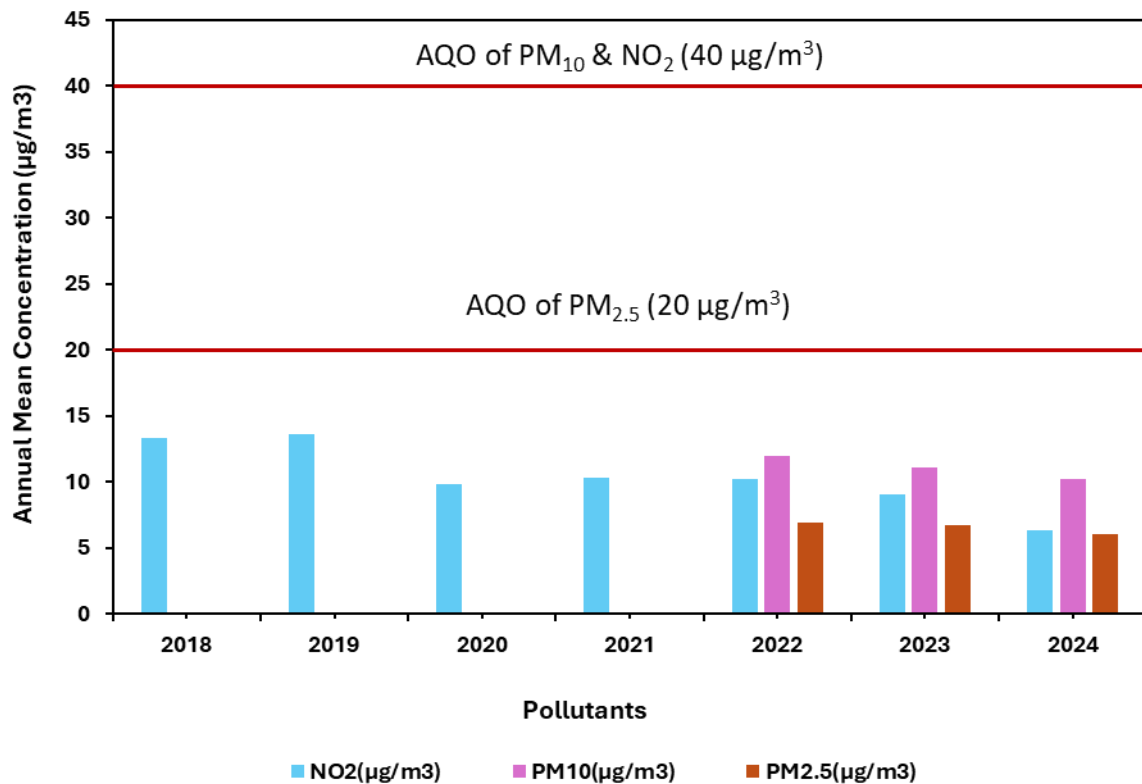
- 6.1 The desktop air quality assessment is made using the concentrations available from the DEFRA: UK AIR Information Resource, two automatic monitoring sites in Bath and Swindon run by DEFRA, predicted PCM modelled results from DEFRA, and the other four locally managed network governed by the local county council.

Review of Air Quality Baseline Conditions

- 6.2 The Proposed Development site is located close to Calne AQMA and its distance from the proposed development site are discussed in section 5 in detail. The pollutants are reviewed with the aid of the automatic and non-automatic monitoring stations run by DEFRA and Wiltshire Council.
- 6.3 The baseline concentrations of pollutants are considered in relation to three separate types of criteria, covered by different legislation, policy, and guidance. These include Air Quality Objectives (AQOs), Limit Values (LVs), and Air Quality Guidelines (AQGs).

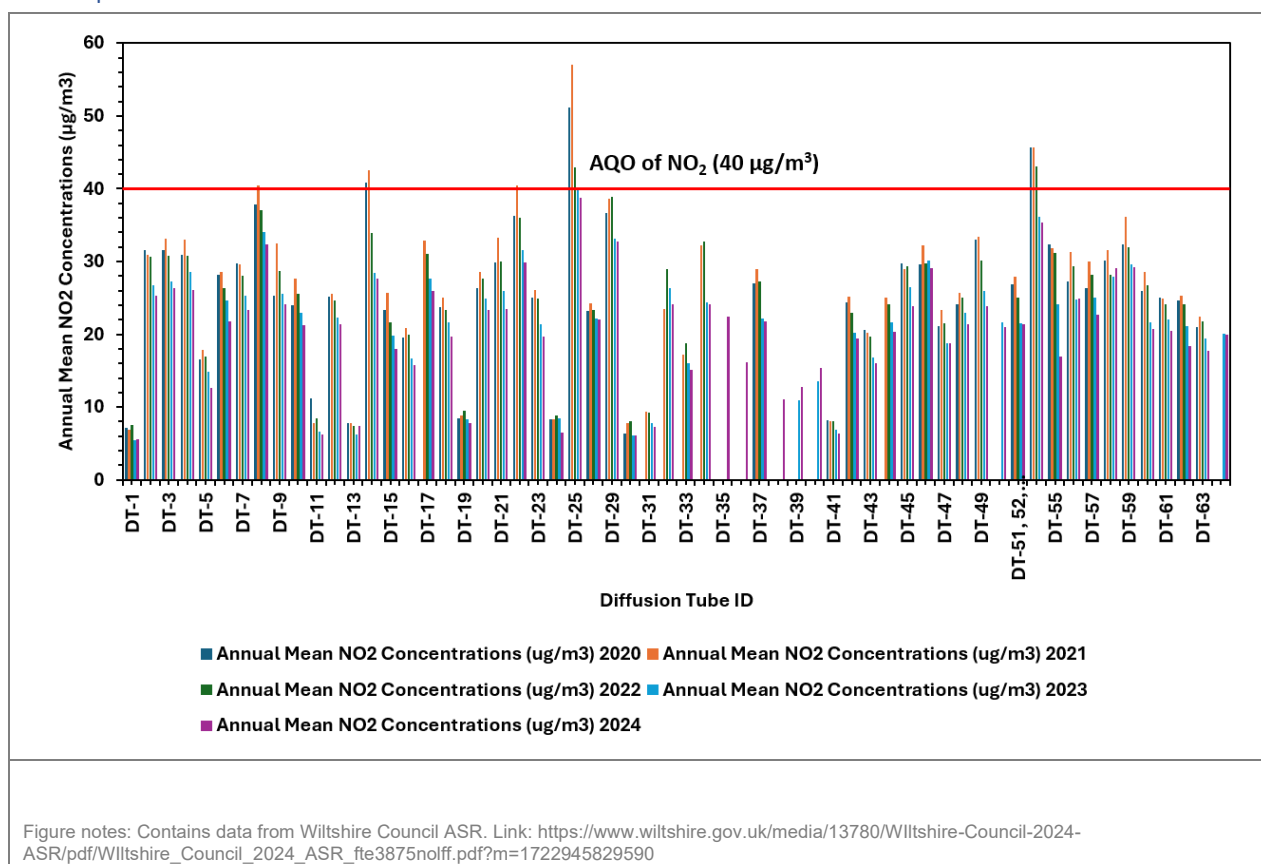
Air Quality Objectives

- 6.4 Measured NO₂ concentrations at the automatic monitoring sites Bath and Swindon have not recorded any exceedances of the annual mean AQO of 40 µg/m³ between the years of 2018 to 2024. Similarly, the PM₁₀ and PM_{2.5} concentrations were also found to be well under the AQO of 40 µg/m³ and 20 µg/m³ for the year 2024.

Annual Mean concentrations of NO₂ measured for 2018-2024 at Bath A4 roadsideAnnual Mean concentrations of PM₁₀ and NO₂, PM₁₀ and PM_{2.5} measured for 2018-2024 at Swindon

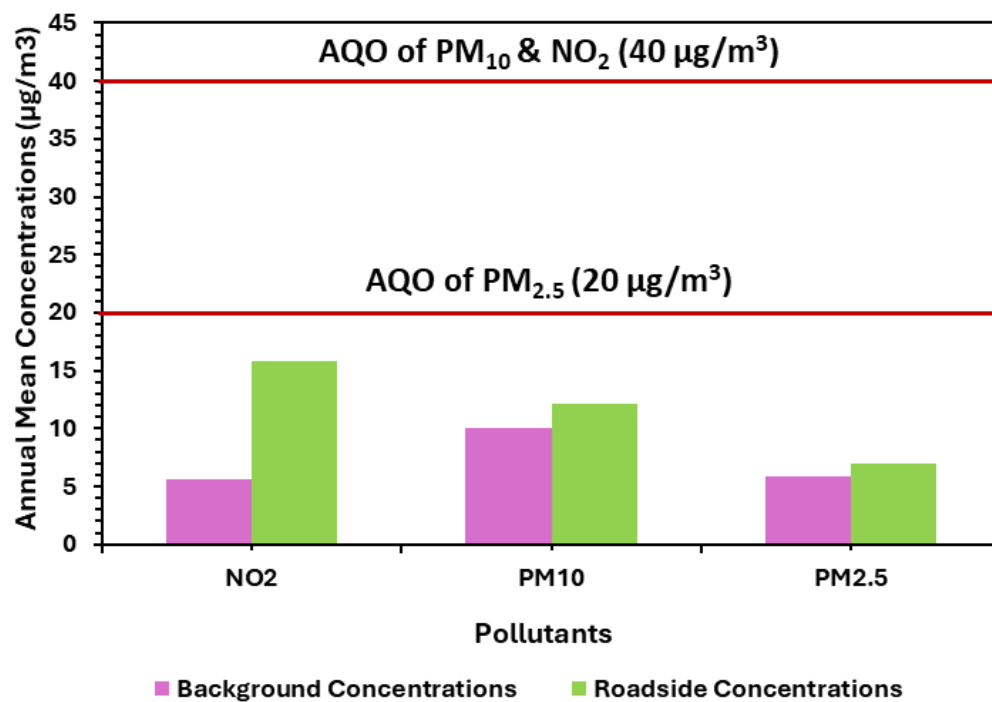
- 6.5 Wiltshire council operated 64 non-automatic monitoring sites to measure NO₂ concentrations. Since 2020, the annual mean NO₂ concentrations at these sites have shown a consistent decrease. By 2024, the mean concentrations were well below the Air Quality Objective (AQO) of 40 µg/m³. The concentrations of all the non-automatic monitoring sites run by Wiltshire Council have been depicted in the figure below to show the level of air quality at the proposed development site and its surroundings.

Annual Mean concentrations of NO₂ measured for 2020-2024 at the non-automatic Monitoring Sites close to the development site



- 6.6 The DEFRA mapped annual mean background and roadside concentrations of NO₂, PM₁₀, and PM_{2.5} from the national Pollution Climate Mapping modelling did not exceed AQO of 40 µg/m³ for NO₂, and PM₁₀. Similarly, the PM_{2.5} concentrations did not exceed the AQO of 20 µg/m³ for the years of 2020 to 2024 in the vicinity of the Proposed Development and illustrated in the figure below.

Annual Mean concentrations of PM₁₀, NO₂ and PM_{2.5} from DEFRA's national Pollution Climate Mapping modelling



Limit Value Compliance

- 6.7 Defra have not identified any exceedances of the LVs in the current scenario and in the future up to year 2030 in the PCM modelled results for NO₂, PM₁₀, and PM_{2.5} along the roads in the local area of the Proposed Development. The tables below provide an indication that the air quality levels in the proposed development and its surroundings are well under the AQO and limit values portraying a safe level of air quality.

Annual mean concentrations of NO₂ from DEFRA's national Pollution Climate Mapping modelling for the years 2018-2030.

Year	^a Annual Mean NO ₂ concentrations (µg/m ³)		Compliance with Limit Values (40 µg/m ³)
	Background Concentrations	Roadside Concentrations	
2018	11	23	✓
2019	11	22	✓
2020	10	21	✓
2021	10	19	✓
2022	9	18	✓
2023	9	17	✓
2024	9	16	✓
2025	8	15	✓
2026	8	14	✓
2027	8	14	✓
2028	8	13	✓
2029	8	12	✓
2030	8	12	✓

^a The mean concentrations are taken from roads M4, A4, A36, A345, A360, A420, A361, A3102, A350, A338, A363, A342, A365, A354, A3094, and A3098

Annual mean concentrations of PM₁₀ and PM_{2.5} from DEFRA's national Pollution Climate Mapping modelling for the years 2018-2030.

Year	Annual Mean PM Concentrations (µg/m ³)		Compliance with Limit Values
	PM ₁₀ (LV - 40 µg/m ³)	PM _{2.5} (LV - 20 µg/m ³)	
2018	15	9	✓
2020	15	9	✓
2025	14	9	✓
2030	14	9	✓
^a The mean concentrations are taken from roads M4, A4, A36, A345, A360, A420, A361, A3102, A350, A338, A363, A342, A365, A354, A3094, and A3098			

World Health Organization Guidelines

- 6.8 The table below provide an indication of the baseline air quality for the Proposed Development site with respect to the WHO annual mean ITs and AQGs

Indicative Achievement of Annual Mean WHO Guidelines / Interim Targets (µg/m³) on the Proposed Development site

Pollutant	IT1	IT2	IT3	IT4	AQG
NO ₂	✓	✓	✓	n/a	x
PM ₁₀	✓	✓	✓	✓	x
PM _{2.5}	✓	✓	✓	✓	x
Table notes: ? may achieve IT/AQG; x IT/AQG not achieved; ✓ IT/AQG achieved; n/a not applicable.					

- 6.9 The figures and tables provided in this section and the previous section portrays that the concentrations of air pollutants, such as NO₂, PM₁₀, and PM_{2.5} from the automatic and non-automatic monitoring stations from the vicinity of the proposed development site, is showing no exceedances of the mean national air quality objectives and limit values for the years 2018-2023. In addition, the mean concentrations predicted up to year 2030 falls under the compliance of limit values.
- 6.10 This desktop air quality assessment for the proposed development site confirms that the annual mean concentrations of NO₂, PM₁₀, and PM_{2.5} for both the existing scenario and future projections are well below the established air quality objectives and comply with all relevant limit values.

7.0 CONSTRUCTION DUST ASSESSMENT

- 7.1 In January 2024, the Institute of Air Quality Management (IAQM) released Version 2.2 of its updated guidance on the *Assessment of Dust from Demolition and Construction*. This latest version (IAQM, 2024) represents a comprehensive rewrite of the original 2014 guidance, incorporating lessons learned and advancements made over the past decade.
- 7.2 The updated guidance replaces all previous versions and provides developers, consultants, and environmental health practitioners with a systematic framework for conducting construction dust impact assessments. It aids in determining the significance of impacts and identifying appropriate mitigation measures to eliminate or minimize potential effects.
- 7.3 The IAQM provides guidance on a five-step process to assess the potential impacts of construction dust pre-mitigation, provide mitigation measures specific to the risk and assess the post-mitigation impacts.
- 7.4 The assessment procedure follows the following framework:
- **Step 1** - Screen the requirement for a more detailed assessment;
 - **Step 2** - Assess the risk of dust impacts of the four phases of construction (demolition, earthworks, construction and trackout), taking into account:
 - the scale and nature of the works, which determines the potential Dust Emission Magnitude (**Step 2A**); and
 - the sensitivity of the area (**Step 2B**).
 - These factors are combined to give the risk of dust impacts (**Step 2C**).
 - **Step 3** - Determine the site-specific mitigation for the potential activities;
 - **Step 4** - Examine the residual effects and determine whether or not these are significant; and
 - **Step 5** - Prepare the Construction Dust Assessment.

Steps of Assessment

- 7.5 Step 1 of the assessment procedure is to screen the need for a detailed assessment. The guidance provides distance-based criterion in Box 1 of the guidance which states:

An assessment will normally be required where there is:

- a 'human receptor' within:
 - 250 m of the boundary of the site; or
 - 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).

- an ‘**ecological receptor**’ within:
 - 50 m of the boundary of the site; or
 - 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).

7.6 There are human receptors within the distances set out in the guidance thus a detailed assessment is required for human receptors.

The following section sets out Step 2 of the assessment procedure.

Potential Dust Emission Magnitude

7.7 The guidance explains that the dust emission magnitude is based on the scale of the anticipated works and should be classified as Small, Medium, or Large. The guidance provides examples of the magnitude classification for each of the potential stages.

Demolition

7.8 There will be no demolition, since the construction is being carried out in an area without any existing buildings.

Earthworks

7.9 The dust generated by the earthworks depends on the nature of the earth and soil at the application site. The characteristics of the soil have been defined using the British Geological Survey’s UK Soil Observatory website (British Geological Survey, 2024) and are set out in the table below. Overall, it is considered that, when dry, the soil has the potential to be highly dusty.

Soil Conditions at the Application Site

Category	Record
Soil layer thickness	Deep
Soil texture	Clay to Clayey Loam
Subsoil grain size	Argillaceous
Soil Parent Material	Claystone/Mudstone

Table notes: -Data obtained from <https://mapapps2.bgs.ac.uk/ukso/home.html#:~:text=About%20the%20UK%20Soil%20Observatory,contribute%20information%20about%20your%20soil>.

7.10 The exact area of earthworks is unknown at this stage, but the whole site covers at least an area that is >110000 m², which is a defined example within the IAQM guidance. Dust will arise mainly from the handling

and transport of dusty materials (such as dry soil) and potentially stock piling of earth material. The Proposed Development will likely be completed in a number of phases, helping to minimise dust. However, to provide a conservative assessment, phasing has not been taken into account. The soil type is a mix of clay, and mudstone. Based on the illustrative criteria in the IAQM guidance document, the dust emission magnitude for earthworks is considered *Large*.

Construction

- 7.11 The Proposed Development includes the erection of ~600 residential dwellings. The total volume for construction will be at least >75000m³. The building materials used are Concrete foundations, Brick / Blocks, landscaping and road development with associated infrastructure. Based on the illustrative criteria in the IAQM, the dust emission magnitude for construction is considered *Large*.

Track out

- 7.12 The exact number of HDVs leaving the site on a single day are unknown. Based on the site area and proposed building volume there are expected to be at least 20 – 50 HDV outward movements per day. These HDVs may lead to dust and dirt being tracked out. However, there are paved roads in the vicinity of the site and based on the site area the maximum length of any unpaved roads that could be on site could be greater than 100m. The soil type, as outlined the table above, has a medium potential for dust release. Based on the example definitions set out in the IAQM guidance, the dust emission magnitude for track out is considered *Large*.

Summary of Potential Dust Emission Magnitude

- 7.13 The table below summaries the dust emission magnitude from the construction phases of the Proposed Development.

Construction Dust Assessment	
Activity	Dust Emission Magnitude
Demolition	N/A*
Earthworks	Large*
Construction	Large*
Track out	Large*
*Link: https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf	

Sensitivity of the Study Area

- 7.14 The guidance explains that the sensitivity of the area should take account of a number of factors including:

- the specific sensitivities of receptors in the area;
- the proximity and number of those receptors;
- in the case of PM₁₀, the local baseline concentration; and
- site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of wind-blown dust.

7.15 The IAQM guidance document provides examples of high, medium and low sensitivity receptors for each of the potential effects. These are provided in Box 6 to Box 8 of the guidance and consideration should be given to the additional factors presented in Box 9 of the guidance. The guidance also provides a series of matrices (Tables 2, 3 and 4 of the guidance document) to determine the sensitivity of the area based on the receptor sensitivity, number of receptors, the proximity to the dust emission activity and baseline PM₁₀ concentration. Residential properties are considered high sensitivity receptors to dust soiling and elevated levels of PM₁₀.

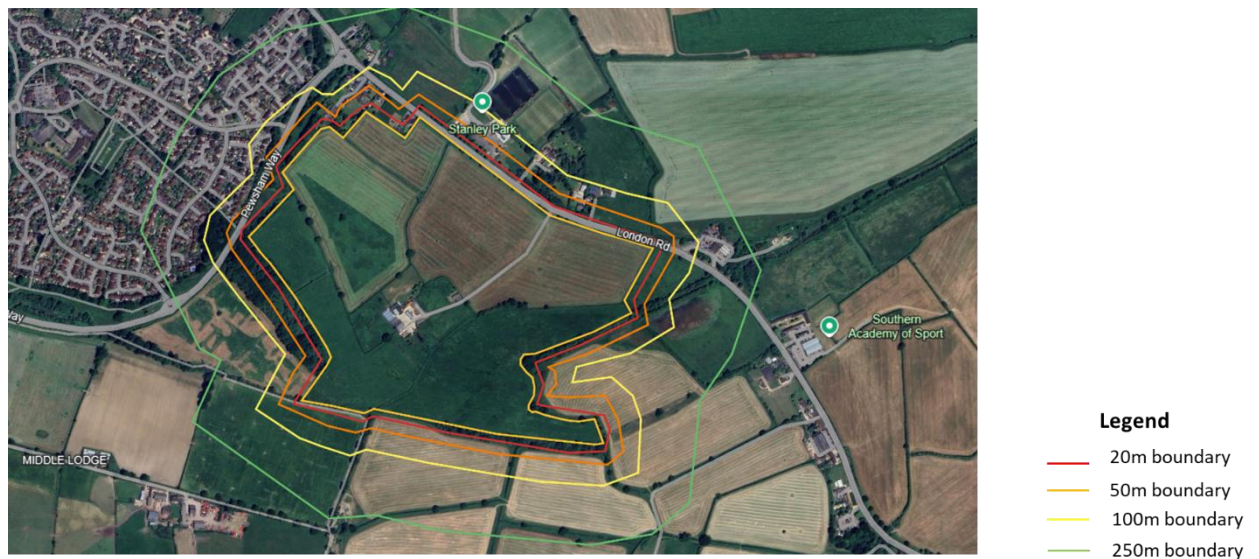
7.16 The site is located between Chippenham and Derry hill alongside London Road. The site is bounded by residential dwellings, i.e., highly sensitive receptors at a distance of ~250m to the northwest of the site. There are 10-100 highly sensitive receptors at a distance of ~100 m from the site, and >100 high sensitive receptors at a distance of ~250 m from the site. Hence, the distance between the site and these sensitive receptors are significantly high. Based on Table 2 of the IAQM guidance document, the sensitivity of the area to dust soiling impacts is illustrated in the table below, which portrays the sensitivity as *low*.

Sensitivity of the Area to Dust Soiling Effects on People and Property

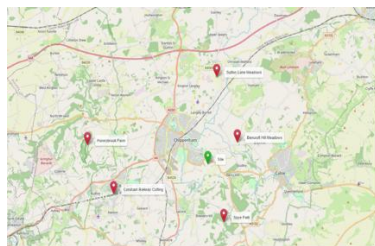
Receptor Sensitivity	Number of Receptors			
	<20m	<50m	<100m	<250m
High	2	~8	~39	~150

7.17 The distance between the development site and the sensitive receptors are described in the figure below:

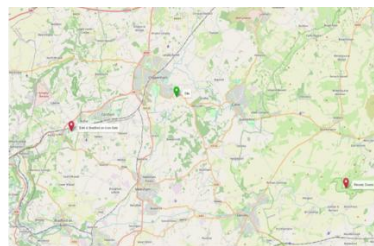
Distance radius from the development site to the sensitive receptors



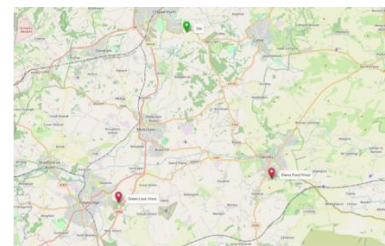
Annual mean PM₁₀ predicted background concentrations in the vicinity of the Proposed Development are predicted to be a maximum of 10 µg/m³. There are over 100 high sensitivity receptors that are likely to be exposed to these concentrations within 250 m of the application site. Based on Table 3 of the IAQM guidance, the sensitivity of the area to human health impacts due to elevated levels of PM₁₀ during the earthworks, and construction stages will be *Low*.



SSSI



SAC



LNR

7.18 There are no sensitive ecological sites that are within 50 m of the application site. The nearest Site of Special Scientific Interest (SSSI) is Bencroft Hill Meadows which is located ~1.8 miles northeast of the development site. Likewise, the nearest Special Areas of Conservation (SAC) is Bath & Bradford on Avon Bats which is located ~6.7 miles west of the site, and the nearest Local Nature Reserve (LNR) Drews Pond Wood is located at a distance of ~8.5 miles southeast of the site. Based on Table 4 of the IAQM guidance, the sensitivity of the area to ecological impacts due to dust during the earthworks and construction stages will be *Negligible*. The ecological sites in relation to the site are described in the figure above:

7.19 In line with the IAQM guidance, sensitive receptors have been considered within 50m of track out routes up to 250 m of the site entrances. There are ~60 high sensitivity receptors within 250 m of the roads (A4 London Road) along which material could be tracked. This number of highly sensitive receptors at a distance of <250m falls under the low sensitivity category. However, there were ~15 to 18 high sensitivity receptors at a distance

of <50m from the A4 London Road along which material could be tracked, which makes the track out emissions fall under medium category, and thus the area is considered to be of *Medium* sensitivity to dust soiling impacts due to track out. In terms of human health, the area is considered to be of *Low* sensitivity.

- 7.20 There are no sensitive ecological sites within 250m of the site. Based on Table 4 of the IAQM guidance, the sensitivity of the area to ecological impacts due to track out will be *Negligible*.

Summary of sensitivity of the surrounding area with respect to the development site

Potential Impact	Sensitivity of the Surrounding Area			
	Demolition	Earthworks	Construction	Track out
Dust Soiling	N/A	Low	Low	Medium
Human Health	N/A	Low	Low	Low
Ecology	N/A	Negligible	Negligible	Negligible
Table notes: For track out, the distances should be measured from the side of the roads used by construction traffic. The impact declines with distance from the site, and it is only necessary to consider track out impacts up to 50 m from the edge of the road.				

Risk of Dust Effect

- 7.21 The guidance provides a series of matrices (Table 2, Table 3 and Table 4 of the guidance document) to determine the potential impact at receptors based on the receptor sensitivity, number of receptors and the proximity to the dust emission activity.
- 7.22 The dust emission magnitudes have been combined with the sensitivities of the area in using the matrices in the guidance (Table 6, Table 7, Table 8 and Table 9 of the guidance), in order to assign a risk category to each activity. The resulting risk categories for the four construction activities, without mitigation, are set out in the table below.

Summary of Dust Risk for each activity of construction at the proposed development

Potential Impact	Risk			
	Demolition ^a	Earthworks ^b	Construction ^c	Trackout ^d
Dust Soiling	N/A	Low Risk	Low Risk	Medium Risk
Human Health	N/A	Low Risk	Low Risk	Low Risk
Ecological	Negligible	Negligible	Negligible	Negligible
Table notes: a. Based on Table 6 of the IAQM guidance document. b. Based on Table 7 of the IAQM guidance document. c. Based on Table 8 of the IAQM guidance document. d. Based on Table 9 of the IAQM guidance document.				

Significance of effects

- 7.23 The IAQM guidance does not provide a method for assessing the significance of effects before mitigation and advises that pre-mitigation significance should not be determined.
- 7.24 Step 3 - The risk categories set out in the table above have been used to determine the appropriate level of mitigation as set out in step 3 of the assessment procedure.
- 7.25 For those mitigation measures that are general, the highest risk category should be applied. For example, in this assessment the risk for earthworks and construction is low risk, but medium risk for track-out, the general measures applicable to a medium-risk site should be applied.

Mitigation

- 7.26 Measures to mitigate emissions will be required during the development in order to minimise impacts upon nearby sensitive receptors.
- 7.27 The proposed development has been identified as low risk for dust soiling effects during the earthworks and construction phase and medium risk for track out phase. In terms of human health, the proposed development has been identified as low risk during the earthworks, construction, and track out phase. Finally, in terms of Ecological receptors, the risk is negligible with respect to the proposed development.
- 7.28 The IAQM guidance document describes measures that should be employed, as appropriate, to reduce the impacts. In addition to this the IAQM has also published guidance on monitoring during demolition and construction (IAQM, 2018). Based on the finding of this assessment, a set of measures that are both highly recommended and desirable to be incorporated into the specification for the construction works has been drawn up. These measures are shown in the tables below.
- 7.29 The mitigation measures for the application site should be written into a dust management plan (DMP). The DMP may be integrated into a Code of Construction Practice or the Construction Environmental Management Plan and may require monitoring.
- 7.30 Where mitigation measures rely on water, it is expected that only sufficient water will be applied to damp down the material. There should not be any excess to potentially contaminate local watercourses.

Communication

Measure	Not Required / Highly Recommend / Desirable
Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.	Highly Recommended
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.	Highly Recommended
Display the head or regional office contact information.	Highly Recommended
Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. In London additional measures may be required to ensure compliance with the Mayor of London's guidance. The DMP may include monitoring of dust deposition, dust flux, real-time PM ₁₀ continuous monitoring and/or visual inspections.	Highly Recommended

Dust Management

Measure	Not Required / Highly Recommend / Desirable
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.	Highly Recommended
Make the complaints log available to the local authority when asked.	Highly Recommended
Record any exceptional incidents that cause dust and/or air emissions, either on- or off- site, and the action taken to resolve the situation in the logbook.	Highly Recommended
Hold regular liaison meetings with other high risk construction sites within 250 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.	Not Required
Monitoring	
Undertake daily 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 windowsills within 100 m of site boundary, with cleaning to be provided if necessary.	Desirable

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.	Highly Recommended
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.	Highly Recommended
Agree dust deposition, dust flux, or real-time PM ₁₀ continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.	Highly Recommended
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.	Highly Recommended
Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.	Highly Recommended
Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.	Highly Recommended
Avoid site runoff of water or mud.	Highly Recommended
Keep site fencing, barriers and scaffolding clean using wet methods.	Highly Recommended
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.	Highly Recommended
Cover, seed or fence stockpiles to prevent wind whipping.	Highly Recommended
Operating vehicle/machinery and sustainable travel	
Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone, Ultra-Low Emission Zone, and the London NRMM standards, where applicable.	Highly Recommended
Ensure all vehicles switch off engines when stationary - no idling vehicles.	Highly Recommended

Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.	Highly Recommended
Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph 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).	Desirable
Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.	Not required
Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).	Desirable
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.	Highly Recommended
Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.	Highly Recommended
Use enclosed chutes and conveyors and covered skips.	Highly Recommended
Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.	Highly Recommended
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.	Highly Recommended
Waste management	
Avoid bonfires and burning of waste materials.	Highly Recommended
Reuse and recycle waste to reduce dust from waste materials.	Highly Recommended

Measures specific to earthworks

Measure	Not Required / Highly Recommend / Desirable
Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.	Not Required
Use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.	Not Required
Only remove the cover in small areas during work and not all at once.	Not Required

Measures specific to Construction

Measure	Not Required / Highly Recommend / Desirable
Avoid scabbling (roughening of concrete surfaces) if possible.	Desirable
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.	Highly Recommended
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.	Desirable
For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.	Desirable

Measures specific to track out

Measure	Not Required / Highly Recommend / Desirable
Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.	Highly Recommended
Avoid dry sweeping of large areas.	Highly Recommended
Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.	Highly Recommended

Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.	Highly Recommended
Record all inspections of haul routes and any subsequent action in a site log book.	Highly Recommended
Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.	Highly Recommended
Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	Highly Recommended
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.	Highly Recommended
Access gates to be located at least 10 m from receptors where possible.	Highly Recommended

Summary of Construction Dust Assessment

- 7.31 The construction dust assessment for the proposed development has been conducted in compliance with IAQM guidance.
- 7.32 Construction activities have the potential to generate dust and emissions. The proposed development site has been classified as low risk for dust soiling during earthworks, construction, and medium risk for track out. To address this, a comprehensive package of mitigation measures will be implemented to minimize dust emissions. With these measures in place, any residual effects are anticipated to be *'not significant.'*
- 7.33 The IAQM guidance acknowledges that, despite robust dust management plans, it is not always possible to ensure complete effectiveness under all conditions, such as adverse weather. As a result, the local community may occasionally experience short-term annoyance. However, the scale and duration of such occurrences are not expected to be significant enough to alter the conclusion that the overall construction effects of the proposed development will remain *'not significant'* if the mitigation measures are properly implemented to minimize dust emissions.

Health Impacts

- 7.34 The health risk and impacts of the construction dust with respect to the high, medium and low sensitivity receptors were found to be low, since the annual mean PM₁₀ predicted background concentrations be a maximum of 10 µg/m³ in the vicinity of the proposed development and >100 high sensitivity receptors were

found exposed to these concentrations < 250 m of the application site poses a low risk, showing that no further assessment or mitigation measures are required.

Construction Traffic and Plant

7.35 The following table shows the projected construction traffic for the proposed scheme.

Link Ref	Link	Construction Traffic 24hr AADT					
		Gleeson		Gallager		Cumulative	
		Veh	HDV	Veh	HDV	Veh	HDV
1	A420 Ivy Lane (north of Brige Centre Gyratory)	30	0	30	0	60	0
2	Bath Road (east of Brige Centre Gyratory)	0	0	0	0	0	0
3	A4 Bath Road (west of Brige Centre Gyratory)	60	31	60	31	120	62
4	Avenue La Fleche (between Bridge Centre Gyratory and Gladstone Road)	90	31	90	31	180	62
5	Gladstone Road (east of Avenue la Fleche)	0	0	0	0	0	0
6	Avenue La Fleche (south of Gladstone Road)	90	31	90	31	180	62
7	Avenue La Fleche (west of A4 Pewsham Way)	90	31	90	31	180	62
8	Avenue La Fleche (east of A4 Pewsham Way)	0	0	0	0	0	0
9	A4 Pewsham Way (south of Avenue La Fleche)	90	31	90	31	180	62
10	A4 Pewsham Way (west of London Road)	90	31	31	0	121	31
11	London Road (north of A4 Pewsham Way)	12	0	12	0	24	0
12	A4 London Road (between A4 Pewsham Way and Site Access)	102	31	19	0	121	31
14	A4 London Road (between Site Access and Old Derry Hill)	19	0	19	0	38	0
15	A4 New Road (east of Old Derry Hill)	12	0	12	0	24	0
16	Old Derry Hill (south of A4 New Road)	7	0	7	0	14	0
17*	A4 Chilvester Hill (west of A3102 Greenacres Way)	12	0	12	0	24	0
18*	A3102 Greenacres Way (north of A4 Chilvester Hill)	9	0	9	0	18	0
19*	A4 Curzon Street (east of A3102 Greenacres Way)	3	0	3	0	6	0
*Links close or within Calne AQMA							

7.36 The number of HDV vehicles do not exceed the IAQM threshold for inner or outer AQMA changes in AADT flows. Therefore, further detailed assessment is not required. However, we recommend some of the following Best Available Techniques (BAT) to be adopted during the construction phase, as listed below which should result in no significant construction effects from the proposed development from construction traffic:

- All vehicles should switch off engines when stationary, no idling vehicles;
- Minimise the movement of construction traffic around the site;

- Maximising efficiency (this may include alternative modes of transport, maximising vehicle utilisation by ensuring full loading and efficient routing);
- Vehicles should be well maintained and kept in a high standard of working order;
- Avoid the use of diesel or petrol powered generators by using mains electricity or battery powered equipment where possible; and
- Locate plant away from boundaries close to residential areas.

8.0 TRAFFIC EMISSIONS

- 8.1 The EPUK & IAQM Guidance — 'Planning for Air Quality' (IAQM, 2017) has been used to assess potential traffic impacts associated with the development and this is outlined within the table below.

Indicative criteria requiring an air quality assessment

The Development will	Indicative criteria to proceed to an air quality assessment
Cause a significant change in Light Duty Vehicle (LDV) traffic flows on local roads with relevant receptors. (LDV = cars and small vans <3.5t gross vehicle weight).	A change of LDV flows of: - more than 100 AADT within or adjacent to an AQMA - more than 500 AADT elsewhere
Cause a significant change in Heavy Duty Vehicle (HDV) flows on local roads with relevant receptors. (HDV = goods vehicles + buses >3.5t gross vehicle weight).	A change of HDV flows of: - more than 25 AADT within or adjacent to an AQMA - more than 100 AADT elsewhere
Realign roads, i.e. changing the proximity of receptors to traffic lanes	Where the change is 5m or more and the road is within an AQMA
Introduce a new junction or remove an existing junction near to relevant receptors	Applies to junctions that cause traffic to significantly change vehicle accelerate/decelerate, e.g. traffic lights, or roundabouts.
Introduce or change a bus station	Where bus flows will change by: - more than 25 AADT within or adjacent to an AQMA - more than 100 AADT elsewhere
Have an underground car park with extraction system	The ventilation extract for the car park will be within 20m of the relevant receptor. Coupled with the car park having more than 100 movements per day (total in and out)

- 8.2 The proposed scheme will change road traffic on the local road network. To assess the impact of these traffic volume changes on the air quality, the project traffic consultants iTransport Ltd have provided the operational

traffic generation data relating to baseline and future operational traffic flows. The traffic data supplied is shown below:

Net traffic impact for the proposed development

	24hr AADT			18hr AAWT		
	Veh	HGV	HDV	Veh	HGV	HDV
Existing Traffic	0	0	0	0	0	0
Proposed Development Traffic	2214	19	35	2167	19	34
Net Impact	2214	19	35	2167	19	34

- 8.3 The table above indicates that the proposed development is expected to generate approximately 2,214 annual average daily trips (AADT).
- 8.4 This volume of traffic meets the EPUK & IAQM thresholds, necessitating a detailed or further assessment.
- 8.5 Consequently, the air quality impacts associated with development-related traffic have been evaluated through modelling the effects of traffic flows along the local highway network.
- 8.6 The results of the detailed assessment are presented in Section 9 of this report.

9.0 VEHICULAR TRAFFIC ASSESSMENT

- 9.1 ADMS-Road 5 (v5.0.1) air pollution model software has been used as the dispersion modelling tool to assess road traffic impacts associated with the operation of the Proposed Development as well as the suitability of the Site for residential purposes.
- 9.2 The operational assessment quantifies predictions of the change in concentrations of NO₂, PM₁₀ and PM_{2.5} for the operational phase of the development. In the context of the proposed development, transportation is identified as the dominant emission source that is likely to cause potential risk of exposure of air pollutants at receptors.
- 9.3 Traffic related air quality impacts associated with the operation of the proposed development have been assessed for the following scenarios
- Baseline Year 2024– (Observed traffic surveys at links 1-16. Estimated traffic flows at Links 17-19 based on the 2024 survey and 2018 WSTM4 outputs).
 - 2029 Opening Year Baseline – 2024 survey and background Traffic Growth (2024 to 2029) + 8 Committed Development Traffic Flows.
 - 2029 Opening Year with Development - 2024 survey with background Traffic Growth (2024 to 2029) + 8 Committed Development traffic flows + Gleeson Only development (600 dwellings + 500 sqm local centre) – includes Vision Led trip generation and internalisation
 - 2029 Opening Year with Cumulative - 2024 survey with background Traffic Growth (2024 to 2029) + 8 Committed Development traffic flows + Land East of Showell Farm Development (400 dwellings + 500 sqm local centre) – includes Vision Led trip generation and internalisation + Gleeson development (600 dwellings + 500 sqm local centre) – includes Vision Led trip generation and internalisation + Land South of Chippenham development (500 dwellings + Primary School) – includes Vision Led trip generation and internalisation
- 9.4 The cumulative predicted flows for the complete development 2036 year has also been considered. Traffic data provided by the traffic consultants used in this assessment can be found on Appendix A

Traffic Data

- 9.5 Traffic data has been provided by the transport consultants (iTransport) for all the scenarios. The data covers Annual Average Daily Traffic (AADT) for 19 road links. Distributed across a large area comprising Chippenham, the Site, Derry Hill and Calne.

9.6 Development traffic air quality impacts have been quantitatively assessed by modelling the effect of the development traffic flows along the proposed routes for the three above mentioned scenarios.

9.7 The AADT used in this assessment in the ADMS dispersion models for the 2024 baseline, 2029 Opening Year Baseline and 2036 Future Assessment Year Baseline models is described in Table below.

Annual Average Daily Traffic Flows for 2024 Baseline, 2029 Baseline, and 2036 Baseline

Link Ref	Link	Baseline Year 2024			2029 Opening Year Baseline			2036 Future Assessment Year Baseline		
		24hr AADT			24hr AADT			24hr AADT		
		Veh	HGV	HDV	Veh	HGV	HDV	Veh	HGV	HDV
1	A420 Ivy Lane (north of Brige Centre Gyratory)	17,189	355	477	20,549	363	487	21,095	374	502
2	Bath Road (east of Brige Centre Gyratory)	7,647	60	327	7,805	61	334	8,048	63	345
3	A4 Bath Road (west of Brige Centre Gyratory)	20,355	357	520	22,423	365	531	23,070	376	547
4	Avenue La Fleche (between Bridge Centre Gyratory and Gladstone Road)	29,655	621	999	33,633	633	1,020	34,576	653	1,052
5	Gladstone Road (east of Avenue la Fleche)	6,375	86	411	6,507	87	419	6,710	90	432
6	Avenue La Fleche (south of Gladstone Road)	23,803	561	614	27,682	572	627	28,439	590	646
7	Avenue La Fleche (west of A4 Pewsham Way)	23,910	591	644	27,792	603	657	28,552	622	678
8	Avenue La Fleche (east of A4 Pewsham Way)	8,623	98	113	9,308	100	116	9,582	104	119
9	A4 Pewsham Way (south of Avenue La Fleche)	20,061	509	552	23,357	520	564	23,995	536	581
10	A4 Pewsham Way (west of London Road)	15,196	469	529	18,391	478	540	18,874	493	556

11	London Road (north of A4 Pewsham Way)	8,432	113	257	8,899	115	262	9,168	119	270
12	A4 London Road (between A4 Pewsham Way and Site Access)	20,793	533	692	23,811	544	707	24,472	561	729
13	Site Access									
14	A4 London Road (between Site Access and Old Derry Hill)	20,622	531	690	23,615	541	704	24,271	558	726
15	A4 New Road (east of Old Derry Hill)	14,120	457	574	15,965	467	586	16,414	481	604
16	Old Derry Hill (south of A4 New Road)	8,556	216	259	9,742	220	264	10,014	227	272
17	A4 Chilvester Hill (west of A3102 Greenacres Way)	14,120	457	574	15,965	467	586	16,722	491	616
18	A3102 Greenacres Way (north of A4 Chilvester Hill)	9,354	271	337	10,324	277	344	10,825	291	362
19	A4 Curzon Street (east of A3102 Greenacres Way)	9,986	269	341	10,969	275	348	11,505	289	366

- 9.8 Similarly, the AADT for the following scenarios: 2029 Opening Year with Development, 2036 Future Assessment Year with Development, 2029 Opening Year with Cumulative Development, and 2036 Future Assessment Year with Cumulative Development are used in this assessment are described in the following Tables.

Annual Average Daily Traffic Flows for 2029 and 2036 Opening Year with Development

Link Ref	Link	2029 Opening Year with Development			2036 Future Assessment Year with Development		
		24hr AADT			24hr AADT		
		Veh	HGV	HDV	Veh	HGV	HDV
1	A420 Ivy Lane (north of Brige Centre Gyratory)	21,050	367	495	21,597	378	510
2	Bath Road (east of Brige Centre Gyratory)	7,805	61	334	8,048	63	345
3	A4 Bath Road (west of Brige Centre Gyratory)	22,933	369	539	23,580	381	555
4	Avenue La Fleche (between Bridge Centre Gyratory and Gladstone Road)	34,645	642	1,036	35,588	662	1,068
5	Gladstone Road (east of Avenue la Fleche)	6,507	87	419	6,710	90	432
6	Avenue La Fleche (south of Gladstone Road)	28,694	581	643	29,451	599	662
7	Avenue La Fleche (west of A4 Pewsham Way)	28,804	612	673	29,564	630	694
8	Avenue La Fleche (east of A4 Pewsham Way)	9,308	100	116	9,582	104	119
9	A4 Pewsham Way (south of Avenue La Fleche)	24,419	529	580	25,057	545	598
10	A4 Pewsham Way (west of London Road)	19,453	488	556	19,936	502	573

11	London Road (north of A4 Pewsham Way)	9,380	120	270	9,648	123	278
12	A4 London Road (between A4 Pewsham Way and Site Access)	25,354	557	731	26,015	574	753
13	Site Access	1,877	16	29	1,877	16	29
14	A4 London Road (between Site Access and Old Derry Hill)	23,925	544	709	24,581	561	731
15	A4 New Road (east of Old Derry Hill)	16,144	468	588	16,593	483	607
16	Old Derry Hill (south of A4 New Road)	9,873	221	266	10,145	228	274
17	A4 Chilvester Hill (west of A3102 Greenacres Way)	16,144	468	588	16,901	493	619
18	A3102 Greenacres Way (north of A4 Chilvester Hill)	10,413	277	346	10,915	292	364
19	A4 Curzon Street (east of A3102 Greenacres Way)	11,059	276	349	11,594	290	368

Annual Average Daily Traffic Flows for 2029 and 2036 Opening Year with Cumulative Development

Link Ref	Link	2029 Opening Year with Cumulative Development			2036 Future Assessment Year with Cumulative Development		
		24hr AADT			24hr AADT		
		Veh	HGV	HDV	Veh	HGV	HDV
1	A420 Ivy Lane (north of Bridge Centre Gyratory)	21,438	370	501	21,985	382	516
2	Bath Road (east of Bridge Centre Gyratory)	7,808	61	334	8,051	63	345
3	A4 Bath Road (west of Bridge Centre Gyratory)	23,768	376	551	24,415	388	568
4	Avenue La Fleche (between Bridge Centre Gyratory and Gladstone Road)	35,836	652	1,054	36,779	672	1,086

5	Gladstone Road (east of Avenue la Fleche)	6,698	89	422	6,901	91	435
6	Avenue La Fleche (south of Gladstone Road)	29,734	590	659	30,491	608	678
7	Avenue La Fleche (west of A4 Pewsham Way)	29,875	621	689	30,635	639	710
8	Avenue La Fleche (east of A4 Pewsham Way)	9,319	101	116	9,593	104	120
9	A4 Pewsham Way (south of Avenue La Fleche)	24,736	532	585	25,374	548	603
10	A4 Pewsham Way (west of London Road)	19,770	490	561	20,253	505	578
11	London Road (north of A4 Pewsham Way)	9,807	123	276	10,076	127	284
12	A4 London Road (between A4 Pewsham Way and Site Access)	25,244	556	729	25,906	573	751
13	Site Access	1,580	13	23	1,580	13	23
14	A4 London Road (between Site Access and Old Derry Hill)	24,350	548	715	25,005	564	737
15	A4 New Road (east of Old Derry Hill)	16,399	470	592	16,848	485	610
16	Old Derry Hill (south of A4 New Road)	10,036	223	269	10,308	230	277
17	A4 Chilvester Hill (west of A3102 Greenacres Way)	16,399	470	592	17,156	495	623
18	A3102 Greenacres Way (north of A4 Chilvester Hill)	10,541	278	347	11,042	293	366
19	A4 Curzon Street (east of A3102 Greenacres Way)	11,186	277	351	11,722	291	369

- 9.9 Speeds are based upon National Speed Limits for all links with exception for links 10, 11, 12 and 14. Traffic speed have been adjusted to take into account queues and congestion in accordance with LAQM TG(22)

Receptor Types and Locations

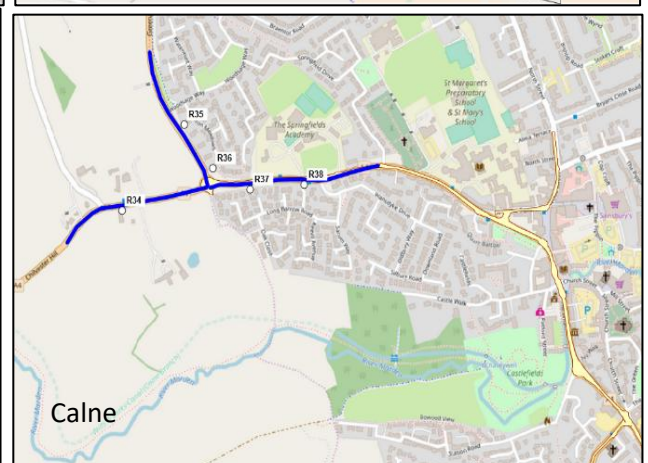
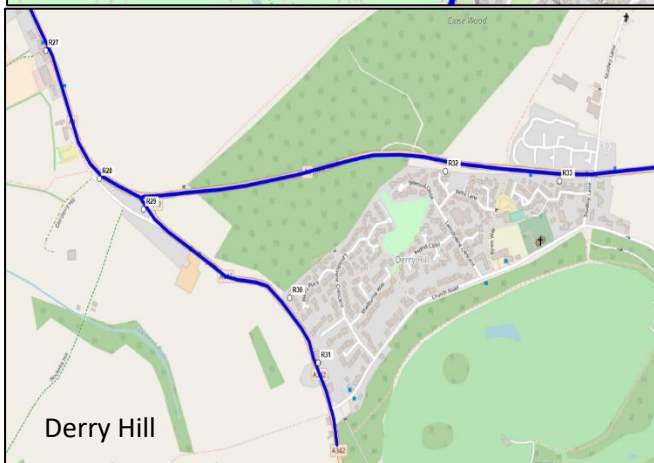
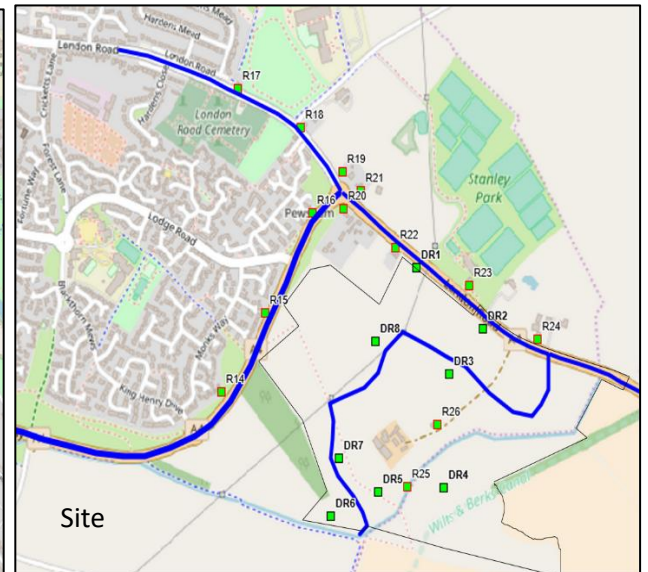
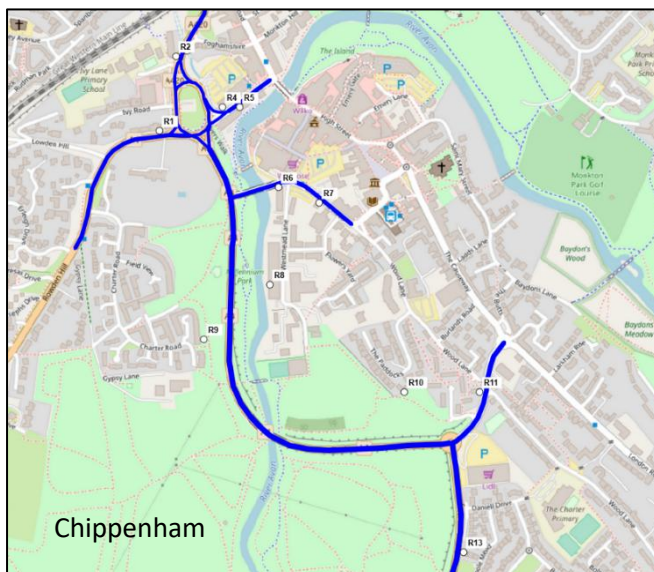
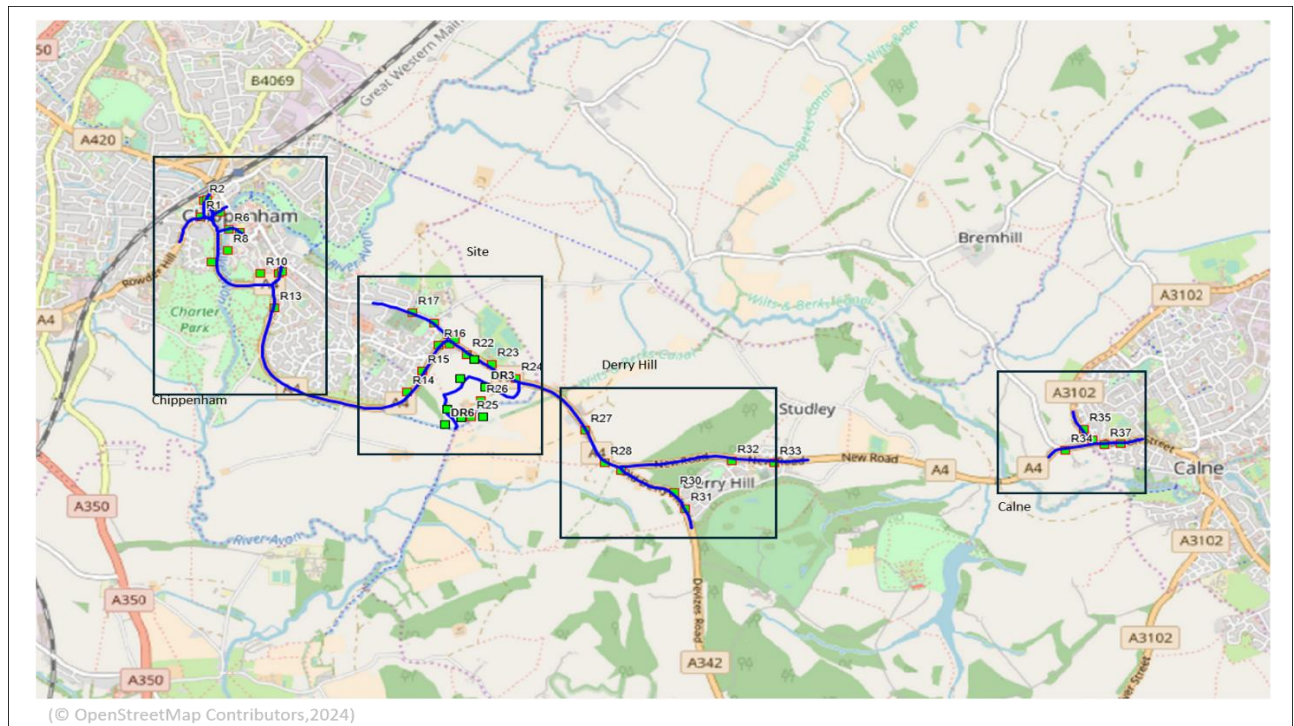
- 9.10 The assessment considers receptors representing potentially sensitive existing locations surrounding the site. For this air quality evaluation, sensitive receptors were identified as areas where the public is likely to be regularly present and exposed over the averaging period relevant to the air quality objective. The assessment specifically focuses on modelling annual mean pollutant concentrations.
- 9.11 All the receptor locations are listed in the table below and illustrated in the figure below.

Receptor Locations used in this modelling assessment

ID	X	Y	Height (m)
DR1	393923.9	171985.6	1.5
DR2	394106.4	171840.7	1.5
DR3	394013.8	171732.5	1.5
DR4	393999.1	171463.8	1.5
DR5	393817.6	171451.9	1.5
DR6	393687.3	171396	1.5
DR7	393709.3	171533.5	1.5
DR8	393810.2	171810.5	1.5
R1	391721.7	173285.3	1.5
R2	391754.9	173430.9	1.5
R3	391776.7	173442.5	1.5
R4	391846.6	173331.1	1.5
R5	391880.2	173332	1.5
R6	391956.5	173174.3	1.5
R7	392037.4	173144.5	1.5
R8	391940	172983.1	1.5
R9	391809.1	172875.5	1.5
R10	392205.1	172772.6	1.5
R11	392354.6	172772.5	1.5
R12	392378.6	172787.4	1.5
R13	392323	172457.7	1.5
R14	393386.7	171690.6	1.5
R15	393507.2	171877	1.5
R16	393638	172116.1	1.5
R17	393432.1	172410.7	1.5
R18	393606.1	172319.3	1.5

R19	393720.5	172212.3	1.5
R20	393723.9	172126	1.5
R21	393770.1	172168.8	1.5
R22	393864.7	172032.6	1.5
R23	394067.9	171943.2	1.5
R24	394256.8	171815	1.5
R25	393899	171465.2	1.5
R26	393979.8	171611.9	1.5
R27	394812.6	171336.1	1.5
R28	394970.8	171045.3	1.5
R29	395101.2	170976	1.5
R30	395534.1	170774.7	1.5
R31	395617.3	170628.1	1.5
R32	395994.2	171062.7	1.5
R33	396332	171040.7	1.5
R34	398671.1	171158.5	1.5
R35	398824.5	171350.2	1.5
R36	398893.6	171252.7	1.5

Location of receptors in relation to the modelled link roads and AQMA areas



- 9.12 Greater resolution of the above images is presented in Appendix A.

Assessing significance of model output

- 9.13 Guidance for assessing operational phase effects on air quality is outlined by EPUK & IAQM. When evaluating the impact of development on a specific existing receptor, both the resultant total concentration and the magnitude of change relative to the respective AQALs (Air Quality Assessment Levels) are taken into account, following the methodology described in the referenced table below.

Impact Descriptor Matrix for Receptors

Long Term Average Concentration at Receptor in Assessment Year	Change in Concentration relative to AQAL			
	1% *	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
*Changes < 0.5% will be described as Negligible.				

Emission Factors

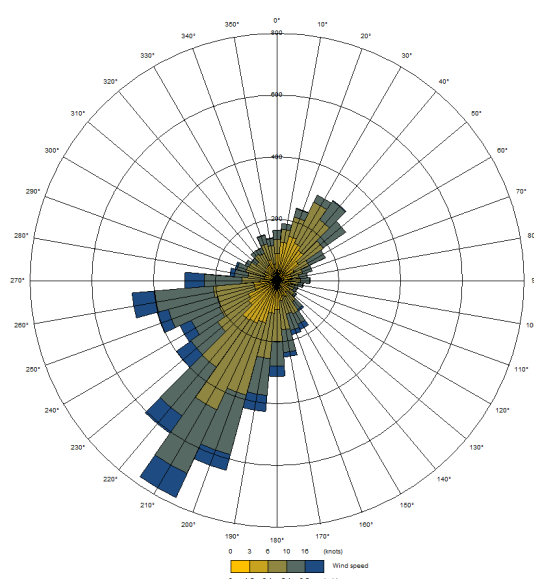
- 9.14 The NO_x, PM₁₀ and PM_{2.5} road source emissions have been calculated by ADMS using the latest Defra Emission Factor Toolkit (EFT 12.1, August 2024) developed for the UK by the National Atmospheric Emissions Inventory (NAEI) and Transport for London (TfL).
- 9.15 To take account of the hourly changes of volume of traffic over the day, hourly time emission variations factors for weekdays, Saturdays and Sundays have been applied to the AADT traffic flows. The factors are derived from the last data available (2023) DfT Car Traffic Distribution on all day in Great Britain), details can be found on Appendix A

Meteorological Data

- 9.16 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.
- 9.17 The nearest meteorological station is Bristol Airport which is located ~27 miles west of the site. Given the observed meteorological station distance from the site, we have used of numerical weather prediction (NWP)

model meteorological data which lies at a distance of around a mile NE of the site. The details of the NWP modelled MET SITE are given below

NWP year 2023 MET SITE: 0002074232	
X	Y
395350.8	172624.5



Background Concentrations

- 9.18 Background pollutant concentrations were obtained from the Pollution Climate Mapping (PCM) model dataset for the Wiltshire Council administrative area. The PCM dataset provides annual average background concentrations on a 1 km × 1 km grid, representing the spatial distribution of pollutant concentrations across the local authority area.
- 9.19 For a robust assessment, an assumption of no background reduction has been adopted for assessing all the scenarios. Hence, the 2023 background values have been adopted.
- 9.20 Air pollution background concentration maps are published by Defra and the Devolved Administrations to assist local authorities in carrying out Review and Assessment of local air quality, 2021-based background maps for 2023 for NO_x, NO₂, PM₁₀ and PM_{2.5}. The background concentration values for each pollutant are presented in Table below.

PCM Modelled Background Concentrations ($\mu\text{g}/\text{m}^3$) for 2023.

Area	Representative 1x1 km grid		Year 2023 Background Concentrations		
	X	Y	NO ₂	PM ₁₀	PM _{2.5}
Chippenham / Site	391500	173500	8.2	12.0	7.4
Derry Hill	395500	170500	5.2	10.8	6.6
Calne AQMA	400500	170500	6.3	11.5	7

Output Modelling / Verification

- 9.21 The results from dispersion model may differ from measured concentration due the estimates and uncertainties associated with the input data. An adjustment of modelled results is required in order ensure that the final concentrations presented are representative of monitoring information from an area.
- 9.22 As a results of the verification process an adjustment factor has been applied to the NO_x results from the modelling. Same factor has been applied to the PM₁₀ and PM_{2.5} emissions. The details of the verification process and calculated adjustment factor can be found on Appendix A.
- 9.23 Resulting NO₂ concentration has been calculated using the adjusted NO_x values using the DEFRA NO_x to NO₂ Calculator (v9.1).

Modelling Results.

Potential impacts Forest Farm Development. 2029 Opening Year.

NO₂ modelling Results

- 9.24 The below table presents annual mean NO₂ concentrations predicted at all assessed receptor locations for 2024 Current Baseline (BC), 2029 'Opening Year Baseline with Committed Development' (BD) with baseline and commitment development flows, and 2029 'Opening Year Baseline with Committed Development + Gleeson Development' (BGD)

Predicted Annual Mean NO₂ concentrations -Current Baseline, 2029 Opening with Committed Development and 2029 Opening Year with Committed Development + Gleeson

ID	Predicted Annual Mean NO ₂ Concentrations (µg/m ³)			Change in concentration	% Change Relative to AQAL	EPUK & IAQM Impact Significance
	2024 BC	2029 BD	2029 BGD	BGD-BD		
DR1	9.73	9.11	9.22	0.12	0.3%	Negligible
DR2	9.37	8.89	8.98	0.09	0.2%	Negligible
DR3	8.44	8.34	8.42	0.08	0.2%	Negligible
DR4	8.31	8.26	8.29	0.03	0.1%	Negligible
DR5	8.30	8.26	8.32	0.06	0.2%	Negligible
DR6	8.30	8.26	8.31	0.05	0.1%	Negligible
DR7	8.33	8.28	8.43	0.16	0.4%	Negligible
DR8	8.44	8.34	8.45	0.11	0.3%	Negligible
R1	12.32	10.50	10.55	0.04	0.1%	Negligible
R2	11.44	10.01	10.03	0.03	0.1%	Negligible
R3	13.20	11.10	11.16	0.05	0.1%	Negligible
R4	12.29	10.36	10.38	0.01	0.0%	Negligible
R5	11.37	9.89	9.91	0.01	0.0%	Negligible
R6	10.14	9.27	9.28	0.02	0.0%	Negligible
R7	9.51	8.91	8.93	0.01	0.0%	Negligible
R8	9.14	8.76	8.78	0.02	0.1%	Negligible
R9	9.03	8.69	8.71	0.02	0.0%	Negligible
R10	8.87	8.60	8.62	0.02	0.0%	Negligible
R11	9.75	9.09	9.11	0.02	0.0%	Negligible
R12	10.13	9.30	9.31	0.02	0.0%	Negligible
R13	11.34	10.08	10.17	0.09	0.2%	Negligible
R14	9.27	8.86	9.53	0.66	1.7%	Negligible
R15	9.86	9.23	10.25	1.03	2.6%	Negligible
R16	10.29	9.49	10.70	1.21	3.0%	Negligible
R17	9.72	9.04	9.11	0.08	0.2%	Negligible

R18	9.83	9.10	9.22	0.12	0.3%	Negligible
R19	9.56	8.99	9.33	0.33	0.8%	Negligible
R20	9.73	9.12	9.56	0.44	1.1%	Negligible
R21	9.82	9.16	9.42	0.26	0.7%	Negligible
R22	9.96	9.24	9.38	0.14	0.3%	Negligible
R23	9.73	9.10	9.20	0.10	0.2%	Negligible
R24	10.09	9.32	9.42	0.10	0.3%	Negligible
R25	8.30	8.26	8.30	0.04	0.1%	Negligible
R26	8.35	8.29	8.33	0.04	0.1%	Negligible
R27	10.31	9.45	9.47	0.02	0.1%	Negligible
R28	7.25	6.41	6.43	0.02	0.0%	Negligible
R29	6.76	6.11	6.13	0.01	0.0%	Negligible
R30	6.10	5.73	5.74	0.01	0.0%	Negligible
R31	6.90	6.20	6.21	0.01	0.0%	Negligible
R32	6.20	5.78	5.79	0.01	0.0%	Negligible
R33	6.41	5.90	5.92	0.01	0.0%	Negligible
R34	8.01	7.29	7.31	0.01	0.0%	Negligible
R35	7.58	7.03	7.04	0.01	0.0%	Negligible
R36	7.66	7.08	7.09	0.01	0.0%	Negligible
R37	7.42	6.94	6.95	0.01	0.0%	Negligible
R38	7.56	7.01	7.02	0.01	0.0%	Negligible

9.25 Similarly, the table below presents annual mean NO₂ concentrations predicted at all assessed receptor locations for 2029 'Opening Year Baseline with Committed Development' (BD) with baseline and commitment development flows, and 2029 'Opening Year Baseline with Committed Development + Cumulative Developments' (BCD)

Predicted Annual Mean NO₂ concentrations -Current Baseline, 2029 Opening with Committed Development and 2029 Opening Year with Committed Development + Cumulative Developments

ID	Predicted Annual Mean NO ₂ Concentrations (µg/m ³)			Change in concentration	% Change Relative to AQAL	EPUK & IAQM Impact Significance
	2024 BC	2029 BD	2029 BCD	DS-DN		
DR1	9.73	9.11	9.17	0.06	0.2%	Negligible
DR2	9.37	8.89	8.95	0.06	0.2%	Negligible
DR3	8.44	8.34	8.39	0.05	0.1%	Negligible
DR4	8.31	8.26	8.28	0.01	0.0%	Negligible
DR5	8.30	8.26	8.30	0.04	0.1%	Negligible
DR6	8.30	8.26	8.28	0.02	0.1%	Negligible
DR7	8.33	8.28	8.38	0.10	0.3%	Negligible
DR8	8.44	8.34	8.39	0.04	0.1%	Negligible

R1	12.32	10.50	10.61	0.11	0.3%	Negligible
R2	11.44	10.01	10.05	0.04	0.1%	Negligible
R3	13.20	11.10	11.20	0.09	0.2%	Negligible
R4	12.29	10.36	10.39	0.03	0.1%	Negligible
R5	11.37	9.89	9.92	0.02	0.1%	Negligible
R6	10.14	9.27	9.31	0.05	0.1%	Negligible
R7	9.51	8.91	8.95	0.03	0.1%	Negligible
R8	9.14	8.76	8.80	0.04	0.1%	Negligible
R9	9.03	8.69	8.73	0.03	0.1%	Negligible
R10	8.87	8.60	8.63	0.03	0.1%	Negligible
R11	9.75	9.09	9.11	0.02	0.1%	Negligible
R12	10.13	9.30	9.31	0.02	0.0%	Negligible
R13	11.34	10.08	10.19	0.11	0.3%	Negligible
R14	9.27	8.86	8.91	0.05	0.1%	Negligible
R15	9.86	9.23	9.31	0.08	0.2%	Negligible
R16	10.29	9.49	9.58	0.10	0.2%	Negligible
R17	9.72	9.04	9.12	0.08	0.2%	Negligible
R18	9.83	9.10	9.19	0.09	0.2%	Negligible
R19	9.56	8.99	9.06	0.07	0.2%	Negligible
R20	9.73	9.12	9.18	0.07	0.2%	Negligible
R21	9.82	9.16	9.23	0.06	0.2%	Negligible
R22	9.96	9.24	9.31	0.07	0.2%	Negligible
R23	9.73	9.10	9.17	0.07	0.2%	Negligible
R24	10.09	9.32	9.40	0.08	0.2%	Negligible
R25	8.30	8.26	8.28	0.02	0.0%	Negligible
R26	8.35	8.29	8.31	0.02	0.0%	Negligible
R27	10.31	9.45	9.49	0.04	0.1%	Negligible
R28	7.25	6.41	6.45	0.04	0.1%	Negligible
R29	6.76	6.11	6.14	0.03	0.1%	Negligible
R30	6.10	5.73	5.75	0.02	0.0%	Negligible
R31	6.90	6.20	6.23	0.03	0.1%	Negligible
R32	6.20	5.78	5.80	0.02	0.0%	Negligible
R33	6.41	5.90	5.92	0.02	0.0%	Negligible
R34	8.01	7.29	7.32	0.03	0.1%	Negligible
R35	7.58	7.03	7.05	0.02	0.0%	Negligible
R36	7.66	7.08	7.10	0.02	0.0%	Negligible
R37	7.42	6.94	6.95	0.01	0.0%	Negligible
R38	7.56	7.01	7.03	0.02	0.0%	Negligible

- 9.26 The maximum predicted annual mean NO_2 concentrations at all existing receptors are predicted to be at least $10 \mu\text{g}/\text{m}^3$ under the national objective levels, that's below the 75% of the AQAL value. For these concentration values, percentage change relative to the AQAL below 5% are considered to have a negligible impact, and all the changes will be 1% or less in this study.
- 9.27 Therefore, in accordance with the EPUK & IAQM guidance, the Proposed Development unmitigated impacts associated with NO_2 concentrations are considered to be of imperceptible magnitude and negligible significance.
- 9.28 The Proposed Development will introduce new residential receptors. The maximum predicted annual mean concentration at the Development Receptors is $9.73 \mu\text{g}/\text{m}^3$, a value well below the AQAL which represent 25% of its value. The site is considered suitable for residential development.
- 9.29 The empirical relationship given in LAQM TG22 (DEFRA, 2022) states that exceedances of the 1-hour mean NO_2 AQAL are unlikely to occur where annual mean concentrations are $<60 \mu\text{g}/\text{m}^3$. Annual mean NO_2 concentrations predicted at all receptor locations are well below this limit. Therefore, it is unlikely that an exceedance of the 1-hour mean objective will occur. Effects associated with likely 1-hour mean NO_2 concentrations at all assessed receptor locations (including those on Site) are therefore considered to be 'not significant'.

PM₁₀ modelling Results

Predicted Annual Mean PM₁₀ concentrations are showed in the table below.

Predicted Annual Mean PM₁₀ concentrations -Current Baseline, 2029 Opening with Committed Development and 2029 Opening Year with Committed Development + Gleeson

ID	Predicted Annual Mean PM ₁₀ Concentrations ($\mu\text{g}/\text{m}^3$)			Change in concentration	% Change Relative to AQAL	EPUK & IAQM Impact Significance
	2024 BC	2029 BD	2029 BDG	BDG-BD		
DR1	13.37	13.48	13.59	0.11	0.3%	Negligible
DR2	13.04	13.12	13.23	0.11	0.3%	Negligible
DR3	12.22	12.24	12.33	0.09	0.2%	Negligible
DR4	12.10	12.11	12.13	0.02	0.1%	Negligible
DR5	12.10	12.10	12.17	0.07	0.2%	Negligible
DR6	12.09	12.10	12.14	0.04	0.1%	Negligible
DR7	12.12	12.14	12.34	0.20	0.5%	Negligible
DR8	12.23	12.25	12.34	0.09	0.2%	Negligible
R1	16.06	16.17	16.25	0.08	0.2%	Negligible
R2	14.95	15.04	15.09	0.04	0.1%	Negligible
R3	16.83	17.17	17.28	0.10	0.3%	Negligible
R4	15.49	15.41	15.43	0.02	0.1%	Negligible

R5	15.03	14.99	15.01	0.02	0.0%	Negligible
R6	14.02	14.04	14.07	0.03	0.1%	Negligible
R7	13.36	13.37	13.38	0.01	0.0%	Negligible
R8	12.93	13.01	13.05	0.03	0.1%	Negligible
R9	12.82	12.89	12.93	0.03	0.1%	Negligible
R10	12.51	12.56	12.58	0.02	0.1%	Negligible
R11	13.44	13.50	13.52	0.02	0.0%	Negligible
R12	13.85	13.92	13.94	0.02	0.0%	Negligible
R13	14.30	14.51	14.62	0.11	0.3%	Negligible
R14	13.11	13.25	13.39	0.13	0.3%	Negligible
R15	13.72	13.94	14.15	0.21	0.5%	Negligible
R16	14.15	14.42	14.67	0.25	0.6%	Negligible
R17	13.56	13.58	13.66	0.08	0.2%	Negligible
R18	13.68	13.71	13.80	0.09	0.2%	Negligible
R19	13.36	13.45	13.56	0.11	0.3%	Negligible
R20	13.47	13.61	13.74	0.13	0.3%	Negligible
R21	13.50	13.63	13.74	0.12	0.3%	Negligible
R22	13.58	13.70	13.82	0.12	0.3%	Negligible
R23	13.36	13.47	13.58	0.11	0.3%	Negligible
R24	13.68	13.81	13.95	0.14	0.4%	Negligible
R25	12.10	12.11	12.14	0.03	0.1%	Negligible
R26	12.14	12.15	12.19	0.03	0.1%	Negligible
R27	13.77	13.91	13.94	0.03	0.1%	Negligible
R28	12.53	12.66	12.69	0.03	0.1%	Negligible
R29	12.23	12.33	12.35	0.02	0.1%	Negligible
R30	11.65	11.71	11.72	0.01	0.0%	Negligible
R31	12.39	12.51	12.53	0.02	0.1%	Negligible
R32	11.75	11.81	11.82	0.02	0.0%	Negligible
R33	11.95	12.02	12.04	0.02	0.0%	Negligible
R34	13.12	13.22	13.25	0.03	0.1%	Negligible
R35	12.50	12.54	12.55	0.01	0.0%	Negligible
R36	12.67	12.73	12.74	0.02	0.0%	Negligible
R37	12.65	12.70	12.72	0.02	0.0%	Negligible
R38	12.81	12.86	12.88	0.02	0.1%	Negligible

9.30 Similarly, the table below presents annual mean PM₁₀ concentrations predicted at all assessed receptor locations for 2029 'Opening Year Baseline with Committed Development' (BD) with baseline and commitment development flows, and 2029 'Opening Year Baseline with Committed Development + Cumulative Developments' (BCD)

Predicted Annual Mean PM₁₀ concentrations -Current Baseline, 2029 Opening with Committed Development and 2029 Opening Year with Committed Development + Cumulative Development

ID	Predicted Annual Mean PM ₁₀ Concentrations (µg/m ³)			Change in concentration	% Change Relative to AQAL	EPUK & IAQM Impact Significance
	2024 BC	2029 BD	2029 BDC	BDC-BD		
DR1	13.37	13.48	13.58	0.10	0.3%	Negligible
DR2	13.04	13.12	13.22	0.10	0.2%	Negligible
DR3	12.22	12.24	12.32	0.08	0.2%	Negligible
DR4	12.10	12.11	12.13	0.02	0.0%	Negligible
DR5	12.10	12.10	12.16	0.06	0.1%	Negligible
DR6	12.09	12.10	12.13	0.03	0.1%	Negligible
DR7	12.12	12.14	12.31	0.17	0.4%	Negligible
DR8	12.23	12.25	12.33	0.07	0.2%	Negligible
R1	16.06	16.17	16.37	0.20	0.5%	Negligible
R2	14.95	15.04	15.12	0.08	0.2%	Negligible
R3	16.83	17.17	17.35	0.18	0.4%	Negligible
R4	15.49	15.41	15.46	0.05	0.1%	Negligible
R5	15.03	14.99	15.03	0.04	0.1%	Negligible
R6	14.02	14.04	14.14	0.09	0.2%	Negligible
R7	13.36	13.37	13.43	0.06	0.2%	Negligible
R8	12.93	13.01	13.08	0.07	0.2%	Negligible
R9	12.82	12.89	12.96	0.06	0.2%	Negligible
R10	12.51	12.56	12.60	0.04	0.1%	Negligible
R11	13.44	13.50	13.53	0.03	0.1%	Negligible
R12	13.85	13.92	13.95	0.02	0.1%	Negligible
R13	14.30	14.51	14.65	0.14	0.4%	Negligible
R14	13.11	13.25	13.35	0.09	0.2%	Negligible
R15	13.72	13.94	14.09	0.14	0.4%	Negligible
R16	14.15	14.42	14.60	0.18	0.4%	Negligible
R17	13.56	13.58	13.74	0.16	0.4%	Negligible
R18	13.68	13.71	13.88	0.17	0.4%	Negligible
R19	13.36	13.45	13.57	0.12	0.3%	Negligible
R20	13.47	13.61	13.72	0.11	0.3%	Negligible
R21	13.50	13.63	13.73	0.11	0.3%	Negligible
R22	13.58	13.70	13.81	0.11	0.3%	Negligible
R23	13.36	13.47	13.57	0.11	0.3%	Negligible
R24	13.68	13.81	13.94	0.13	0.3%	Negligible
R25	12.10	12.11	12.13	0.02	0.1%	Negligible
R26	12.14	12.15	12.18	0.03	0.1%	Negligible
R27	13.77	13.91	13.97	0.06	0.2%	Negligible

R28	12.53	12.66	12.71	0.06	0.1%	Negligible
R29	12.23	12.33	12.37	0.04	0.1%	Negligible
R30	11.65	11.71	11.73	0.03	0.1%	Negligible
R31	12.39	12.51	12.55	0.05	0.1%	Negligible
R32	11.75	11.81	11.84	0.03	0.1%	Negligible
R33	11.95	12.02	12.06	0.04	0.1%	Negligible
R34	13.12	13.22	13.27	0.05	0.1%	Negligible
R35	12.50	12.54	12.56	0.02	0.1%	Negligible
R36	12.67	12.73	12.76	0.03	0.1%	Negligible
R37	12.65	12.70	12.73	0.03	0.1%	Negligible
R38	12.81	12.86	12.89	0.03	0.1%	Negligible

- 9.31 The maximum predicted annual mean PM_{10} at modelled receptors is predicted to be $17.35 \mu\text{g}/\text{m}^3$, well below the national objective levels, that's less than 75% of the AQAL value. For this concentration values, percentage change relative to the AQAL below 5% are considered to have a negligible impact, and all the changes in this study are 0.01%.
- 9.32 Therefore, in accordance with the EPUK & IAQM guidance, the Proposed Development unmitigated impacts associated with PM_{10} concentrations are considered to be of imperceptible magnitude and negligible significance.
- 9.33 The maximum predicted PM_{10} annual mean concentration at the Development Receptors is $13.58 \mu\text{g}/\text{m}^3$, a value well below the AQAL which represent 34% of its value. The site is considered suitable for residential.

PM_{2.5} modelling Results

Predicted Annual Mean PM_{2.5} concentrations -Current Baseline, 2029 Opening with Committed Development and 2029 Opening Year with Committed Development + Gleeson

ID	Predicted Annual Mean PM _{2.5} Concentrations (µg/m ³)			Change in concentration	% Change Relative to AQAL	EPUK & IAQM Impact Significance
	2024 BC	2029 BD	2029 BDG	BDG-BD		
DR1	8.15	8.20	8.26	0.06	0.3%	Negligible
DR2	7.97	8.01	8.07	0.06	0.3%	Negligible
DR3	7.52	7.53	7.58	0.05	0.2%	Negligible
DR4	7.45	7.46	7.47	0.01	0.1%	Negligible
DR5	7.45	7.46	7.49	0.04	0.2%	Negligible
DR6	7.45	7.45	7.48	0.02	0.1%	Negligible
DR7	7.47	7.47	7.58	0.11	0.5%	Negligible
DR8	7.52	7.53	7.58	0.05	0.2%	Negligible
R1	9.55	9.58	9.62	0.04	0.2%	Negligible
R2	8.96	8.99	9.01	0.02	0.1%	Negligible
R3	9.96	10.10	10.15	0.05	0.3%	Negligible
R4	9.25	9.17	9.18	0.01	0.1%	Negligible
R5	9.01	8.96	8.97	0.01	0.1%	Negligible
R6	8.48	8.47	8.48	0.01	0.1%	Negligible
R7	8.13	8.12	8.12	0.01	0.0%	Negligible
R8	7.90	7.93	7.95	0.02	0.1%	Negligible
R9	7.84	7.87	7.89	0.02	0.1%	Negligible
R10	7.69	7.71	7.72	0.01	0.1%	Negligible
R11	8.17	8.20	8.21	0.01	0.0%	Negligible
R12	8.39	8.41	8.42	0.01	0.0%	Negligible
R13	8.71	8.80	8.86	0.06	0.3%	Negligible
R14	7.99	8.06	8.14	0.08	0.4%	Negligible
R15	8.31	8.42	8.54	0.12	0.6%	Negligible
R16	8.55	8.67	8.82	0.15	0.7%	Negligible
R17	8.23	8.23	8.27	0.04	0.2%	Negligible
R18	8.29	8.30	8.35	0.05	0.2%	Negligible
R19	8.13	8.17	8.23	0.06	0.3%	Negligible
R20	8.19	8.26	8.33	0.08	0.4%	Negligible
R21	8.22	8.27	8.34	0.07	0.3%	Negligible
R22	8.27	8.32	8.39	0.07	0.3%	Negligible
R23	8.15	8.20	8.26	0.06	0.3%	Negligible
R24	8.33	8.38	8.46	0.08	0.4%	Negligible
R25	7.45	7.46	7.47	0.02	0.1%	Negligible
R26	7.48	7.48	7.50	0.02	0.1%	Negligible

R27	8.39	8.44	8.46	0.02	0.1%	Negligible
R28	7.56	7.62	7.63	0.02	0.1%	Negligible
R29	7.38	7.42	7.44	0.01	0.1%	Negligible
R30	7.06	7.09	7.09	0.01	0.0%	Negligible
R31	7.47	7.52	7.53	0.01	0.1%	Negligible
R32	7.12	7.14	7.15	0.01	0.0%	Negligible
R33	7.23	7.26	7.27	0.01	0.1%	Negligible
R34	7.88	7.92	7.94	0.01	0.1%	Negligible
R35	7.56	7.58	7.58	0.01	0.0%	Negligible
R36	7.65	7.67	7.67	0.01	0.0%	Negligible
R37	7.61	7.63	7.64	0.01	0.0%	Negligible
R38	7.69	7.71	7.72	0.01	0.1%	Negligible

Predicted Annual Mean PM_{2.5} concentrations -Current Baseline, 2029 Opening with Committed Development and 2029 Opening Year with Committed Development + Cumulative Development

ID	Predicted Annual Mean PM _{2.5} Concentrations (µg/m ³)			Change in concentration	% Change Relative to AQAL	EPUK & IAQM Impact Significance
	2024 BC	2029 BD	2029 BDC	BDC-BD		
DR1	8.15	8.20	8.25	0.06	0.3%	Negligible
DR2	7.97	8.01	8.06	0.05	0.3%	Negligible
DR3	7.52	7.53	7.57	0.04	0.2%	Negligible
DR4	7.45	7.46	7.47	0.01	0.0%	Negligible
DR5	7.45	7.46	7.49	0.03	0.2%	Negligible
DR6	7.45	7.45	7.47	0.02	0.1%	Negligible
DR7	7.47	7.47	7.56	0.09	0.5%	Negligible
DR8	7.52	7.53	7.57	0.04	0.2%	Negligible
R1	9.55	9.58	9.68	0.11	0.5%	Negligible
R2	8.96	8.99	9.03	0.04	0.2%	Negligible
R3	9.96	10.10	10.19	0.09	0.5%	Negligible
R4	9.25	9.17	9.20	0.03	0.1%	Negligible
R5	9.01	8.96	8.98	0.02	0.1%	Negligible
R6	8.48	8.47	8.52	0.05	0.2%	Negligible
R7	8.13	8.12	8.15	0.03	0.2%	Negligible
R8	7.90	7.93	7.97	0.04	0.2%	Negligible
R9	7.84	7.87	7.90	0.03	0.2%	Negligible
R10	7.69	7.71	7.73	0.02	0.1%	Negligible
R11	8.17	8.20	8.21	0.02	0.1%	Negligible
R12	8.39	8.41	8.43	0.01	0.1%	Negligible
R13	8.71	8.80	8.88	0.08	0.4%	Negligible
R14	7.99	8.06	8.11	0.05	0.2%	Negligible

R15	8.31	8.42	8.49	0.08	0.4%	Negligible
R16	8.55	8.67	8.76	0.09	0.5%	Negligible
R17	8.23	8.23	8.31	0.08	0.4%	Negligible
R18	8.29	8.30	8.38	0.09	0.4%	Negligible
R19	8.13	8.17	8.23	0.06	0.3%	Negligible
R20	8.19	8.26	8.32	0.06	0.3%	Negligible
R21	8.22	8.27	8.33	0.06	0.3%	Negligible
R22	8.27	8.32	8.38	0.06	0.3%	Negligible
R23	8.15	8.20	8.25	0.06	0.3%	Negligible
R24	8.33	8.38	8.45	0.07	0.4%	Negligible
R25	7.45	7.46	7.47	0.01	0.1%	Negligible
R26	7.48	7.48	7.50	0.02	0.1%	Negligible
R27	8.39	8.44	8.48	0.03	0.2%	Negligible
R28	7.56	7.62	7.65	0.03	0.2%	Negligible
R29	7.38	7.42	7.45	0.02	0.1%	Negligible
R30	7.06	7.09	7.10	0.01	0.1%	Negligible
R31	7.47	7.52	7.54	0.02	0.1%	Negligible
R32	7.12	7.14	7.16	0.02	0.1%	Negligible
R33	7.23	7.26	7.28	0.02	0.1%	Negligible
R34	7.88	7.92	7.95	0.03	0.1%	Negligible
R35	7.56	7.58	7.59	0.01	0.1%	Negligible
R36	7.65	7.67	7.68	0.02	0.1%	Negligible
R37	7.61	7.63	7.64	0.02	0.1%	Negligible
R38	7.69	7.71	7.73	0.02	0.1%	Negligible

9.34 The maximum predicted annual mean PM_{2.5} at modelled receptors is predicted to be 10.19 µg/m³, well below the national objective levels, that's less than 75% of the AQAL value. For this concentration values, percentage change relative to the AQAL below 5% are considered to have a negligible impact, and all the changes in this study are 0%.

9.35 Therefore, in accordance with the EPUK & IAQM guidance, the Proposed Development unmitigated impacts associated with PM_{2.5} concentrations are considered to be of imperceptible magnitude and negligible significance.

Cumulative Development. 2036 Future Assessment Year.

9.36 For a cumulative assessment which involves the committed development, Land East of Showell Farm, and Land South of Chippenham, the following scenarios have been provided by the traffic consultants.

- 2036 Future Assessment Year Baseline – 2024 survey with background traffic growth (2024 to 2036) + 8 Committed Development Traffic Flows.
- 2036 Future Assessment Year with Development - 2024 survey with background Traffic Growth (2024 to 2036) + 8 Committed Development traffic flows + Gleeson Only development (600 dwellings + 500 sqm local centre) – includes Vision Led trip generation and internalisation.
- 2036 Future Assessment Year with Development - 2024 survey with background Traffic Growth (2024 to 2036) + 8 Committed Development traffic flows + Land East of Showell Farm (400 dwellings + 500 sqm local centre) – includes Vision Led trip generation and internalisation + Gleeson development (600 dwellings + 500 sqm local centre) – includes Vision Led trip generation and internalisation + Land South of Chippenham (500 dwellings + Primary School) – includes Vision Led trip generation and internalisation.

NO₂ modelling Results. Year 2036

Predicted Annual Mean NO₂ concentrations – 2036 Future Assessment and 2036 Future Assessment + Gleeson Development

ID	2036 Future Year Assessment (FAB)	2036 Future Year Assessment + Gleeson (FAG)	Change (FAG-FAB)	% Change Relative to AQAL	EPUK & IAQM Impact Significance
DR1	8.55	8.57	0.03	0.06%	Negligible
DR2	8.47	8.49	0.03	0.06%	Negligible
DR3	8.26	8.28	0.02	0.05%	Negligible
DR4	8.22	8.23	0.00	0.01%	Negligible
DR5	8.22	8.24	0.01	0.04%	Negligible
DR6	8.22	8.23	0.01	0.02%	Negligible
DR7	8.23	8.27	0.04	0.11%	Negligible
DR8	8.26	8.27	0.02	0.05%	Negligible
R1	9.08	9.09	0.01	0.04%	Negligible
R2	8.91	8.91	0.01	0.02%	Negligible
R3	9.31	9.33	0.02	0.04%	Negligible
R4	9.06	9.07	0.00	0.01%	Negligible
R5	8.86	8.87	0.00	0.01%	Negligible
R6	8.62	8.63	0.01	0.01%	Negligible
R7	8.48	8.49	0.00	0.01%	Negligible
R8	8.41	8.42	0.01	0.02%	Negligible
R9	8.39	8.39	0.01	0.02%	Negligible
R10	8.35	8.36	0.01	0.01%	Negligible

R11	8.53	8.54	0.00	0.01%	Negligible
R12	8.61	8.61	0.00	0.01%	Negligible
R13	8.93	8.96	0.03	0.08%	Negligible
R14	8.45	8.47	0.01	0.04%	Negligible
R15	8.59	8.61	0.02	0.06%	Negligible
R16	8.69	8.72	0.03	0.07%	Negligible
R17	8.52	8.54	0.02	0.04%	Negligible
R18	8.54	8.56	0.02	0.05%	Negligible
R19	8.50	8.52	0.02	0.04%	Negligible
R20	8.55	8.57	0.02	0.05%	Negligible
R21	8.57	8.59	0.02	0.06%	Negligible
R22	8.60	8.63	0.03	0.07%	Negligible
R23	8.55	8.57	0.03	0.06%	Negligible
R24	8.63	8.66	0.03	0.08%	Negligible
R25	8.22	8.23	0.01	0.02%	Negligible
R26	8.23	8.24	0.01	0.02%	Negligible
R27	8.68	8.69	0.01	0.02%	Negligible
R28	5.67	5.67	0.01	0.01%	Negligible
R29	5.55	5.56	0.00	0.01%	Negligible
R30	5.40	5.41	0.00	0.01%	Negligible
R31	5.58	5.59	0.01	0.01%	Negligible
R32	5.43	5.43	0.00	0.01%	Negligible
R33	5.47	5.48	0.00	0.01%	Negligible
R34	6.69	6.70	0.00	0.01%	Negligible
R35	6.59	6.59	0.00	0.01%	Negligible
R36	6.61	6.61	0.00	0.01%	Negligible
R37	6.55	6.55	0.00	0.00%	Negligible
R38	6.58	6.58	0.00	0.01%	Negligible

Predicted Annual Mean NO₂ concentrations – 2036 Future Assessment and 2036 Future Assessment + Cumulative Development

ID	2036 Future Year Assessment (FAB)	2036 Future Year Assessment + Cumulative (FAC)	Change (FAC-FAB)	% Change Relative to AQAL	EPUK & IAQM Impact Significance
DR1	8.55	8.57	0.02	0.06%	Negligible
DR2	8.47	8.49	0.02	0.06%	Negligible
DR3	8.26	8.27	0.02	0.04%	Negligible
DR4	8.22	8.23	0.00	0.01%	Negligible
DR5	8.22	8.24	0.01	0.03%	Negligible

DR6	8.22	8.23	0.01	0.02%	Negligible
DR7	8.23	8.27	0.04	0.10%	Negligible
DR8	8.26	8.27	0.02	0.04%	Negligible
R1	9.08	9.12	0.04	0.10%	Negligible
R2	8.91	8.92	0.02	0.04%	Negligible
R3	9.31	9.35	0.03	0.08%	Negligible
R4	9.06	9.07	0.01	0.02%	Negligible
R5	8.86	8.87	0.01	0.02%	Negligible
R6	8.62	8.64	0.02	0.04%	Negligible
R7	8.48	8.49	0.01	0.02%	Negligible
R8	8.41	8.43	0.01	0.03%	Negligible
R9	8.39	8.40	0.01	0.03%	Negligible
R10	8.35	8.36	0.01	0.03%	Negligible
R11	8.53	8.54	0.01	0.02%	Negligible
R12	8.61	8.61	0.01	0.02%	Negligible
R13	8.93	8.97	0.04	0.10%	Negligible
R14	8.45	8.47	0.02	0.05%	Negligible
R15	8.59	8.62	0.03	0.07%	Negligible
R16	8.69	8.72	0.04	0.09%	Negligible
R17	8.52	8.55	0.03	0.08%	Negligible
R18	8.54	8.58	0.03	0.08%	Negligible
R19	8.50	8.53	0.02	0.06%	Negligible
R20	8.55	8.58	0.02	0.06%	Negligible
R21	8.57	8.59	0.02	0.06%	Negligible
R22	8.60	8.63	0.03	0.06%	Negligible
R23	8.55	8.57	0.02	0.06%	Negligible
R24	8.63	8.66	0.03	0.08%	Negligible
R25	8.22	8.23	0.01	0.01%	Negligible
R26	8.23	8.24	0.01	0.02%	Negligible
R27	8.68	8.70	0.01	0.04%	Negligible
R28	5.67	5.68	0.01	0.04%	Negligible
R29	5.55	5.56	0.01	0.03%	Negligible
R30	5.40	5.41	0.01	0.02%	Negligible
R31	5.58	5.60	0.01	0.03%	Negligible
R32	5.43	5.43	0.01	0.01%	Negligible
R33	5.47	5.48	0.01	0.02%	Negligible
R34	6.69	6.70	0.01	0.02%	Negligible
R35	6.59	6.60	0.01	0.01%	Negligible
R36	6.61	6.61	0.01	0.02%	Negligible

R37	6.55	6.55	0.00	0.01%	Negligible
R38	6.58	6.58	0.00	0.01%	Negligible

PM₁₀ modelling Results. Year 2036

Predicted Annual Mean PM₁₀ concentrations – 2036 Future Assessment and 2036 Future Assessment + Gleeson Development

ID	2036 Future Year Assessment (FAB)	2036 Future Year Assessment + Gleeson (FAG)	Change (FAG-FAB)	% Change Relative to AQAL	EPUK & IAQM
DR1	13.48	13.59	0.11	0.27%	Negligible
DR2	13.13	13.23	0.11	0.26%	Negligible
DR3	12.24	12.33	0.09	0.22%	Negligible
DR4	12.11	12.13	0.02	0.05%	Negligible
DR5	12.11	12.17	0.06	0.16%	Negligible
DR6	12.10	12.14	0.04	0.09%	Negligible
DR7	12.14	12.33	0.19	0.48%	Negligible
DR8	12.25	12.33	0.08	0.20%	Negligible
R1	16.15	16.22	0.07	0.18%	Negligible
R2	15.00	15.04	0.04	0.10%	Negligible
R3	17.13	17.21	0.09	0.22%	Negligible
R4	15.33	15.35	0.02	0.05%	Negligible
R5	14.96	14.97	0.02	0.05%	Negligible
R6	14.05	14.08	0.03	0.06%	Negligible
R7	13.37	13.39	0.01	0.04%	Negligible
R8	13.01	13.05	0.03	0.08%	Negligible
R9	12.89	12.92	0.03	0.08%	Negligible
R10	12.56	12.58	0.02	0.05%	Negligible
R11	13.50	13.52	0.02	0.04%	Negligible
R12	13.92	13.93	0.01	0.04%	Negligible
R13	14.53	14.64	0.11	0.27%	Negligible
R14	13.25	13.32	0.07	0.18%	Negligible
R15	13.94	14.05	0.11	0.28%	Negligible
R16	14.42	14.55	0.14	0.34%	Negligible
R17	13.58	13.66	0.09	0.22%	Negligible
R18	13.70	13.80	0.10	0.24%	Negligible
R19	13.45	13.54	0.09	0.21%	Negligible
R20	13.61	13.71	0.10	0.24%	Negligible
R21	13.63	13.73	0.10	0.25%	Negligible
R22	13.71	13.82	0.11	0.28%	Negligible

R23	13.48	13.59	0.11	0.27%	Negligible
R24	13.82	13.95	0.14	0.34%	Negligible
R25	12.11	12.13	0.03	0.07%	Negligible
R26	12.15	12.19	0.03	0.08%	Negligible
R27	13.92	13.94	0.02	0.06%	Negligible
R28	12.67	12.69	0.02	0.06%	Negligible
R29	12.33	12.35	0.02	0.05%	Negligible
R30	11.71	11.72	0.01	0.03%	Negligible
R31	12.51	12.53	0.02	0.06%	Negligible
R32	11.81	11.82	0.01	0.02%	Negligible
R33	12.03	12.04	0.01	0.03%	Negligible
R34	13.26	13.28	0.02	0.04%	Negligible
R35	12.57	12.58	0.01	0.02%	Negligible
R36	12.76	12.77	0.01	0.03%	Negligible
R37	12.72	12.73	0.01	0.02%	Negligible
R38	12.89	12.90	0.01	0.03%	Negligible

Predicted Annual Mean PM₁₀ concentrations – 2036 Future Assessment and 2036 Future Assessment + Cumulative Development

ID	2036 Future Year Assessment (FAB)	2036 Future Year Assessment + Cumulative (FAC)	Change (FAC-FAB)	% Change Relative to AQAL	EPUK & IAQM
DR1	13.48	13.58	0.10	0.25%	Negligible
DR2	13.13	13.22	0.10	0.24%	Negligible
DR3	12.24	12.32	0.08	0.19%	Negligible
DR4	12.11	12.13	0.02	0.04%	Negligible
DR5	12.11	12.16	0.06	0.14%	Negligible
DR6	12.10	12.13	0.03	0.08%	Negligible
DR7	12.14	12.30	0.17	0.41%	Negligible
DR8	12.25	12.32	0.07	0.18%	Negligible
R1	16.15	16.34	0.20	0.49%	Negligible
R2	15.00	15.08	0.08	0.19%	Negligible
R3	17.13	17.30	0.17	0.42%	Negligible
R4	15.33	15.38	0.05	0.12%	Negligible
R5	14.96	15.00	0.04	0.10%	Negligible
R6	14.05	14.13	0.08	0.20%	Negligible
R7	13.37	13.42	0.05	0.12%	Negligible
R8	13.01	13.08	0.07	0.16%	Negligible
R9	12.89	12.95	0.06	0.15%	Negligible

R10	12.56	12.60	0.04	0.09%	Negligible
R11	13.50	13.53	0.03	0.08%	Negligible
R12	13.92	13.95	0.03	0.07%	Negligible
R13	14.53	14.67	0.14	0.34%	Negligible
R14	13.25	13.34	0.09	0.23%	Negligible
R15	13.94	14.08	0.14	0.35%	Negligible
R16	14.42	14.59	0.17	0.43%	Negligible
R17	13.58	13.73	0.15	0.38%	Negligible
R18	13.70	13.87	0.16	0.41%	Negligible
R19	13.45	13.57	0.12	0.29%	Negligible
R20	13.61	13.72	0.11	0.27%	Negligible
R21	13.63	13.73	0.10	0.26%	Negligible
R22	13.71	13.82	0.11	0.26%	Negligible
R23	13.48	13.58	0.10	0.25%	Negligible
R24	13.82	13.94	0.13	0.32%	Negligible
R25	12.11	12.13	0.02	0.06%	Negligible
R26	12.15	12.18	0.03	0.07%	Negligible
R27	13.92	13.98	0.06	0.15%	Negligible
R28	12.67	12.73	0.06	0.14%	Negligible
R29	12.33	12.38	0.05	0.12%	Negligible
R30	11.71	11.74	0.03	0.08%	Negligible
R31	12.51	12.56	0.06	0.14%	Negligible
R32	11.81	11.84	0.02	0.06%	Negligible
R33	12.03	12.06	0.03	0.07%	Negligible
R34	13.26	13.30	0.04	0.10%	Negligible
R35	12.57	12.59	0.02	0.05%	Negligible
R36	12.76	12.79	0.02	0.06%	Negligible
R37	12.72	12.74	0.02	0.05%	Negligible
R38	12.89	12.91	0.02	0.06%	Negligible

PM_{2.5} modelling Results. Year 2036

Predicted Annual Mean PM_{2.5} concentrations – 2036 Future Assessment and 2036 Future Assessment + Gleeson Development

ID	2036 Future Year Assessment (FAB)	2036 Future Year Assessment + Gleeson (FAG)	Change (FAG-FAB)	% Change Relative to AQAL	EPUK & IAQM
DR1	8.21	8.26	0.06	0.14%	Negligible
DR2	8.01	8.07	0.06	0.14%	Negligible
DR3	7.53	7.58	0.05	0.12%	Negligible

DR4	7.46	7.47	0.01	0.03%	Negligible
DR5	7.46	7.49	0.03	0.09%	Negligible
DR6	7.45	7.47	0.02	0.05%	Negligible
DR7	7.47	7.58	0.10	0.26%	Negligible
DR8	7.53	7.58	0.04	0.11%	Negligible
R1	9.58	9.62	0.04	0.10%	Negligible
R2	8.97	8.99	0.02	0.05%	Negligible
R3	10.09	10.13	0.05	0.11%	Negligible
R4	9.14	9.15	0.01	0.03%	Negligible
R5	8.95	8.96	0.01	0.02%	Negligible
R6	8.48	8.49	0.01	0.03%	Negligible
R7	8.12	8.13	0.01	0.02%	Negligible
R8	7.93	7.95	0.02	0.04%	Negligible
R9	7.87	7.89	0.02	0.04%	Negligible
R10	7.71	7.72	0.01	0.03%	Negligible
R11	8.20	8.21	0.01	0.02%	Negligible
R12	8.42	8.43	0.01	0.02%	Negligible
R13	8.82	8.88	0.06	0.15%	Negligible
R14	8.06	8.10	0.04	0.10%	Negligible
R15	8.42	8.48	0.06	0.15%	Negligible
R16	8.67	8.75	0.07	0.18%	Negligible
R17	8.23	8.28	0.05	0.12%	Negligible
R18	8.30	8.35	0.05	0.13%	Negligible
R19	8.17	8.22	0.05	0.11%	Negligible
R20	8.26	8.32	0.05	0.13%	Negligible
R21	8.28	8.33	0.05	0.13%	Negligible
R22	8.33	8.39	0.06	0.15%	Negligible
R23	8.20	8.26	0.06	0.15%	Negligible
R24	8.39	8.46	0.07	0.18%	Negligible
R25	7.46	7.47	0.01	0.04%	Negligible
R26	7.48	7.50	0.02	0.04%	Negligible
R27	8.45	8.47	0.01	0.03%	Negligible
R28	7.63	7.64	0.01	0.03%	Negligible
R29	7.43	7.44	0.01	0.02%	Negligible
R30	7.09	7.10	0.01	0.02%	Negligible
R31	7.52	7.53	0.01	0.03%	Negligible
R32	7.15	7.15	0.01	0.01%	Negligible
R33	7.26	7.27	0.01	0.02%	Negligible
R34	7.95	7.96	0.01	0.02%	Negligible

R35	7.60	7.60	0.00	0.01%	Negligible
R36	7.69	7.69	0.01	0.01%	Negligible
R37	7.64	7.65	0.01	0.01%	Negligible
R38	7.73	7.74	0.01	0.01%	Negligible

Predicted Annual Mean PM_{2.5} concentrations – 2036 Future Assessment and 2036 Future Assessment + Cumulative Development

ID	2036 Future Year Assessment (FAB)	2036 Future Year Assessment + Cumulative (FAC)	Change (FAC-FAB)	% Change Relative to AQAL	EPUK & IAQM
DR1	8.21	8.26	0.05	0.14%	Negligible
DR2	8.01	8.07	0.05	0.13%	Negligible
DR3	7.53	7.57	0.04	0.10%	Negligible
DR4	7.46	7.47	0.01	0.02%	Negligible
DR5	7.46	7.49	0.03	0.08%	Negligible
DR6	7.45	7.47	0.02	0.04%	Negligible
DR7	7.47	7.56	0.09	0.22%	Negligible
DR8	7.53	7.57	0.04	0.10%	Negligible
R1	9.58	9.68	0.10	0.26%	Negligible
R2	8.97	9.01	0.04	0.10%	Negligible
R3	10.09	10.18	0.09	0.22%	Negligible
R4	9.14	9.17	0.02	0.06%	Negligible
R5	8.95	8.97	0.02	0.05%	Negligible
R6	8.48	8.52	0.04	0.10%	Negligible
R7	8.12	8.15	0.03	0.06%	Negligible
R8	7.93	7.97	0.03	0.09%	Negligible
R9	7.87	7.90	0.03	0.08%	Negligible
R10	7.71	7.73	0.02	0.05%	Negligible
R11	8.20	8.22	0.02	0.04%	Negligible
R12	8.42	8.43	0.01	0.04%	Negligible
R13	8.82	8.89	0.08	0.19%	Negligible
R14	8.06	8.11	0.05	0.12%	Negligible
R15	8.42	8.50	0.07	0.18%	Negligible
R16	8.67	8.77	0.09	0.23%	Negligible
R17	8.23	8.31	0.08	0.20%	Negligible
R18	8.30	8.38	0.09	0.21%	Negligible
R19	8.17	8.23	0.06	0.16%	Negligible
R20	8.26	8.32	0.06	0.15%	Negligible
R21	8.28	8.34	0.06	0.14%	Negligible

R22	8.33	8.39	0.06	0.14%	Negligible
R23	8.20	8.26	0.06	0.14%	Negligible
R24	8.39	8.46	0.07	0.17%	Negligible
R25	7.46	7.47	0.01	0.03%	Negligible
R26	7.48	7.50	0.02	0.04%	Negligible
R27	8.45	8.49	0.03	0.08%	Negligible
R28	7.63	7.66	0.03	0.08%	Negligible
R29	7.43	7.46	0.03	0.06%	Negligible
R30	7.09	7.11	0.02	0.04%	Negligible
R31	7.52	7.55	0.03	0.08%	Negligible
R32	7.15	7.16	0.01	0.03%	Negligible
R33	7.26	7.28	0.02	0.04%	Negligible
R34	7.95	7.97	0.02	0.05%	Negligible
R35	7.60	7.61	0.01	0.03%	Negligible
R36	7.69	7.70	0.01	0.03%	Negligible
R37	7.64	7.66	0.01	0.03%	Negligible
R38	7.73	7.74	0.01	0.03%	Negligible

- 9.37 The comparison between the 2036 'Future Year Assessment Baseline + Committed Development' scenario against the 2036 'Future Year Assessment Baseline + Gleeson Development' and 2036 'Future Year Assessment Baseline + Cumulative Development' scenarios have been assessed.
- 9.38 For all pollutants, the maximum values at all receptors remain below 75% of the AQAL. According to the EPUK & IAQM guidance (Impact Descriptor Matrix for Receptors table), percentage changes in AQAL of less than 5% are classified as negligible.
- 9.39 Receptors within the Forest Farm development area and their impact significance is deemed negligible. Additionally, pollutant concentrations at all receptors are expected to remain well below national air quality objectives, confirming that the Forest Farm site is suitable for residential development.
- 9.40 Hence, there are no air quality grounds for refusing the proposed Forest Farm development, and further sensitivity modelling is deemed neither relevant nor necessary.

10.0 OPERATIONAL IMPACTS

- 10.1 The Energy and Sustainability Statement confirms that the development will achieve the Future Homes Standard, exceeding the requirements of the Wiltshire Core Strategy (2015) and Chippenham Neighbourhood Plan (Chippenham Town Council, 2024) for a highly sustainable development.
- 10.2 The dwellings will be highly energy efficient, adopting a fabric first approach. They will be orientated to maximise solar gain where possible, and will be zero carbon ready. There will be no natural gas connection to the site meeting the energy demand through low and zero carbon sources.
- 10.3 Heating and hot water requirements for the site would be achieved through highly efficient low carbon community energy hub and heat network, using renewable energy sources, such as installation of photovoltaic (PV) panels where appropriate.
- 10.4 The development will incorporate high-quality broadband to minimize the need for travel, promoting remote work and digital connectivity. Residents will have convenient access to local services and sustainable transport options, encouraging active travel and public transport use. Additionally, a comprehensive electric vehicle (EV) charging infrastructure will be provided to support the transition to low-emission transport.
- 10.5 The design of the development anticipates future climate changes, ensuring long-term resilience. Overheating risks will be mitigated through passive design measures, enhancing indoor comfort without excessive energy use. Open spaces and landscaping will offer multiple benefits, including biodiversity support, recreational areas, and improved air quality. Surface water will be effectively managed through Sustainable Urban Drainage Systems (SuDS), reducing flood risks and promoting natural water infiltration.
- 10.6 The development aims to achieve a 30% reduction in potable water use compared to the national average. High water efficiency standards will be integrated into the design, utilizing efficient fixtures, fittings, and sustainable water management practices to minimize consumption.
- 10.7 Sustainable building materials will be prioritized to enhance durability and flexibility, reducing the environmental impact of construction. Additionally, both construction and operational waste will be managed in accordance with the Waste Hierarchy, ensuring responsible disposal, recycling, and material reuse to minimize waste generation.
- 10.8 Any future change of use, new buildings or demolition emissions that could deteriorate air quality would be subject to appropriate future planning conditions and would be required to comply with relevant regulations, such as the Environmental Permitting Regulations (UK Legislation, 2018)

11.0 CONCLUSIONS

- 11.1 The base line desktop air quality assessment for the proposed development site has been carried out using the data from DEFRA automatic monitoring site, local council's non-automatic monitoring sites, and the PCM modelled results from the UK Air: Information resource.
- 11.2 The air pollutant concentrations for the proposed development are well below the current legislated AQOs and LVs.
- 11.3 The construction dust assessment shows that the earthworks, and construction activities fall under low risk and the track out activity in medium risk for the proposed development. However, the dust impacts on human health and ecological receptors are considered to be low risk and negligible. Hence, the air quality impacts of construction dust will not be significant if the recommended mitigation measures are implemented properly.
- 11.4 The predicted traffic emissions with the proposed development and with the cumulative developments in both 2029 and 2036, in comparison to the existing situation, were found to be in compliance with the EPUK and IAQM guidance and the air quality impact is negligible. However, proper emissions mitigation assessments should be followed if there is an increase in traffic in the future.
- 11.5 Overall, the air quality assessment demonstrates that the development site is suitable for the proposed uses, as air quality levels comply with all regulatory standards. Therefore, the air quality impacts are considered to be 'not significant'.

Glossary, References and Appendices

Glossary

AADF	Annual Average Daily Traffic Flow
AADT	Annual Average Daily Traffic
AAWT	Annual Average Weekday Traffic
An exceedance	A period of time (defined for each standard) where the concentration is higher than that set out in the Standard.
An objective	The target date on which exceedances of a Standard must not exceed a specified number.
AMCT	Annual Mean Concentration Target
AOD	Above Ordnance Datum
APEC	Air Pollution Exposure Criteria
AQAP	Air Quality Action Plan
AQAL	Air Quality Assessment Level
AQFA	Air Quality Focus Areas
AQG	Air Quality Guidelines
AQMA	Air Quality Management Area
AQN	Air Quality Neutral
AQOs	Air Quality Objectives
Air Quality Standards	Concentrations recorded over a given time period, which are considered to be acceptable in terms of what is scientifically known about the effects of each pollutant on health and on the environment.
AQS	Air Quality Strategy
APS	Air Pollution Services
ASHPs	Air Source Heat Pumps
ASR	Annual Status Report
AURN	Automatic Urban and Rural Network
BREEAM	Building Research Establishment Environmental Assessment Methodology
BAT	Best Available Techniques
CFCs	Chlorofluorocarbons
DEFRA	Department for Environment, Food and Rural Affairs
EPUK	Environmental Protection UK
EU	European Union
HCFCs	Hydrochlorofluorocarbons
HGV	Heavy Goods Vehicle

HDV	Heavy Duty Vehicle
IAQM	Institute of Air Quality Management
LDV	Light Duty Vehicle
LGV	Light Goods Vehicle
Limit Values (LVs)	Legally binding parameters that must not be exceeded. Limit values are set for individual pollutants and are made up of a concentration value, an averaging time over which it is to be measured, the number of exceedances allowed per year, if any, and a date by which it must be achieved. Some pollutants have more than one limit value covering different endpoints or averaging times.
LNR	Local Nature Reserve
NAEI	National Atmospheric Emissions Inventory
NO₂	Nitrogen dioxide
NO_x	Nitrogen Oxides
NPPF	National Planning Policy Framework
PCM	Pollution Climate Mapping
PPG	Planning Practice Guidance
PM_{2.5}	Small airborne particles, more specifically particulate matter less than 2.5 micrometres in aerodynamic diameter
PM₁₀	Small airborne particles, more specifically particulate matter less than 10 micrometres in aerodynamic diameter
PRTR	Pollutant Release and Transfer Register
PV	Photo Volatic Cells
SAC	Special Area of Conservation
SSSI	Site of Special Scientific Interest
SUDs	Sustainable Drainage Systems
WHO	World Health Organization
µg/m³	Microgrammes per cubic metre

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APPENDIX A – DISPERSION MODELLING

MODEL INPUTS

- A.1.1 ADMS-Road 5 (v5.0.1) air pollution model software was used as the dispersion modelling tool for the assessment air pollution traffic. The following data was used:

Hourly Average Traffic and Speeds,

Latest relevant Emission Factor Toolkit v.12.1 (August 2024)

Time varying emission factors.

Hourly Sequential Numerical weather prediction (NWP) meteorological data, and

Geo-reference mapping data

Traffic Data

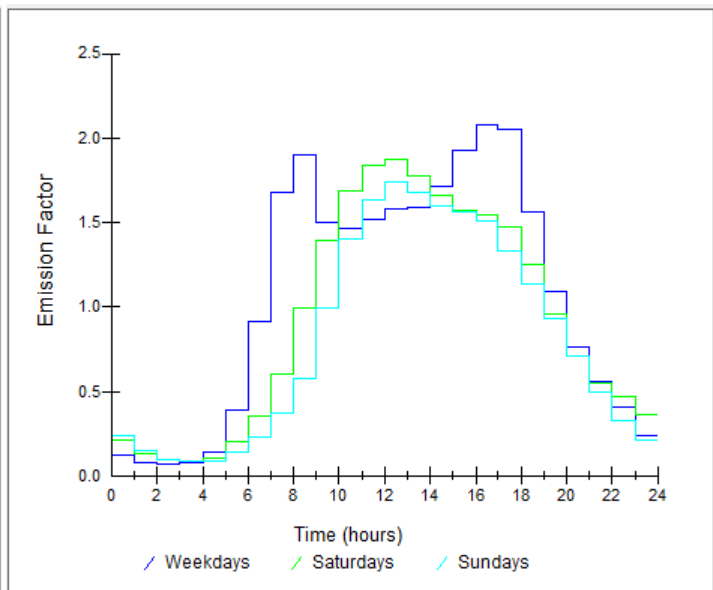
- A.1.2 Annual Average Daily Traffic (AADT) has been provided i-Traffic consultants. The traffic used in the assessment for the different scenarios is summarised in the following tables.

Link Ref	Link Description
L1	A420 Ivy Lane (north of Bridge Centre Gyratory)
L2	Bath Road (east of Bridge Centre Gyratory)
L3	A4 Bath Road (west of Bridge Centre Gyratory)
L4	Avenue La Fleche (between Bridge Centre Gyratory and Gladstone Road)
L5	Gladstone Road (east of Avenue la Fleche)
L6	Avenue La Fleche (south of Gladstone Road)
L7	Avenue La Fleche (west of A4 Pewsham Way)
L8	Avenue La Fleche (east of A4 Pewsham Way)
L9	A4 Pewsham Way (south of Avenue La Fleche)
L10	A4 Pewsham Way (west of London Road)
L11	London Road (north of A4 Pewsham Way)
L12	A4 London Road (between A4 Pewsham Way and Site Access)
L13	Site Access
L14	A4 London Road (between Site Access and Old Derry Hill)
L15	A4 New Road (east of Old Derry Hill)
L16	Old Derry Hill (south of A4 New Road)
L17	A4 Chilvester Hill (west of A3102 Greenacres Way)
L18	A3102 Greenacres Way (north of A4 Chilvester Hill)
L19	A4 Curzon Street (east of A3102 Greenacres Way)

Time Variation Emission Factors

- A.1.3 ADMS-Roads allows concentration from emissions that vary with time. To account for that, hourly time emission variations factors for weekdays, Saturdays and Sundays have been used.
- A.1.4 The time emission factors have been derived from the Dft Traffic Distribution on all roads by time of day in Great Britain and applied to the road sources in all scenarios modelled.

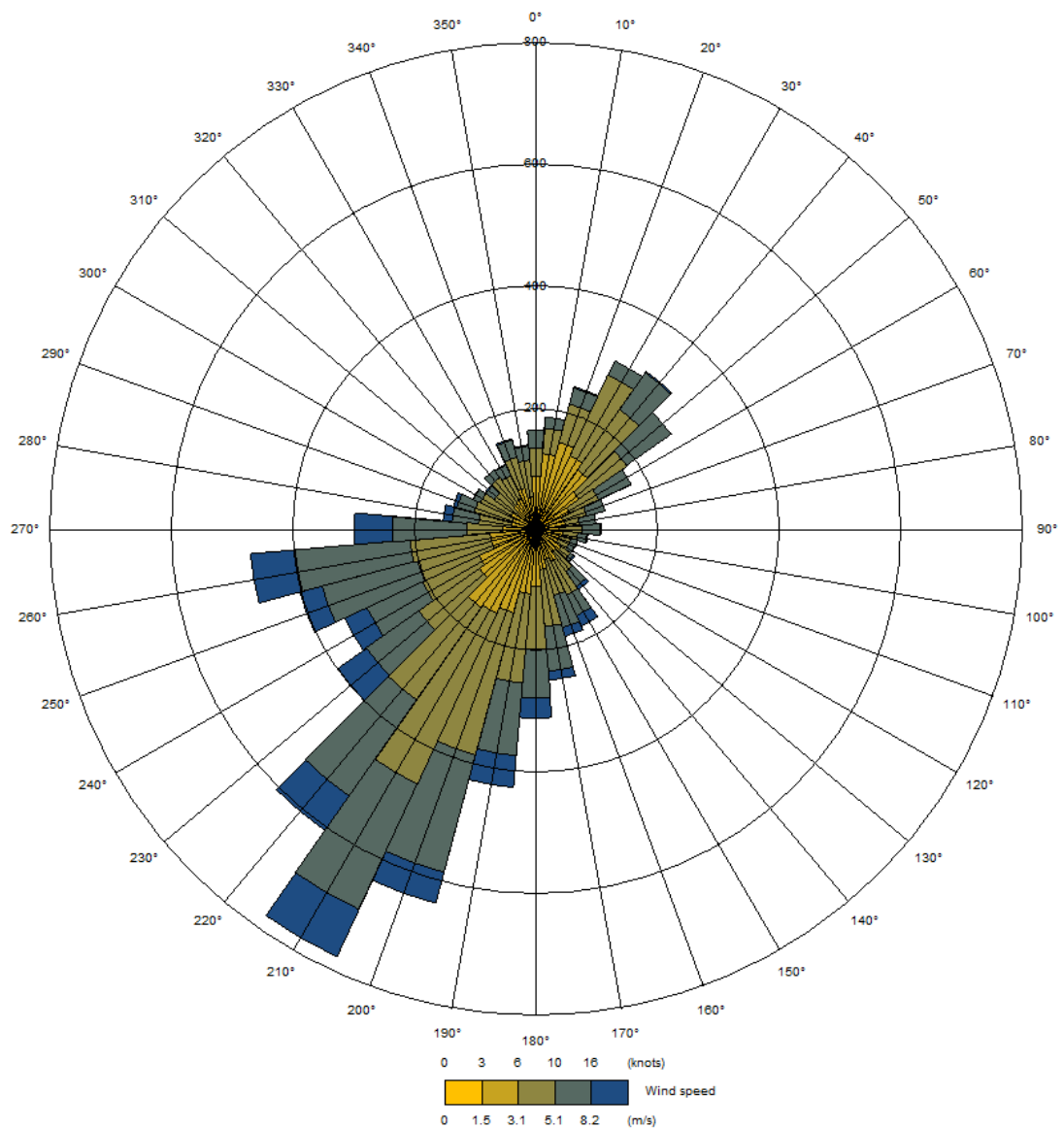
Local time (hours)	Weekdays	Saturdays	Sundays
1	0.12	0.21	0.24
2	0.08	0.13	0.15
3	0.07	0.1	0.1
4	0.08	0.09	0.09
5	0.14	0.11	0.09
6	0.39	0.2	0.14
7	0.91	0.35	0.23
8	1.68	0.6	0.37
9	1.9	0.99	0.58
10	1.5	1.39	0.99
11	1.46	1.69	1.4
12	1.52	1.84	1.63
13	1.58	1.87	1.74
14	1.59	1.77	1.68
15	1.71	1.66	1.6
16	1.93	1.57	1.56
17	2.08	1.54	1.51
18	2.05	1.47	1.33
19	1.56	1.25	1.14
20	1.09	0.96	0.93
21	0.76	0.71	0.71
22	0.56	0.55	0.5
23	0.41	0.47	0.33
24	0.24	0.36	0.21



Hourly Sequential Meteorological Data (2023)

- A.1.5 The nearest meteorological station is Bristol Airport which is located ~27 miles west of the site. Given the observed meteorological station distance from the site, we have used of numerical weather prediction (NWP) model meteorological data which lies at a distance of around a mile NE of the site. The details of the NWP modelled MET SITE are given below

NWP year 2023 MET SITE: 0002074232	
X	Y
395350.8	172624.5



Verification

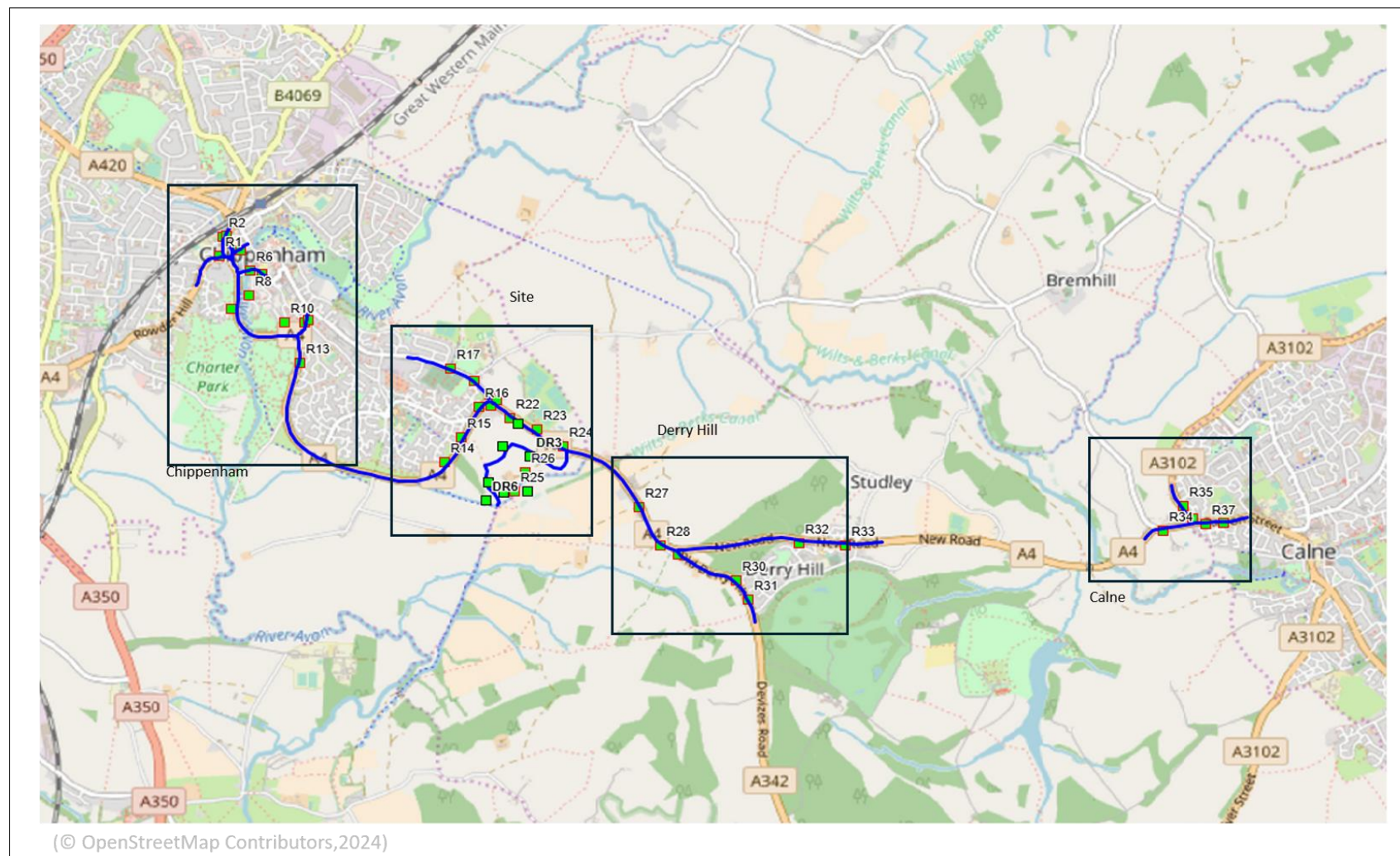
- A.1.6 The results from dispersion model may differ from measured concentration due the estimates and uncertainties associated with the input data. An adjustment of modelled results is required in order ensure that the final concentrations presented are representative of monitoring information from an area.
- A.1.7 Verification process as per TG22 is the comparison of the modelled results versus monitoring results at relevant locations. This process of verification attempts to minimise modelling uncertainty and systematic error by correcting modelling results by an adjustment factor.
- A.1.8 Data from 2023 roadside monitoring information from diffusion tubes DT-18 (Chippenham) and DT-16 (Calne) have been used to compare with the modelling results.
- A.1.9 Traffic from Baseline 2024 survey links provided by the traffic consultants has been used on the verification process. The emission year has been modelled as 2023.
- A.1.10 Data from 2023 monitored background levels from diffusion tubes DT-18 (Chippenham) and DT -16 (Calne) has been used.



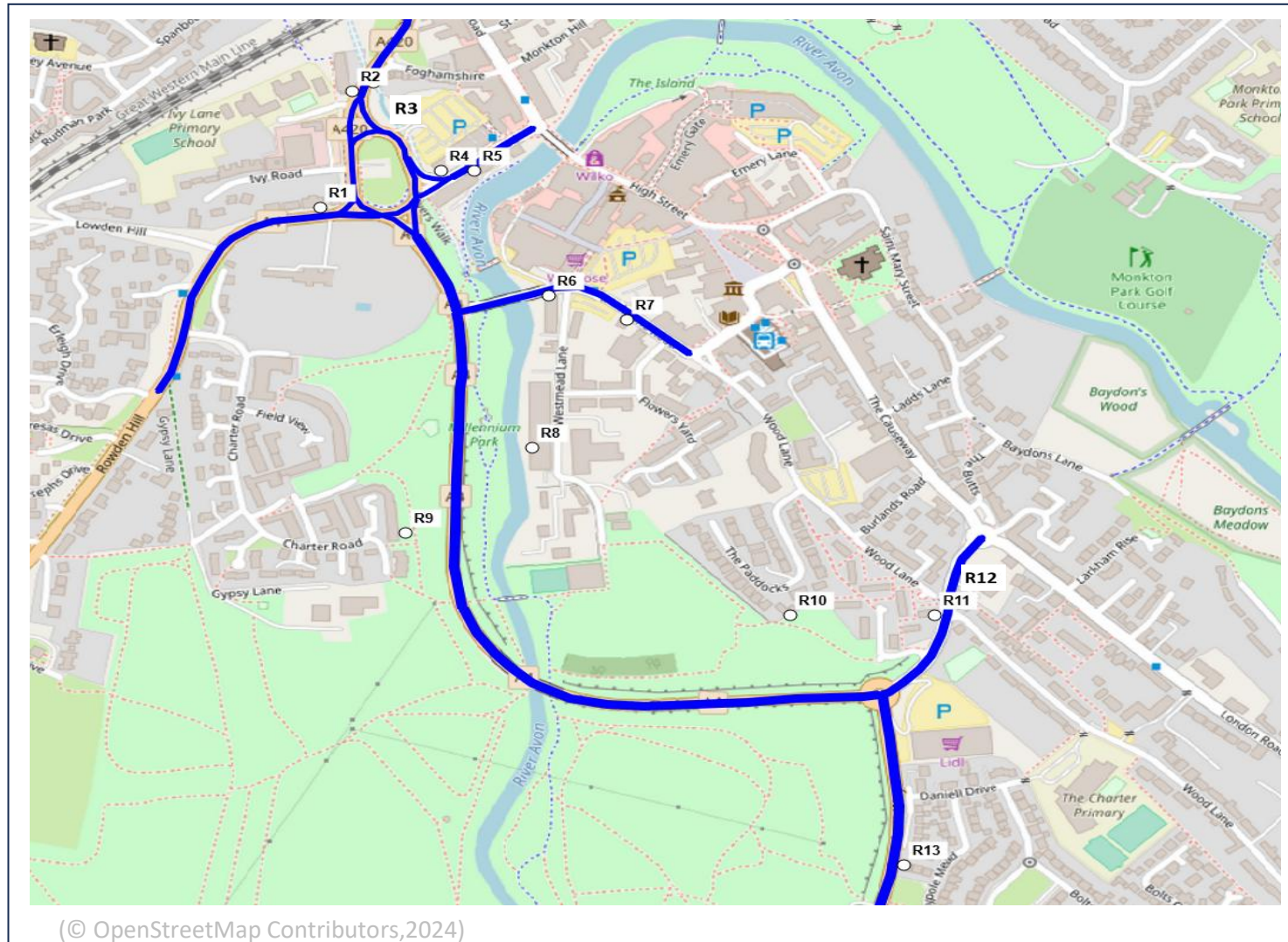
Site ID	Monitoring Result NO ₂ (µg/m ³)	Background NO _x (µg/m ³)	Background NO ₂ (µg/m ³)	Modelled Road NO _x (µg/m ³)	Adjusted Modelled Total No ₂	Total Modelled NO ₂ (µg/m ³)	% Difference NO ₂
DT_18	19.7	10.7	8.3	7.9	12.08	44%	21.6
DT_16	15.7	8.7	6.9	4.5	9.1	46%	16.7

Site ID	Monitoring Result NO ₂ (µg/m ³)	Modelled Road NO _x (µg/m ³)	Adjustment Factor	Adjusted Modelled Road No _x	Adjusted Modelled Total NO ₂	% Difference (Adjusted Modelled NO ₂ vs Monitored)
DT_18	19.7	8.45	4	33.8	22.3	1%
DT_16	15.7	4.5	4	18.0	15.3	1%

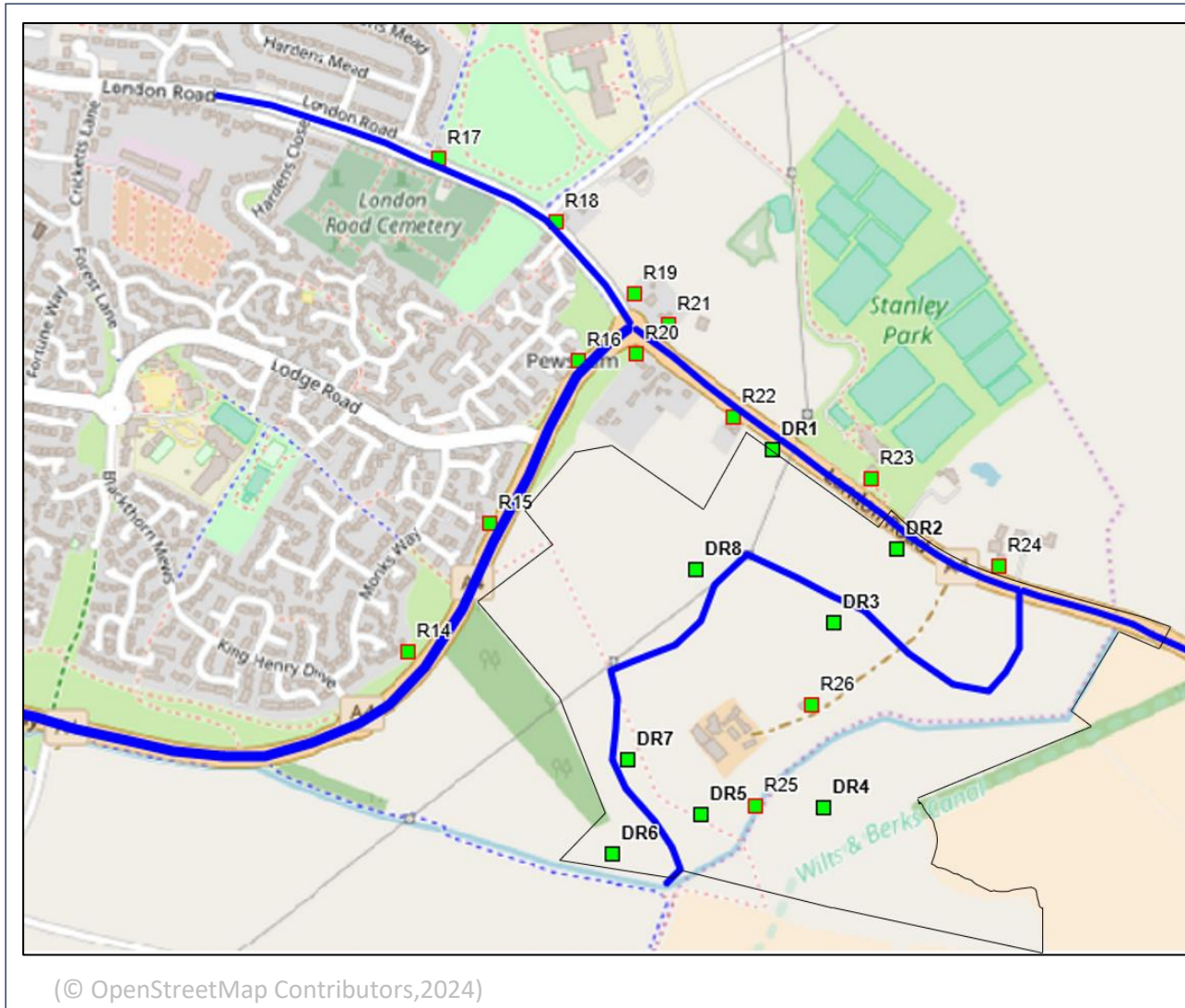
Receptor Location in Relation with the modelled road links and AQMA



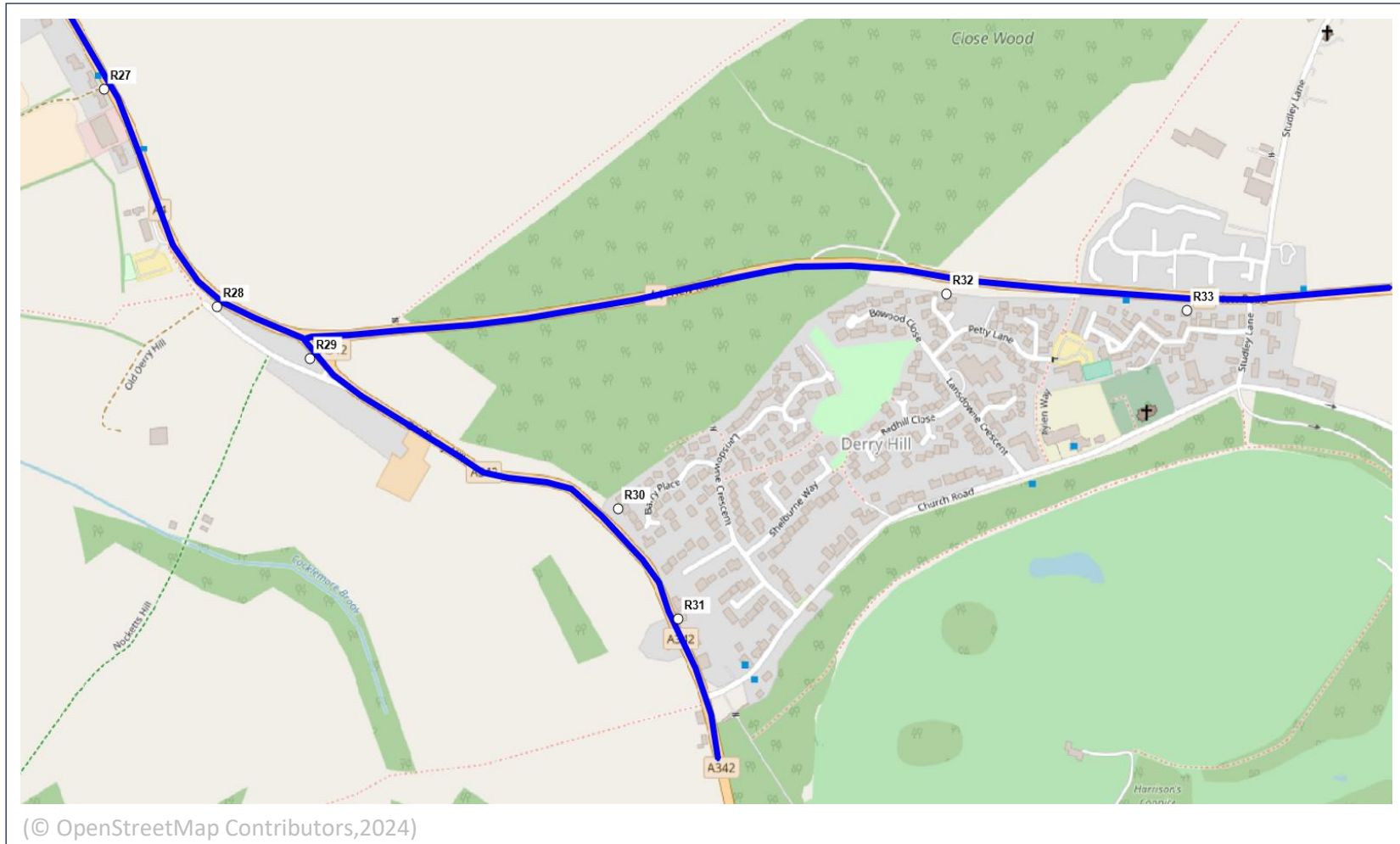
Chippenham



Site



Derry Hill



Calne



