Air Quality Assessment	
Sharps Lane, Hillingdon	
Job number:	J1001
Document number:	J1001/1/F1
Client:	c/o Juttla Architects
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Date:	10 December 2025

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Contents

Tables

Figures

1 Introduction

1.1. Proposed Development

1.1.1 Air Quality Assessments Ltd (AQA) has been commissioned c/o Juttla Architects to undertake an air quality assessment for a proposed development at 9 Sharps Lane, Ruislip, HA4 7JG. The proposed development is described as follows:

"Proposed re-development of the site from small HMO (Class C4) to Care Home (Class C2) with 18 bedrooms, associated internal and external communal areas and other spaces required to serve a care home (kitchen, store, nurse stations, office etc)."

1.1.2 The application site location is shown in Figure 1.

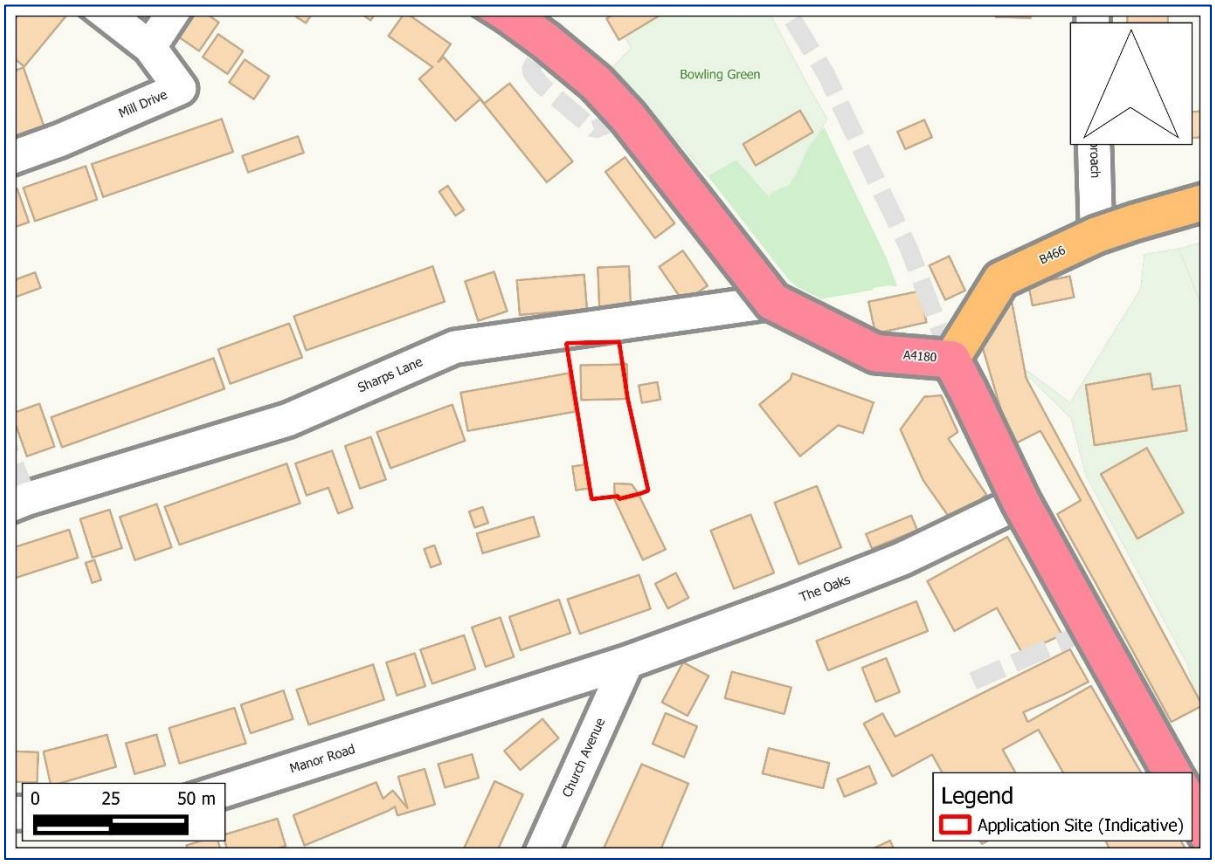

Figure 1: Application Site Location
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1.2. Scope of Assessment

1.2.1 Hillingdon Council has declared an AQMA for exceedances of the annual mean nitrogen dioxide (NO_2) objective; however, the application site lies outside this area.

1.2.2 This report describes the existing air quality conditions in proximity to the site, and assesses the likely impact that traffic generated by the development will have on local air quality. The main air pollutants of concern related to road traffic are NO_2 and fine particulate matter (PM_{10} and $PM_{2.5}$).

1.2.3 There is also the potential for construction activities to impact upon existing properties. The main pollutants of concern related to construction activities are dust and PM_{10}.

1.2.4 The assessment also considers the cumulative effect of the proposed development on air quality in London through an Air Quality Neutral assessment.

1.2.5 The assessment has been prepared taking into account all relevant local and national guidance and regulations.

1.2.6 The references and a glossary of common air quality terminology used in this assessment are shown in **Section 10** and **Section 11** respectively.

2 Air Quality Legislation and Policy

2.1. Air Quality Legislation

2.1.1 The Air Quality Standards Regulations 2010 (as amended) set legally binding limit values for concentrations of major air pollutants in outdoor air that impact public health, including NO_2, PM_{10} and $PM_{2.5}$ (The Stationary Office, 2010). Limit values apply at all locations, apart from where the public does not have access, where health and safety at work provisions apply and on the road carriageway. The limit values for PM_{10} and NO_2 applied from 2005 and 2010 respectively, whereas the $PM_{2.5}$ limit value applied from 2020.

2.1.2 Part IV of The Environment Act 1995, as amended by the Environment Act 2021, requires the UK Government to prepare a national Air Quality Strategy. A new Air Quality Strategy for England was published in April 2023 (Defra, 2023a). The Air Quality Strategy sets out the actions that Defra expects local authorities to take in support of long-term air quality goals, including new $PM_{2.5}$ targets, and provides a framework to enable local authorities to make the best use of their powers and make improvements for their communities.

2.1.3 The strategy sets out air quality standards and objectives intended to protect human health and the environment. Standards are the concentrations of pollutants in the atmosphere, below which there is a minimum risk of health effects or ecosystem damage; they are set with regard to scientific and medical evidence. Objectives are the policy targets set by the Government, taking account of economic efficiency, practicability, technical feasibility and timescale, where the standards are expected to be achieved by a certain date. The Government has also published a Clean Air Strategy, which provides an overview of the actions that the government will take to improve air quality (Defra, 2019). The actions in the Clean Air Strategy focus on emissions from transport, the home, farming, and industry.

2.1.4 The Air Quality Strategy also describes the system of Local Air Quality Management (LAQM), which was introduced in Part IV of the Environment Act 1995. LAQM requires every local authority to carry out regular review and assessments of air quality in its area. Where an objective has not been, or is unlikely to be achieved, the local authority must declare an Air Quality Management Area (AQMA) and prepare an action plan which sets out appropriate measures to be introduced in pursuit of the objectives. $PM_{2.5}$ is not included in the LAQM framework; however, the government expects all local authorities to effectively use their powers to reduce $PM_{2.5}$ emissions from the sources which are within their control.

2.1.5 The objectives for NO_2 and PM_{10}, as prescribed by the Air Quality (England) Regulations 2000 and the Air Quality (England) (Amendment) Regulations 2002, are shown in **Table 1** (The Stationary Office, 2000; The Stationary Office, 2002). The objectives for NO_2 and PM_{10} are the same as the limit values, but with differing compliance dates. The objectives for PM_{10} and NO_2 were to have been achieved by 2004 and 2005 respectively and continue to apply in all future years thereafter.

2.1.6 The air quality limit value for $PM_{2.5}$ is also shown in **Table 1**. The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 set out two legally

binding targets for $PM_{2.5}$, with interim targets for each set out in the Environmental Improvement Plan 2023 (The Stationery Office, 2023; Defra, 2023b). The $PM_{2.5}$ targets are:

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

2.1.7 The Environmental Improvement Plan (EIP) 2025 introduced new interim targets to enable the UK Government to keep on track to meet the statutory targets (Defra, 2025a). The non-statutory interim targets are:

- 10µg/m^3 annual mean concentration $PM_{2.5}$ nationwide by December2030; and
- 30% reduction in average population exposure by December 2030, compared to a 2018 baseline.

Table 1: The Objectives for NO_2 and PM_{10} and the $PM_{2.5}$ Limit Value

Pollutant	Concentration Measured As	Objective/Limit Value
NO_2	1-hour Mean	200 µg/m^3 not to be exceeded more than 18 times a year
	Annual Mean	40 µg/m^3
PM_{10}	24-hour Mean	50 µg/m^3 not to be exceeded more than 35 times a year
	Annual Mean	40 µg/m^3
$PM_{2.5}$	Annual Mean	20 µg/m^3

2.1.8 The objectives apply at locations where members of the public are likely to be regularly present and are likely to be exposed for a period of time appropriate to the averaging period of the objective. Examples of where the objectives should apply are provided in the London Local Air Quality Management Technical Guidance (Mayor of London, 2019). The annual mean NO_2 and PM_{10} objectives should apply at the building façades of residential properties, schools, hospitals, care homes etc.; they should not apply at the building façades of places of work, hotels, gardens or kerbside sites. The 24-hour mean PM_{10} objective should apply at all locations where the annual mean objective applies, as well as the gardens of residential properties and hotels. The 1-hour mean NO_2 objective should apply at all locations where the annual and 24-hour mean objectives apply, as well as at kerbside sites where the public have regular access, e.g., the pavements of busy shopping streets.

2.2. Planning Policy

National Policies

2.2.1 The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these should be applied (Ministry of Housing, Communities and Local Government, 2025). It provides a framework within which

locally prepared plans for development can be produced. At Paragraph 8c, the NPPF states that the purpose of the planning system is to contribute to the achievement of sustainable development and includes an overarching environmental objective:

"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."

2.2.2 With regard to environmental impacts from traffic, at Paragraph 109 the NPPF states that:

"Transport issues should be considered from the earliest stages of plan-making and development proposals, using a vision-led approach to identify transport solutions that deliver well-designed, sustainable and popular places. This should involve:…

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."

2.2.3 The NPPF also states at Paragraph 187 that:

"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; …"

2.2.4 The NPPF goes on to state at 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."

2.2.5 With specific reference to air quality, the NPPF states at Paragraph 199 that:

"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."

2.2.6 The NPPF also includes the following statement at Paragraph 201:

"The focus of planning policies and decisions should be on whether Proposed Development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities."

2.2.7 The NPPF is supported by Air Quality national Planning Practice Guidance (nPPG) (Ministry of Housing, Communities and Local Government, 2019). The PPG states that:

"Defra carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with relevant Limit Values. It is important that the potential impact of new development on air quality is taken into account where the national assessment indicates that relevant limits have been exceeded or are near the limit, or where the need for emissions reductions has been identified."

2.2.8 The nPPG goes on to state that:

"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."

2.2.9 The nPPG also sets out the information that may be required in an air quality assessment, stating that:

"Assessments need to be proportionate to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific."

2.2.10 It also provides guidance on options for mitigating air quality impacts, and makes clear that:

"Mitigation options will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact."

2.2.11 The nPPG makes clear that:

"… dust can also be a planning concern, for example, because of the effect on local amenity."

2.2.12 Defra is developing guidance for applicants and Planning Authorities in England to demonstrate that they have appropriately considered the $PM_{2.5}$ targets when making planning applications and planning decisions. The approach to assessing impacts on $PM_{2.5}$ will ensure that appropriate mitigation measures are implemented at the design stage, rather than assessing whether a scheme will result in exceedances of the target values. Pending publication of the guidance, Defra have published Interim Planning Guidance on the $PM_{2.5}$ targets (Defra, 2024). The interim guidance states:

"Applicants are advised to provide evidence in their planning applications that they have identified key sources of air pollution within their schemes and taken appropriate action to minimise emissions of $PM_{2.5}$ and its precursors as far as is reasonably practicable. If quantitative evidence is not available, a qualitative approach can be taken. This applies to all developments which would normally require an air quality assessment. More detailed assessments are expected for developments which are closer to populations, and those which are likely to have higher emissions. This guidance is separate to how $PM_{2.5}$ should be considered within environmental permitting.

The following questions are designed to be used as prompts to support the interim process, but applicants are welcome to consider measures in addition to those listed below:

1. How has exposure to $PM_{2.5}$ been considered when selecting the development site?

Applicants are advised to consider the following in their application:

- *Site proximity to people (particularly large populations and/or vulnerable groups, e.g. schools, hospitals, care homes, areas of deprivation) and the impact of the development on these,*
- *Site proximity to pollution sources and the impact of these on users of the development,*
- *Exposure and emissions during both construction and in-use.*

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

Applicants are advised to explain (with evidence where possible) why each measure was implemented. Or, if no mitigation measures have been implemented, why this was not proposed. Actions can refer to, but are not limited to, the following:

- *Site layout,*
- *The development's design,*
- *Technology used in the construction or installed for use in the development,*
- *Construction and future use of the development.*

Planning Authorities are encouraged to consider the cumulative impact of development both in developing their Local Plan and when making decisions on a case-by-case basis. Whilst contributions from individual developments may be small, cumulatively they can lead to an increase in regional exposure, and so will have public health impacts and affect progress towards the targets."

Regional Policies

2.2.13 The London Plan sets out the spatial development strategy for London and presents a London-wide policy framework, including Policy SI1 Improving Air Quality, which states (GLA, 2021):

"A Development Plans, through relevant strategic, site-specific and area-based policies, should seek opportunities to identify and deliver further improvements to air

quality and should not reduce air quality benefits that result from the Mayor's or boroughs' activities to improve air quality.

B To tackle poor air quality, protect health and meet legal obligations the following criteria should be addressed:

1) Development proposals should not:

a) lead to further deterioration of existing poor air quality

b) create any new areas that exceed air quality limits, or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits

c) create unacceptable risk of high levels of exposure to poor air quality.

2) In order to meet the requirements in Part 1, as a minimum:

a) development proposals must be at least Air Quality Neutral

b) development proposals should use design solutions to prevent or minimise increased exposure to existing air pollution and make provision to address local problems of air quality in preference to post-design or retro-fitted mitigation measures

c) major development proposals must be submitted with an Air Quality Assessment. Air quality assessments should show how the development will meet the requirements of B1

d) development proposals in Air Quality Focus Areas or that are likely to be used by large numbers of people particularly vulnerable to poor air quality, such as children or older people should demonstrate that design measures have been used to minimise exposure.

C Masterplans and development briefs for large-scale development proposals subject to an Environmental Impact Assessment should consider how local air quality can be improved across the area of the proposal as part of an air quality positive approach. To achieve this a statement should be submitted demonstrating:

1) how proposals have considered ways to maximise benefits to local air quality, and

2) what measures or design features will be put in place to reduce exposure to pollution, and how they will achieve this.

D In order to reduce the impact on air quality during the construction and demolition phase development proposals must demonstrate how they plan to comply with the Non-Road Mobile Machinery Low Emission Zone and reduce emissions from the demolition and construction of buildings following best practice guidance.

E Development proposals should ensure that where emissions need to be reduced to meet the requirements of Air Quality Neutral or to make the impact of development on local air quality acceptable, this is done on-site. Where it can be demonstrated that emissions cannot be further reduced by on-site measures, off-site measures to improve local air quality may be acceptable, provided that equivalent air quality benefits can be demonstrated within the area affected by the development."

2.2.14 Guidance on the assessment of construction dust impacts is set out in the London Plan Supplementary Planning Guidance (SPG) on The Control of Dust and Emissions During Construction and Demolition (GLA, 2014).

2.2.15 Guidance on quantifying and assessing air quality performance against relevant Air Quality Neutral benchmarks is provided in the London Plan Guidance Air Quality Neutral (GLA, 2023a).

2.2.16 Guidance on the application of the London Plan Air Quality Positive approach is provided in the London Plan Guidance Air Quality Positive (GLA, 2023b). The guidance confirms that the Air Quality Positive approach should only apply to masterplans and development briefs for large-scale development proposals subject to an EIA.

2.2.17 The Mayor's London Environment Strategy sets out objectives, policies and proposals that will improve air quality in London, with the aim of reducing exposure of Londoners to harmful pollution, achieving compliance with the EU limit values as soon as possible and establishing and achieving tighter air quality targets (GLA, 2018). Proposals include improving information about air quality, encouraging new developments to take into account local air quality, maintaining the LAEI and monitoring networks, promoting and prioritising sustainable transport modes, phasing out the use of fossil fuels with the aim of a zero emissions transport system, tackling unnecessary idling, and reducing emissions from engines and plant.

Local Policies

2.2.18 The Hillingdon Local Plan Part 1 Strategic Policies includes Policy EM8: Land, Water, Air and Noise, the relevant parts of which state (Hillingdon Council, 2012):

"All development should not cause deterioration in the local air quality levels and should ensure the protection of both existing and new sensitive receptors.

All major development within the Air Quality Management Area (AQMA) should demonstrate air quality neutrality (no worsening of impacts) where appropriate; actively contribute to the promotion of sustainable transport measures such as vehicle charging points and the increased provision for vehicles with cleaner transport fuels; deliver increased planting through soft landscaping and living walls and roofs; and provide a management plan for ensuring air quality impacts can be kept to a minimum.

The Council seeks to reduce the levels of pollutants referred to in the Government's National Air Quality Strategy and will have regard to the Mayor's Air Quality Strategy. London Boroughs should also take account of the findings of the Air Quality Review and Assessments and Actions plans, in particular where Air Quality Management Areas have been designated.

The Council has a network of Air Quality Monitoring stations but recognises that this can be widened to improve understanding of air quality impacts. The Council may therefore require new major development in an AQMA to fund additional air quality monitoring stations to assist in managing air quality improvements."

2.2.19 The Hillingdon Local Plan Part 2 Development Management Policies includes Policy DMEI 14: Air Quality, which states (Hillingdon Council, 2020):

"A) Development proposals should demonstrate appropriate reductions in emissions to sustain compliance with and contribute towards meeting EU limit values and national air quality objectives for pollutants.

B) Development proposals should, as a minimum:

i) be at least "air quality neutral";

ii) include sufficient mitigation to ensure there is no unacceptable risk from air pollution to sensitive receptors, both existing and new; and

iii) actively contribute towards the improvement of air quality, especially within the Air Quality Management Area."

Air Quality Action Plan

2.2.20 Hillingdon Council have published an Air Quality Action Plan (Hillingdon Council, 2019). The action plan sets out actions that Hillingdon Council intend to pursue in order to improve air quality in Hillingdon.

3 Methodology

3.1. Existing Conditions

3.1.1 Information on existing air quality within the study area has been collated from the following sources:

- The results of monitoring and the LAQM review and assessment reports undertaken by Hillingdon Council (Hillingdon Council, 2024); and
- Background pollutant concentration maps published by Defra (Defra, 2025b). These cover the whole country on a 1 x 1 km grid.

3.2. Construction Impacts

3.2.1 A construction dust risk assessment has been undertaken in accordance with the London Plan SPG on The Control of Dust and Emissions During Construction and Demolition. The GLA has also published a Practice Note regarding the control of dust and emissions from construction and demolition that advises the use of the assessment method in the IAQM Guidance on the Assessment of Dust from Demolition and Construction as best practice (IAQM, 2024a).

3.2.2 The IAQM guidance divides activities on construction sites into four main types: demolition, earthworks, construction and trackout. The methodology is based on a sequence of steps. Step 1 screens the requirement for more detailed assessment; if there are no receptors within 250m of the site boundary, or within 50m of roads used by construction vehicles up to 250m from the site entrance, then there is no need for further assessment. Step 2 assesses the risk of dust impacts from each of the four activities, considering the scale and nature of the works (Step 2A), and the sensitivity of the area to dust impacts (Step 2B). Site-specific mitigation for each of the four activities is then determined based on a dust risk category defined at Step 2C. **Appendix A1** sets out the construction dust assessment methodology in more detail.

3.2.3 The IAQM guidance is clear that the primary aim of the risk assessment is to identify site specific mitigation that, once adopted, will ensure that there will be no significant effect. Therefore, the assessment has been used to determine an appropriate level of mitigation for the construction phase.

3.2.4 Health effects due to construction dust are determined based on exposure to PM_{10}. The IAQM include the following statement on their website that indicates that there is insufficient knowledge with regards $PM_{2.5}$ emissions from construction sites for those emissions to be included in the assessment method (IAQM, 2024b):

"Please note that, in relation to small particulates, this guidance is focused on PM_{10}. This is due to a current lack of empirical evidence regarding $PM_{2.5}$ emissions from construction sites specifically. Updates to this guidance will be made where appropriate as more evidence on $PM_{2.5}$ is gathered."

3.3. Road Traffic Impacts

3.3.1 Guidance for air quality and planning officers within local authorities, and developers and consultants involved in air quality assessments, has been published by Environmental Protection UK (EPUK) and the Institute of Air Quality Management

(IAQM) in Land-Use Planning & Development Control: Planning for Air Quality (EPUK and IAQM, 2017). The guidance sets out criteria to help establish when an air quality assessment is likely to be considered necessary.

3.3.2 For impacts of existing air quality on new development, the requirement for an assessment should be based on professional judgement, taking into account:

- the background and future baseline air quality and whether this will be likely to approach or exceed the values set by air quality objectives;
- the presence and location of Air Quality Management Areas as an indicator of local hotspots where the air quality objectives may be exceeded;
- the presence of a heavily trafficked road, with emissions that could give rise to sufficiently high concentrations of pollutants (in particular NO_2), that would cause unacceptably high exposure for users of the new development; and
- the presence of a source of odour and/or dust that may affect amenity for future occupants of the development.

3.3.3 For impacts of development on the local area, a two-stage approach is suggested, with the first stage intended to screen out small developments, and developments considered likely to have insignificant air quality effects. The full criteria are shown in **Appendix A2**.

3.3.4 A qualitative assessment of the air quality impacts associated with the development has been undertaken based on the scale of the development, the distance of the development from emissions sources and the existing air quality. The criteria in the EPUK/IAQM guidance and professional judgement have been used to screen the requirement for a full air quality assessment, with the professional experience of the consultant preparing this report set out in **Appendix A3**.

3.4. Air Quality Neutral Assessment

3.4.1 To enable the implementation of the Air Quality Neutral policy of the London Plan, emission benchmarks have been developed for buildings and transport, which are dependent on the area of London that the development is in. Developers are required to calculate emissions due to buildings operation and trip rates for transport, and to compare these with the benchmarks. Full details of the Air Quality Neutral assessment method are set out in the Air Quality Neutral London Plan Guidance (GLA, 2023a).

3.4.2 The proposed development would not provide any new car parking spaces and would be Air Quality Neutral with regard to transport emissions.

3.4.3 It is expected that the proposed development would use gas boilers for heat and hot water; however, the final energy strategy for the development is currently not available. The anticipated annual NOx emissions due to the energy demand of the proposed development, calculated by multiplying the anticipated energy use by a generic NOx emission rate of 40mg/kWh, have been compared to the building emissions benchmark (BEB) calculated using the benchmark NOx emission rates in **Table 2** and the development GIA.

3.4.4 If the development building emissions are lower than the BEB, the proposed development is Air Quality Neutral with regard to building emissions.

Table 2: Benchmark NOx Emission Rates

Land Use	Benchmark NOx Emission Rates (gNOx/m^2/annum)	
	Individual Gas Boilers	Gas Boiler Network
Care homes and hospitals	9.15	14.90

4 Baseline Conditions

4.1. LAQM Review and Assessment

4.1.1 Hillingdon Council has declared an AQMA for exceedances of the annual mean NO_2 objective that covers the area from the southern boundary north to the border defined by, the A40 corridor from the western borough boundary, east to the intersection with the Yeading Brook north until its intersection with the Chiltern-Marylebone railway line. The application site lies approximately 1km north of the AQMA.

4.1.2 In terms of PM_{10}, Hillingdon Council has concluded that there are no exceedances of the objectives; therefore, it is highly unlikely concentrations in the vicinity of the application site exceed the objectives.

4.2. Local Air Quality Monitoring

4.2.1 Hillingdon Council operates 12 automatic monitoring sites across the borough and an NO_2 diffusion tube monitoring network. Data from diffusion tubes located within 2km of the application site, are presented in **Table 3**. No automatic monitoring sites are located within the study area. The monitoring site locations are shown in **Figure 2**.

4.2.2 Measured annual mean NO_2 concentrations ranged from 23.9 to 44.4µg/m^3 between 2019 and 2023 and exceedances of the objective have been measured at one location on Field End Road (HILL32), approximately 2km to the northeast of the application site.

4.2.3 There is an overall decreasing trend in measured concentrations, and in 2023, annual mean NO_2 concentrations ranged from 23.9 to 36.3µg/m^3 with no measured exceedances of the objective.

4.2.4 Concentrations measured in 2020 and 2021 would have been affected by travel restrictions brought in to control the Covid-19 pandemic.

4.2.5 Measurements across the UK have shown that there is a risk of exceedances of the 1-hour mean NO_2 objective where the annual mean concentration is above 60µg/m^3 (Mayor of London, 2019). Annual mean concentrations higher than 60µg/m^3 have not been measured and it is unlikely that the 1-hour mean objective has been exceeded.

4.3. Background Concentrations

4.3.1 Estimated background concentrations at the application site are shown in **Table 4**. The background concentrations have been derived from data in the national maps published by Defra. The background concentrations are all below the objectives/limit values. The annual mean background $PM_{2.5}$ concentration is below the 2040 statutory annual mean concentration target of 10µg/m^3.

Table 3: Measured NO_2 Concentrations

Site ID	Location	Site Type [b]	Annual Mean (µg/m³) [a]				
			2019	2020	2021	2022	2023
HILL32	Field End Road	B	**44.4**	32.5	37.4	**40.1**	36.3
HILL35	West End Road	R	36.9	28.9	28.0	27.2	23.9
HILL36	High Street	R	38.5	28.1	31.6	32.7	29.7
HILL37	High Street	R	39.9	28.1	30.4	31.7	27.1
HILL43	Victoria Road	R	39.4	29.1	28.2	28.6	24.1
Objective			**40**				

a Exceedances are shown in bold.
b B = Background, R = Roadside.

Table 4: Estimated Annual Mean Background Concentrations in 2025 (µg/m3)

Year	NO_2	PM_{10}	$PM_{2.5}$
2025	11.9	12.5	7.6
Objective/Limit Value	**40**	**40**	**20**

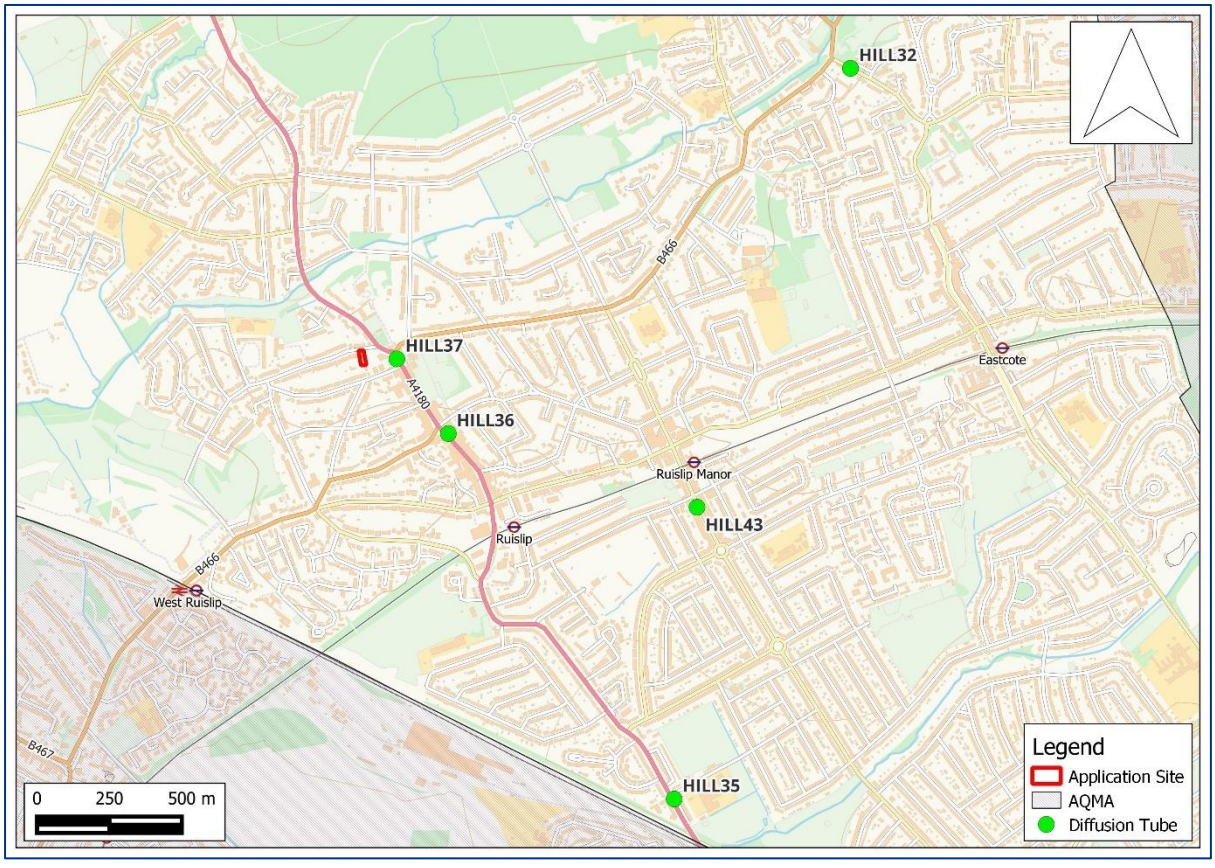

Figure 2: Air Quality Monitoring Sites
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5 Impact Assessment

5.1. Construction Phase

5.1.1 A series of mitigation measures will be adopted to minimise the risk of dust soiling and elevated concentrations of PM_{10} during the construction phase of the development. Impacts from construction dust may occur during demolition, earthworks and construction, as well as from track-out of dust onto the public highway, as vehicles leave the construction site.

Screening

5.1.2 There are human receptors within 50m of the application site in all directions and receptors within 50m of the route to be used by construction vehicles on the public highway, up to 250m from the site entrance. Therefore, further assessment of the construction phase impacts on human receptors is necessary. There are no ecological receptors within 50m, and this element will not be considered further.

5.1.3 Screening criteria in the EPUK/IAQM air quality planning guidance indicate that an assessment of the impacts on local air quality due to vehicle emissions should not be required where the annual average daily traffic (AADT) increase is less than 100 light vehicles and/or less than 25 heavy-duty vehicles within an AQMA. The construction phase of the proposed development would generate a peak of 4 trips daily, significantly less AADT; therefore, assessment of the air quality impact due to vehicle emissions during the construction phase is not required (Velocity Transport Planning Limited, 2025a).

Risk of Dust Impacts

Potential Dust Emission Magnitude

5.1.4 The proposed development would redevelop the existing building at the site and there would be no demolition. Therefore, dust emissions due to demolition are not considered further.

5.1.5 Earthworks will be required to prepare the ground for the construction of the building extension. The entire site is around 910m^2 and the earthworks would cover a smaller area; therefore, with reference to **Table A1** in **Appendix A1**, the dust emission magnitude for earthworks is considered to be small.

5.1.6 The proposed development involves the construction of an extension with a volume significantly less than 12,000m^3 and the refurbishment of an existing building; therefore, with reference to **Table A1** in **Appendix A1**, the dust emission magnitude for construction is considered to be small.

5.1.7 Heavy-duty vehicles (HDV) delivering materials to the site would remain on the road; however some light vehicles (vans) would use the area at the front of the property. Therefore, with reference to **Table A1** in **Appendix A1**, the dust emission magnitude for trackout is considered to be small.

5.1.8 A summary of the likely dust emission magnitudes is shown in **Table 5**.

Table 5: Likely Dust Emission Magnitudes

Source	Dust Emission Magnitude
Demolition	n/a
Earthworks	Small
Construction	Small
Trackout	Small

Sensitivity of the Area

5.1.9 The sensitivity of the area depends on the specific sensitivities of local receptors, the proximity and number of receptors, local PM_{10} background concentrations and other site-specific factors, e.g., natural screening by trees.

Sensitivity of the Area to Dust Soiling

5.1.10 The application site is located in a residential area there are between 10-100 dust sensitive residential receptors within 20m; therefore, the area is considered to be of high sensitivity with regard to dust soiling from on-site works, with reference to **Table A5** of **Appendix A1**.

5.1.11 **Table 5** shows that the dust emission magnitude for track-out is small, therefore there is a risk of material being tracked up to 50 m from the site exit. There are between 10-100 dust sensitive receptors within 20 m of the edge of the road along which material could be tracked. With reference to **Table A5** of **Appendix A1** the area is thus considered to be of high sensitivity to dust soiling from track-out.

Sensitivity of the Area to the Health Effects of PM_{10}

5.1.12 Annual mean PM_{10} concentrations in the area that may be affected by emissions during the construction works are likely to be close to the background level of 12.5µg/m^3 in 2025; therefore, the area is considered to be of low sensitivity to the health effects of PM_{10} due to the construction works and from trackout (see **Table A6** of **Appendix A1**).

5.1.13 A summary of the sensitivity of the area to the effects of the construction works is shown in **Table 6**.

Table 6: Summary of the Area Sensitivity

Potential Effect	Sensitivity of the Area	
	On-site Works	**Trackout**
Dust Soiling	High	High
Health	Low	Low

Risk of Impact and Significance

5.1.14 The dust emission magnitudes in **Table 5** have been combined with the area sensitivities in **Table 6** and a risk category has been assigned to each construction activity using the matrix in **Table A8** of **Appendix A1**. The resultant risk categories, shown in **Table 7**, have then been used to determine the appropriate level of mitigation necessary for a residual effect that is likely to be 'not significant'.

Table 7: Summary of the Risk of Impacts Without Mitigation

Construction Activity	Dust Soiling	Health
Demolition	n/a	n/a
Earthworks	Low	Negligible
Construction	Low	Negligible
Trackout	Low	Negligible

5.2. Operational Phase

Impact of the Development

5.2.1 No new car parking spaces will be provided at the proposed development. Therefore, the number of vehicle trips generated by the proposed development would be negligible and the impact on local air quality would not be significant. The Transport Statement for the proposed development shows that there would be no single vehicle trips during the am or pm peak hours (Velocity Transport Planning Limited, 2025b).

Impact on the Development

5.2.2 The application site is located on a lightly trafficked road, approximately 50m from the closest significant road traffic emissions source, Bury Street to the east (A4180).

5.2.3 Annual mean NO_2 concentrations measured at diffusion tube monitoring sites located on the A4180, including site HILL37 100m to the east of the application site, measured from 23.9 to 29.7µg/m^3 in 2023 and the objective has been achieved by a wide margin. Pollutant concentrations decrease rapidly with distance from source, and annual mean NO_2 concentrations at the proposed development would be lower.

5.2.4 Hillingdon Council has not declared an AQMA for PM10 and annual mean concentrations at the proposed development are likely to be close to the background level of 12.5µg/m^3 in 2025.

5.2.5 $PM_{2.5}$ concentrations are also likely to be close to the annual mean background level of 7.6µg/m^3 in 2025 and below the 10µg/m^3 2040 annual mean concentration target.

5.2.6 Pollutant concentrations at the application site would be well below the air quality objectives/limit values. Therefore, air quality at the proposed development would be good and acceptable for residential use.

5.3. Air Quality Neutral Assessment

Building Emissions

5.3.1 The calculation of the BEB is shown in **Table 8**. The energy strategy for the proposed development is yet to be finalised, and it is not currently known what sort of gas boiler system would be installed. Therefore, calculations based on an individual gas boiler or a gas boiler network have been included.

5.3.2 The calculation of the development NOx emission is shown in **Table 9**. The annual NOx emission is higher than the BEBs; therefore, the proposed development is not Air Quality Neutral with regard to building emissions.

Table 8: Calculation of BEB

Land Use	GIA (m^2)	Benchmark NOx Emission Rate (g/m^2/annum)		BEB (kg/annum)	
		Individual Gas Boiler	Gas Boiler Network	Individual Gas Boiler	Gas Boiler Network
Care Homes and Hospitals	736	9.15	14.9	6.7	11.0

Table 9: Development NOx Emissions

Land Use	Energy Use (kWh/annum)	NOx Emission Rate (mg/kWh)	Development NOx Emissions (kg/annum)
Care Homes and Hospitals	300,000	40	12.0

6 Mitigation

6.1. Construction Phase

6.1.1 The application site has been identified as a low-risk site overall due to dust during construction and negligible risk site due to health effects, as set out in **Table 7**. The dust risk category has been used, along with the professional judgement of the consultant, to determine the appropriate level of mitigation at the site. The mitigation measures, taken from the IAQM, are described in **Appendix A4**.

6.2. Operational Phase

6.2.1 The assessment has demonstrated that the scheme will not introduce air quality sensitive receptors into an area where there are exceedances of the air quality objectives/limit values.

6.2.2 A Travel Plan has been prepared for the proposed development (Velocity Transport Planning Limited, 2025c). The Travel Plan sets out a long-term strategy aimed at encouraging future end-users (i.e. staff and visitors) to reduce their dependency on travelling by vehicle in favour of the more sustainable modes such as public transport, walking and cycling. The proposed development would be car free but would provide four secure cycle parking spaces.

6.2.3 Reductions in pollutant emissions from road traffic are principally being delivered in the longer term by the introduction of more stringent emissions standards, largely via European legislation. It is not considered appropriate to propose further mitigation measures for this scheme.

6.2.4 The proposed development will not significantly increase emissions of $PM_{2.5}$. Background concentrations at the application site are already below the 2040 10µg/m^3 annual mean concentration target. Pollutant concentrations are also falling rapidly due to the implementation of the London Ultra Low Emission Zone and the government is committed to phase out the sale of new petrol and diesel cars from 2030 (GLA, 2025; DfT, 2025). Therefore, the proposed development will not hinder progress towards the 2040 target value, and no further mitigation specific to $PM_{2.5}$ should be required.

6.3. Air Quality Neutral

6.3.1 With the use of gas boilers, the proposed development is not Air Quality Neutral with regards building emissions. Once the final energy strategy for the proposed development is known, and gas boilers remain part of that strategy, the calculation of the development NOx emissions would need to be updated. If the building NOx emissions remain above the BEB, mitigation measures would need to be agreed with Hillingdon Council, or an offsetting payment calculated and agreed.

7 Residual Impacts

7.1. Construction Phase

7.1.1 The IAQM guidance is clear that, with appropriate mitigation in place, the residual effect will normally be 'not significant'. With the implementation of the mitigation measures set out in **Appendix A4**, the residual effects are judged to be *insignificant*.

7.1.2 During adverse weather conditions, or where there is an interruption to the water supply, there may be occasional, short-term dust annoyance; however, the likely scale and duration of these effects would not change the conclusion that the residual effects are *insignificant*.

7.2. Operational Phase

7.2.1 The residual impacts will be the same as those identified in **Section 5.2**.

8 Conclusions

8.1.1 The construction phase will have the potential to create dust. It will therefore be necessary to implement mitigation measures to minimise dust emission. With these measures in place, it is expected that any residual effects will be not significant.

8.1.2 The proposed development will not generate significant additional traffic on the local road network and the impact on local air quality would not be significant. Air quality at the proposed development would be acceptable for residential use, with concentrations well below the objectives/limit values.

8.1.3 The proposed development will not hinder progress towards the 2040 $PM_{2.5}$ annual mean concentration target.

8.1.4 With the use of gas boilers, the proposed development would not be Air Quality Neutral with regard to building emissions. Once the final energy strategy is known, the building NOx emissions will be recalculated and if the building NOx emissions remain above the BEB, mitigation measures would need to be agreed with Hillingdon Council, or an offsetting payment calculated and agreed.

8.1.5 There should be no constraints to the redevelopment with regard to air quality as, with mitigation/offsetting for Air Quality Neutral building emissions, the proposed development is consistent with the relevant parts of:

- The NPPF and Air Quality nPPG;
- The London Plan and supporting SPG's; and
- Policy EM8 of the Hillingdon Local Plan Part 1; and
- Policy DMEI 14 of the Hillingdon Local Plan Part 2.

9 References

Defra. (2019). *Clean Air Strategy 2019.*

Defra. (2023a, April 28). *Air quality strategy: framework for local authority delivery*. Retrieved from GOV.UK: https://www.gov.uk/government/publications/the-air-quality-strategy-for-england/air-quality-strategy-framework-for-local-authority-delivery

Defra. (2023b). *Environmental Improvement Plan 2023.*

Defra. (2024). *PM2.5 Targets: Interim Planning Guidance*. Retrieved from https://uk-air.defra.gov.uk/pm25targets/planning

Defra. (2025a, 12 01). *Environmental Improvement Plan (EIP) 2025*. Retrieved from GOV.UK: https://www.gov.uk/government/publications/environmental-improvement-plan-2025/environmental-improvement-plan-eip-2025

Defra. (2025b). *Local Air Quality Managment (LAQM) Support*. Retrieved from http://laqm.defra.gov.uk/

DfT. (2025, 01 06). *Phasing out the sale of new petrol and diesel cars from 2030 and support for zero emission vehicle (ZEV) transition*. Retrieved from GOV.UK: https://www.gov.uk/government/speeches/phasing-out-the-sale-of-new-petrol-and-diesel-cars-from-2030-and-support-for-zero-emission-vehicle-zev-transition

EPUK and IAQM. (2017). *Land-Use Planning & Development Control: Planning for Air Quality v1.2.*

GLA. (2014). *The Control of Dust and Emissions During Construction and Demolition.*

GLA. (2018). *London Environment Strategy.*

GLA. (2021). *The London Plan.*

GLA. (2023a). *London Plan Guidance, Air Quality Neutral.*

GLA. (2023b). *London Plan Guidance Air Quality Positive.*

GLA. (2025). *London-Wide Ultra Low Emission Zone - One Year Report.*

Hillingdon Council. (2012). *Local Plan: Part 1 Strategic Policies.*

Hillingdon Council. (2019). *Air Quality Action Plan, 2019-2024.*

Hillingdon Council. (2020). *Local Plan Part 2 Development Management Policies.*

Hillingdon Council. (2024). *Air Quality Annual Status Report 2023.*

IAQM. (2024a). *Guidance on the Assessment of Dust from Demolition and Construction V2.2.*

IAQM. (2024b). *Guidance*. Retrieved from IAQM: https://iaqm.co.uk/guidance/

Mayor of London. (2019). *London Local Air Quality Management (LLAQM) Technical Guidance 2019 (LLAQM.TG(19)).*

Ministry of Housing, Communities and Local Government. (2019). *Guidance Air Quality*. Retrieved from https://www.gov.uk/guidance/air-quality--3

Ministry of Housing, Communities and Local Government. (2025). *National Planning Policy Framework.*

The Stationary Office. (2000). *Statutory Instrument 2000, No 921, The Air Quality (England) Regulations 2000.* London.

The Stationary Office. (2002). *Statutory Instrument 2002, No 3043, The Air Quality (England) (Amendment) Regulations 2002.* London.

The Stationary Office. (2010). *Statutory Instrument 2010, No 1001, The Air Quality Standards Regulations 2010.* London.

The Stationery Office. (2023). *Statutory Instrument 2023, No 96, The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023.* London.

Velocity Transport Planning Limited. (2025a). *9 Sharps Lane, Ruislip, HA4 7JG, Construction Management Plan.*

Velocity Transport Planning Limited. (2025b). *9 Sharps Lane, Ruislip, HA4 7JG, Transport Statement.*

Velocity Transport Planning Limited. (2025c). *9 Sharps Lane, Ruislip, HA4 7JG, Travel Plan.*

10 Glossary

AADT	Annual Average Daily Traffic
ADMS-Roads	Atmospheric Dispersion Modelling System
AQMA	Air Quality Management Area
AURN	Automatic Urban and Rural Network
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DMP	Dust Management Plan
EFT	Emissions Factor Toolkit
EPUK	Environmental Protection UK
Exceedance	A period of time when the concentration of a pollutant is greater than the appropriate air quality objective. This applies to specified locations with relevant exposure
HGV	Heavy Goods Vehicle
IAQM	Institute of Air Quality Management
LAEI	London Atmospheric Emissions Inventory
LAQM	Local Air Quality Management
LEZ	Low Emission Zone
µg/m^3	Microgrammes per cubic metre
MAQS	Mayor's Air Quality Strategy
NAEI	National Atmospheric Emissions Inventory
NO_2	Nitrogen dioxide
NOx	Nitrogen oxides (taken to be NO_2 + NO)
NPPF	National Planning Policy Framework
Objectives	A nationally defined set of health-based concentrations for nine pollutants, seven of which are incorporated in Regulations, setting out the extent to which the standards should be achieved by a defined date. There are also vegetation-based objectives for sulphur dioxide and nitrogen oxides
PM_{10}	Small airborne particles, more specifically particulate matter less than 10 micrometres in aerodynamic diameter
$PM_{2.5}$	Small airborne particles less than 2.5 micrometres in aerodynamic diameter
SPG	Supplementary Planning Guidance
Standards	A nationally defined set of concentrations for nine pollutants below which health effects do not occur or are minimal

11 Appendices

A1 Construction Dust Risk Assessment Methodology

A1.1. Introduction

A1.1.1 The IAQM guidance divides activities on construction sites into four types to reflect their different potential impacts:

- demolition;
- earthworks;
- construction; and
- trackout.

A1.1.2 A series of steps then consider the potential impact due to:

- the risk of health effects from an increase in exposure to PM_{10} and $PM_{2.5}$;
- annoyance due to the deposition of dust;
- harm to the natural environment.

A1.2. Step 1: Screen the Need for a Detailed Assessment

A1.2.1 An assessment is required where there is a human receptor within 250m of the site boundary, and/or within 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s), or where there is an ecological receptor within 50m of the site boundary, and/or within 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s).

A1.2.2 Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is negligible, and any effects will be not significant.

A1.3. Step 2: Assess the Risk of Dust Impacts

A1.3.1 A site is allocated to a risk category based on two factors:

- the scale and nature of the works, which determines the potential dust emissions magnitude (Step 2A); and
- the sensitivity of the area to dust impacts (Step 2B).

A1.3.2 These two factors are combined at Step 2C to determine the risk of dust impacts from each type of construction activity, with no mitigation applied.

Step 2A: Potential Dust Emissions Magnitude

A1.3.3 The dust emission magnitude is classified as small, medium or large. Examples of how the potential dust emission magnitude for each activity can be defined are shown in **Table A1**.

Table A1: Examples of How the Dust Emission Magnitude can be Defined

Class	Example
Demolition	
Large	Total building volume >75,000 m^3, potentially dusty construction material (e.g. concrete), on-site crushing and screening, demolition activities >12 m above ground level.
Medium	Total building volume 12,000 m^3 – 75,000 m^3, potentially dusty construction material, demolition activities 6-12 m above ground level.
Small	Total building volume <12,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <6 m above ground, demolition during wetter months.
Earthworks	
Large	Total site area >110,000 m^2, potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds >6 m in height.
Medium	Total site area 18,000 m^2 – 110,000 m^2, moderately dusty soil type (e.g. silt), 5-10 heavy earth moving vehicles active at any one time, formation of bunds 3m - 6m in height;
Small	Total site area <18,000 m^2, soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <3 m in height.
Construction	
Large	Total building volume >75,000 m^3, piling, on site concrete batching; sandblasting.
Medium	Total building volume 12,000 m^3 – 75,000 m^3, potentially dusty construction material (e.g. concrete), on site concrete batching.
Small	Total building volume <12,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber).
Trackout [a]	
Large	>50 HDV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100 m.
Medium	20-50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50 m – 100 m.
Small	<20 HDV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50 m.

a These numbers are for vehicles that leave the site after moving over unpaved ground.

Step 2B: Define the Sensitivity of the Area

A1.3.4 The sensitivity of the area takes account of:

- the specific sensitivities of receptors in the area;
- the proximity and number of those receptors;
- in the case of PM_{10}, the local background concentrations; and
- site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of wind-blown dust.

A1.3.5 The specific sensitivities of different types of receptor to dust soiling and PM_{10} are shown in **Table A2**, **Table A3** and **Table A4**. Professional judgement should be used to identify where on the spectrum of sensitivity a receptor lies, taking account of specific circumstances, i.e. the first occupants of residential units on a phased development may be expected to be less sensitive to dust soiling.

A1.3.6 The sensitivity of the area is then determined from the specific sensitivities of the receptors using the matrices set out in **Table A5**, **Table A6** and **Table A7**. Professional judgement should be used to determine the final sensitivity of the area, taking account of:

- any history of dust generating activities in the area:
- the likelihood of concurrent dust generating activity on nearby sites;
- any pre-existing screening between source and receptors;
- any conclusions drawn from analysing local meteorological data which accurately represents the area; and if relevant, the season during which the works will take place;
- any conclusions drawn from local topography;
- duration of the potential impact, as a receptor may become more sensitive over time; and
- any other known specific receptor sensitivities.

Step 2C: Define the Risk of Impacts

A1.3.7 The dust emission magnitude determined at Step 2A is combined with the sensitivity of the area determined at Step 2B to determine the risk of impacts with no mitigation applied. The level of risk for each activity is determined using the matrix in **Table A8**.

A1.4. Determine Site Specific Mitigation

A1.4.1 The dust risk category determined at Step 2C has been used, along with the professional judgement of the consultant, to determine the appropriate level of mitigation at the site. The highly recommended and desirable mitigation measures set out in the IAQM guidance and London Plan SPG form the basis of the mitigation set out in **Appendix A4**.

A1.4.2 The mitigation measures will inform an Air Quality and Dust Management Plan (AQDMP), which will be submitted to the local authority for approval prior to works commencing on-site.

Table A2: Sensitivities of People to Dust Soiling

Class	Principles	Examples
High	Users can reasonably expect enjoyment of a high level of amenity; or the appearance, aesthetics or value of their property would be diminished by soiling; and the people or property would reasonably be expected a to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land.	Dwellings, museum and other culturally important collections, medium and long term car parks and car showrooms.
Medium	Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or the appearance, aesthetics or value of their property could be diminished by soiling; or the people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land.	Parks and places of work.
Low	The enjoyment of amenity would not reasonably be expected; or property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; or there is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land.	Playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads.

Table A3: Sensitivities of People to PM_{10}

Class	Principles	Examples
High	Locations where members of the public are exposed over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day).	Residential properties, hospitals, schools and residential care homes.
Medium	Locations where the people exposed are workers, and where individuals may be exposed for eight hours or more in a day.	Office and shop workers, but will generally not include workers occupationally exposed to PM10
Low	Locations where human exposure is transient.	Public footpaths, playing fields, parks and shopping streets.

Table A4: Sensitivities of Receptors to Ecological Effects

Class	Principles	Examples
High	Locations with an international or national designation and the designated features may be affected by dust soiling; or locations where there is a community of a particularly dust sensitive species such as vascular species included in the Red Data List For Great.	Special Areas of Conservation (SAC) designated for acid heathlands or a local site designated for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings.
Medium	Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown; or locations with a national designation where the features may be affected by dust deposition.	Sites of Special Scientific Interest (SSSI) with dust sensitive features.
Low	Locations with a local designation where the features may be affected by dust deposition.	Local Nature Reserves with dust sensitive features.

Table A5: Sensitivity of the Area to Dust Soiling Effects on People and Property [1]

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		<20	<50	<100	<350
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table A6: Sensitivity of the Area to Human Health Effects [1]

Receptor Sensitivity	Annual Mean PM_{10}	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
High	>32 µg/m^3	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28-32 µg/m^3	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24-28 µg/m^3	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24 µg/m^3	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	>32 µg/m^3	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28-32 µg/m^3	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	<28 µg/m^3	>10	Low	Low	Low	Low

[1] For demolition, earthworks and construction, the distances are measured from the dust source, or the application site boundary. For trackout, the distances are measured from the side of the roads used by construction traffic. Without site-specific mitigation, trackout may occur from roads up to 500 m from large sites, 200 m from medium sites and 50 m from small sites, as measured from the site exit. The impact declines with distance from the site, and it is only necessary to consider trackout impacts up to 50 m from the edge or the road.

Receptor Sensitivity	Annual Mean PM_{10}	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
		1-10	Low	Low	Low	Low
Low	-	≥1	Low	Low	Low	Low

Table A7: Sensitivity of the Area to Ecological Effects [1]

Receptor Sensitivity	Distance from the Source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Table A8: Defining the Risk of Dust Impacts

Sensitivity of the Area	Dust Emission Magnitude		
	Large	Medium	Small
Demolition			
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible
Earthworks			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
Construction			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
Trackout			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

A2 Criteria Used to Establish when an Air Quality Assessment is Likely to be Necessary

A2.1.1 Criteria to Proceed to Stage 2.

A. If any of the following apply:

- 10 or more residential units or a site area of more than 0.5ha;
- more than 1,000 m^2 of floor space for all other uses or a site area greater than 1ha

B. Coupled with any of the following:

- the development has more than 10 parking spaces
- the development will have a centralised energy facility or other centralised combustion process

Note: Consideration should still be given to the potential impacts of neighbouring sources on the site, even if an assessment of impacts of the development on the surrounding area is screened out.

A2.1.2 The Stage 2 criteria are shown in **Table A9**.

Table A9: Indicative Criteria for Requiring an Air Quality Assessment

The development will:	Indicative Criteria to Proceed to an Air Quality Assessment
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.

The development will:	Indicative Criteria to Proceed to an Air Quality Assessment
6. Have an underground car park with extraction system.	The ventilation extract for the car park will be within 20 m of a relevant receptor; coupled with the car park having more than 100 movements per day (total in and out).
7. Have one or more substantial combustion processes	Where the combustion unit is: - any centralised plant using bio fuel; - any combustion plant with single or combined thermal input>300kW; - a standby emergency generator associated with a centralised energy centre (if likely to be tested/used >18 hours a year).
8. Have a combustion process of any size	Where the pollutants are exhausted from a vent or stack in a location and at a height that may give rise to impacts at receptors through insufficient dispersion. This criterion is intended to address those situations where a new development may be close to other buildings that could be residential and/or which could adversely affect the plume's dispersion by way of their size and/or height.

A3 Professional Experience

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Bob Thomas is a Director at AQA, with over 22 years working in the sciences and over 18 years' experience in the field of air quality management and assessment. He has carried out air quality assessments for a wide range of developments, including residential, commercial, industrial, minerals and waste developments. He has been responsible for air quality projects that include ambient air quality monitoring of nitrogen dioxide, dust and PM_{10}, the assessment of nuisance odours and dust, and the preparation of Review and Assessment reports for local authorities. He has extensive dispersion modelling experience for road traffic, energy centre and industrial sources, and has completed many stand-alone reports and chapters for inclusion within an Environmental Statement. Bob has worked with a variety of clients to provide expert air quality services and advice, including local authorities, planners, developers, architects and process operators, and has provided expert witness services at public inquiry. He is a Chartered Scientist, a Member of the Institute of Air Quality Management and a Member of the Institution of Environmental Sciences.

A full CV for Bob Thomas is available at http://aqassessments.co.uk/about

A4 Construction Mitigation

A4.1.1 Mitigation measures that should be incorporated into the specification for the works are shown in **Table A10**.

Table A10: Demolition and Construction Mitigation

Category	Mitigation
Communications	Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
	Display the head or regional office contact information.
	Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. 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, realtime PM_{10} continuous monitoring and/or visual inspections.
Site Management	Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
	Make the complaints log available to the local authority when asked.
	Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the logbook.
Monitoring	Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.
	Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
Preparing and maintaining the site	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
	Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
	Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period.
	Avoid site runoff of water or mud.

Category	Mitigation
	Keep site fencing, barriers and scaffolding clean using wet methods.
	Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
	Cover, seed or fence stockpiles to prevent wind whipping.
Operating vehicle/machinery and sustainable travel	Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable.
	Ensure all vehicles switch off engines when stationary - no idling vehicles.
	Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
Operations	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
	Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate
	Use enclosed chutes and conveyors and covered skips.
	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
	Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Waste management	Avoid bonfires and burning of waste materials.
Construction	Avoid scabbling (roughening of concrete surfaces) if possible.
	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.
Trackout	Avoid dry sweeping of large areas.
	Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.