



Air Quality and Dust Management Plan:

Wood Green Social Club, 3&4 Stuart Crescent

Martin Cramer

18th October 2023



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This report has been prepared by Hawkins Environmental Limited for the sole purpose of assisting in gaining planning consent for the proposed development described in the introduction of this report.

This report has been prepared by Hawkins Environmental Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

This assessment takes into account the prevailing conditions at the time of the report and assesses the impact of the development (if applicable) using data provided to Hawkins Environmental Limited by third parties. The report is designed to assist the developer in refining the designs for the proposed development and to demonstrate to agents of the Local Planning Authority that the proposed development is suited to its location. This should be viewed as a risk assessment and does not infer any guarantee that the site will remain suitable in future, nor that there will not be any complaints either from users of the development or from impacts emanating from the development site itself.

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1. INTRODUCTION

1.1. Overview

Hawkins Environmental Limited has been instructed by Martin Cramer to prepare an Air Quality and Dust Management Plan for the proposed redevelopment of Wood Green Social Club, situated at 3 & 4 Stuart Crescent in Wood Green of the London Borough of Haringey.

During the planning process (Application Reference No. HGY/2021/2031, it has been identified in the Notice of Planning Permission that the site will require an Air Quality and Dust Management Plan (condition 5). The planning notice specifies that details of the management of demolition and construction dust shall be submitted to, and approved by, the London Borough of Haringey prior to the commencement of works. The plan is to be in accordance with the GLA SPG Dust and Emissions Control and shall also include an Air Quality Dust Risk Assessment.

To ensure that this document remains relevant, adequate and effective as the works progress, the Dust Management Plan will be reviewed and updated as necessary whilst works are ongoing:

- Every six months (minimum);
- As required by the Project Manager;
- Following any changes to the scope of the works that have had an impact on environmental requirements.

1.2. Site Description

The proposed development site is situated off Stuart Crescent, a primarily residential road. Stuart Crescent joins White Hart Lane which connects Wood Green in the west to Tottenham in the west.

The proposed development is described in the planning consent as *“Partial demolition of rear extensions and construction of 5 x part two, part three storey mews dwellings. Demolition of three storey front projection, demolition and re-construction of existing top floor of Social Club building and change of use of first floor from Community use to C3 (Residential) with balcony areas and internal re-configuration of existing 5 no. residential units within 3 & 4 Stuart Crescent and creation of an additional 9 no. residential units with associated landscaping works and parking”*.

A location plan of the proposed site can be seen in **Figure 1.1**.

Figure 1.1: Site Location Plan

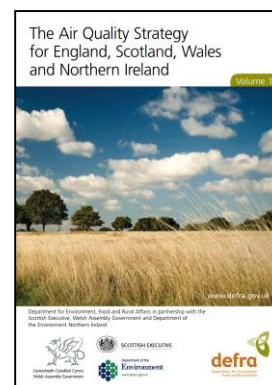


2. LEGISLATION, PLANNING POLICY & GUIDANCE

2.1. National Legislation

Part IV of the Environment Act (1995), requires the UK government to produce a national Air Quality Strategy which contains standards, objectives and measures for improving ambient air quality. The National Air Quality Strategy sets out National Air Quality Objectives (NAQOs) that are maximum ambient pollutant concentrations that are not to be exceeded either without exception or with a permitted number of exceedances over a specified timescale.

The Clean Air for Europe (CAFE) programme revisited the management of Air Quality within the EU and replaced the EU Framework Directive 96/62/EC, its associated Daughter Directives 1999/30/EC, 2000/69/EC, 2002/3/EC, and the Council Decision 97/101/EC, with a single legal act, the Ambient Air Quality and Cleaner Air for Europe Directive 2008/50/EC.



Directive 2008/50/EC is currently transcribed into UK legislation by the Air Quality Standards Regulations 2010, which came into force on 11th June 2010. These limit values are binding on the UK and have been set with the aim of avoiding, preventing or reducing harmful effects on human health and on the environment as a whole. These limit values are the basis of the NAQOs.

The National Air Quality Objectives (NAQOs) and their Limit Values will form the basis of this air quality assessment of the proposed development. The NAQOs are based on an assessment of the effects of each pollutant on public health. Therefore, they are a good indicator in assessing whether, under normal circumstances, the air quality in the vicinity of a development is likely to be detrimental to human health. In determining whether air pollutant levels may constrain development, the results of studies are compared against the acceptability criteria. The Air Quality Standards are displayed in **Table 2.1**.

Table 2.1: Air Quality Standards

Pollutant	Average Period	NAQO Limit Value
Sulphur Dioxide	One Hour	350 µg/m ³ Not to be exceeded more than 24 times per calendar year
	One Day	150 µg/m ³ Not to be exceeded more than 3 times per calendar year
Nitrogen Dioxide	One Hour	200 µg/m ³ Not to be exceeded more than 18 times per calendar year
	Calendar Year	40 µg/m ³
Benzene	Calendar Year	5 µg/m ³

Pollutant	Average Period	NAQO Limit Value
Lead	Calendar Year	0.5 µg/m ³
PM ₁₀	One Day	50 µg/m ³ Not to be exceeded more than 35 times per calendar year
	Calendar Year	40 µg/m ³
PM _{2.5}	Calendar Year	25 µg/m ³
Carbon Monoxide	Maximum daily running 8-hour mean	10 mg/m ³

2.2. Clean Air Strategy (2019)

The Government's Clean Air Strategy was launched on the 14th January 2019 and sets out a range of initiatives that will help reduce air pollution, providing healthier air to breathe, enhancing the economy and protecting nature.

The Clean Air Strategy highlights action to be taken to reduce emissions across all sectors, including transport, the home, farming, and industrial sources. This includes actions to reduce particulate matter from domestic emissions, by introducing new legislation to prohibit the sales of the most polluting fuels and ensuring only the cleanest stoves are available for sale by 2022.

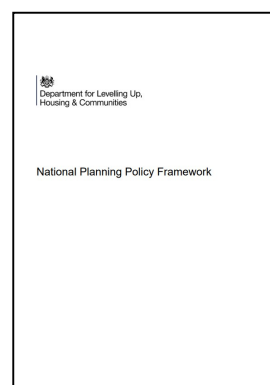
In addition, the Clean Air Strategy sets out proposals to halve the population living in areas with concentrations of fine particulate matter (PM_{2.5}) above the World Health Organisation (WHO) guideline levels of 10 µg/m³ by 2025. Since the publication of the Clean Air Strategy, the WHO has further reduced its guideline level for PM_{2.5} to 5 µg/m³.



2.3. National Planning Policy Framework (2023)

The National Planning Policy Framework (NPPF) was first published in March 2012 and revised in July 2018, February 2019, July 2021 and most recently September 2023. The NPPF outlines the Government's environmental, economic and social policies for England. The NPPF sets out a presumption in favour of sustainable development which should be delivered with three main dimensions: economic; social and environmental (Paragraphs 7, 8 10 and 11). The NPPF aims to enable local people and their councils to produce their own distinctive local and neighbourhood plans, which should be interpreted and applied in order to meet the needs and priorities of their communities.

The NPPF states that in the planning system *"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” (Paragraph 174).

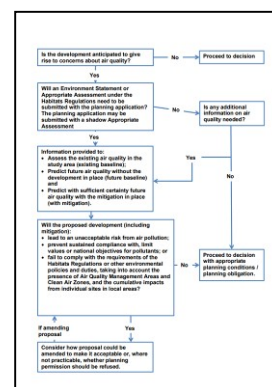
The NPPF also states that “Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual 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” (Paragraph 186).

2.4. Planning Practice Guidance (2019)

The Planning Practice Guidance (PPG) was launched on 6th March 2014 and has undergone regular revision, with the most recent changes to Air Quality in November 2019. It provides additional guidance and interpretation to the Government’s strategic policies, outlined within the NPPF, in a web-based resource. This is updated regularly.

Matters of relevance to the air quality assessment include:

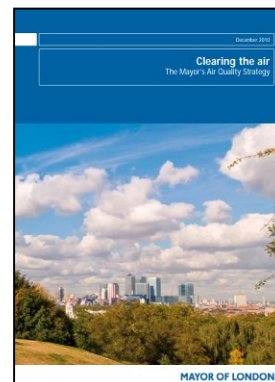
- The provision of “guidance on how planning can take account of the impact of new development on air quality”. The PPG provides signposts as to how to address air quality in planning applications and highlights the importance of local plans.
- The statement that “The Department for Environment, Food and Rural Affairs carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with relevant Limit Values” and “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” (Reference ID: 32-001-20191101). The PPG goes on to say 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)” (Reference ID: 32-005-20191101).
- The identification of the content of an air quality assessment, stating clearly 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” (Reference ID: 32-007-20191101).



2.5. 'Clearing the Air' – The Mayor's Air Quality Strategy (2010)

In December 2010, the Mayor of London's Air Quality Strategy was published by the Greater London Authority (GLA).

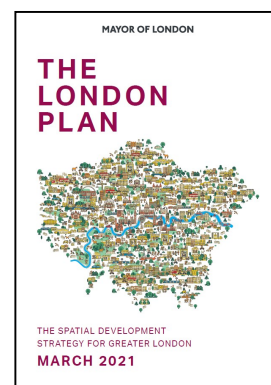
The strategy sets out a framework for delivering improvements to London's air quality and includes measures aimed at reducing emissions from all types of new development, as well as raising awareness of air quality issues and its impacts on health.



2.6. The London Plan (2021)

The New London Plan was formally published on the 2nd of March 2021 and replaces the previous London Plan.

The London Plan 2021 takes an even tougher approach to air quality than its predecessor. The Plan notes that *"Poor air quality is a major issue for London which is failing to meet requirements under legislation. Poor air quality has direct impacts on the health, quality of life and life expectancy of Londoners. The impacts tend to be most heavily felt in some of London's most deprived neighbourhoods, and by people who are most vulnerable to the impacts, such as children and older people. London's air quality should be significantly improved and exposure to poor air quality, especially for vulnerable people, should be reduced (para 9.1.1). The Mayor is committed to making air quality in London the best of any major world city, which means not only achieving compliance with legal limits for Nitrogen Dioxide as soon as possible and maintaining compliance where it is already achieved, but also achieving World Health Organisation targets for other pollutants such as Particulate Matter (para 9.1.2)".*



This last point is reinforced in Paragraph 9.1.4 which states *"where this policy refers to 'existing poor air quality' this should be taken to include areas where legal limits for any pollutant, or World Health Organisation targets for Particulate Matter, are already exceeded and areas where current pollution levels are within 5 per cent of these limits (para 9.1.4)".* Consequently, while not legal limits on air pollution, air quality assessments within London now require the consideration of the lower WHO targets on PM₁₀ and PM_{2.5}.

Policy SI1 – Improving Air Quality states that:

- 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:*

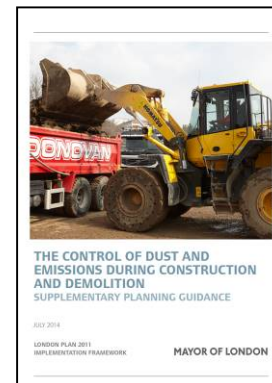
- 1) *Development proposals should not:*
 - a) *lead to further deterioration of existing poor air quality*
 - b) *create any new areas that exceed air quality limits, or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits*
 - c) *create unacceptable 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”.*

The 2021 London Plan is supported by various supplementary London Plan Guidance (LPG) documents, of which ones relating to previous versions of the London Plan are still referred to as Supplementary Planning Guidance (SPGs). Relevant LPGs and those SPGs that are still adopted are discussed below.

2.6.1. Control of Dust and Emissions from Construction and Demolition Supplementary Planning Guidance (2014)

Published in July 2014, this SPG provides guidance on preparing an Air Quality Statement for construction and demolition activities, specifically in relation to dust risk assessments and helps identify the potential scale of dust emissions for each stage of work. The SPG also provides best practice methods for controlling dust on-site and preventing 'trackout', as well as recommendations for dust monitoring.

The SPG also tries to manage emissions of nitrogen oxides (NO_x) from construction and demolition machinery by means of a new non-road mobile machinery (NRMM) ultra-low emissions zone (ULEZ). For certain types of NRMM, the SPG sets emission standards which must be achieved.



2.7. Guidance on the Assessment of Dust from Demolition and Construction (2014)

Published in 2014, the IAQM's Guidance on the Assessment of Dust from Demolition and Construction provides guidance on preparing an Air Quality Statement for construction and demolition activities, specifically in relation to dust risk assessments, as well as providing details on how best to mitigate the impacts of construction dust. Much of the detail within the IAQM's Guidance was adopted within the Control of Dust and Emissions from Construction and Demolition SPG.



3. ASSESSMENT METHODOLOGY

3.1. Methodology for Determining Local Air Quality

In the UK, the Department for Environment, Food & Rural Affairs (Defra) provides guidance on the most appropriate methods to estimate pollutant concentrations for use in Local Air Quality Management (LAQM). Defra regularly updates its Technical Guidance, with the latest LAQM Technical Guidance (TG22) published in 2022.

The methodology in TG22 directs air quality professionals to a number of tools published by Defra to predict and manage air quality. One of the main tools is the calculation procedure contained in the Design Manual for Roads and Bridges (DMRB). DMRB Volume 11, Section 3, Part 1, describes the so-called 'DMRB Screening Method'.

The methodology is provided in a spreadsheet format and is designed to estimate pollutant concentrations at specific locations from the associated road network.

The methodology has undergone a number of significant revisions over the period 2002-2007 with the latest version becoming available in July 2007. The methodology provides estimates of air pollutant concentrations that in general provide very good agreement with measured data and pollutant concentration levels predicted utilising more detailed dispersion models.

Where local information is available on traffic composition the method allows for the division of traffic into a range of classes. Within these classes, it is assumed that the distribution of vehicles according to fuel type, emission standard and engine size, would conform to national average statistics.

3.2. Methodology for Determining Demolition and Construction Effects

The determination of demolition and construction effects of the Proposed Development was based on the LAQM's Guidance on the Assessment of Dust from Demolition and Construction, which provides a risk-based assessment methodology to determine the significance of an air quality impact arising from the construction of a new development, based on the magnitude of change. The methodology provides a five-step approach to determining the significance:

***“STEP 1** is to screen the requirement for a more detailed assessment. No further assessment is required if there are no receptors within a certain distance of the works.*

***STEP 2** is to assess the risk of dust impacts. This is done separately for each of the four activities (demolition; earthworks; construction; and trackout) and takes account of:*

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 in STEP 2C to give the risk of dust impacts.

Risks are described in terms of there being a low, medium or high risk of dust impacts for each of the four separate potential activities. Where there are low, medium or high risks of an impact, then site-specific mitigation will be required, proportionate to the level of risk.

Based on the threshold criteria and professional judgement one or more of the groups of activities may be assigned a 'negligible' risk. Such cases could arise, for example, because the scale is very small and there are no receptors near to the activity.

STEP 3 is to determine the site-specific mitigation for each of the four potential activities in STEP 2. This will be based on the risk of dust impacts identified in STEP 2. Where a local authority has issued guidance on measures to be adopted at demolition/construction sites, these should also be taken into account.

STEP 4 is to examine the residual effects and to determine whether or not these are significant.

STEP 5 is to prepare the dust assessment report."

4. DMRB ASSESSMENT OF LOCAL AIR QUALITY

The methodology outlined above requires all major roads within 200 metres of the receptor to be modelled. At the proposed development site, the roads that meet this definition are White Hart Lane, approximately 15 m to the north of the proposed development; and High Road, approximately 115 m to the west of the proposed development.

Background concentrations in the local area have been obtained from the the UK National Air Quality Information Archive, in accordance with Local Air Quality Management Technical Guidance TG22. The archive details background concentrations in the UK at 1 km² resolution.

Background concentrations at the grid square centered at 531500 190500 (the location of the proposed development site) have been calculated as 19.50 µg/m³ PM₁₀.

In order to avoid 'double counting', major road sources within the grid square identified and within 200 metres of the site were removed from the total background as they have been explicitly modelled as part of the assessment.

Traffic data for both White Hart Lane and High Road, including traffic speed and a ratio of HGV/LGV, has been obtained from the London Atmospheric Emissions Inventory database for 2013; to which a high growth factor (1.015x per year) has been applied to scale up to an estimate of 2022 traffic levels.

The DMRB calculations have predicted an on-site PM₁₀ concentration of 20.50 µg/m³ PM₁₀, corresponding to a road contribution of 1.00 µg/m³ PM₁₀.

5. CLASSIFICATION OF SITE

Development sites are classified into one of three tiers according to dust risk and are assessed on the basis of four site activities outlined below, as well as the sensitivity of nearby receptors (determined in Section 5). The Dust Emission Magnitude (DEM) is based on the scale of the anticipated works and the site will be classified as Small, Medium or Large, as defined by the Institute of Air Quality Management (IAQM) and the London SPG.

5.1. Demolition

Dust Emissions Magnitude: **Medium**

The criteria for determining the Dust Emissions Magnitude for demolition include the total volume of buildings to be demolished, as well as the types of materials and their potential for dust release. The height of the buildings to be removed is also a factor. The Dust Emissions Magnitude above has been determined for the site based on the following:

- The total volume of the buildings to be demolished is likely in the 12,000-75,000 m³ range.
- Demolition activities will take place no more than 6-12 m above ground.
- Brickwork and concrete are the predominant materials involved.

5.2. Earthworks

Dust Emissions Magnitude: **Medium**

Earthworks primarily cover excavation, haulage, tipping and stockpiling of soil type material. This includes levelling the site and landscaping. Criteria for determining the Dust Emissions Magnitude include the total area of the site, soil type, and number of earth-moving vehicle movements. The Dust Emissions Magnitude above has been determined for the site based on the following:

- Total site area 18,000 m².
- <5 heavy earth moving vehicles active at any one time.
- Formation of piles no more than 4 metres in height.
- Total material moved to be less than 10,000 tonnes.
- The above are indicative of a “Small” DEM, however the soil type in the area has been identified as having clay content and therefore “Medium” is deemed precautionary.

5.3. Construction

Dust Emissions Magnitude: **Medium**

The key issues when determining the potential dust emission magnitude during the construction phase include the size of the proposed building(s)/infrastructure, method of construction, construction materials, and duration of build. The Dust Emissions Magnitude above has been determined for the site based on the following:

- Total new building volume unlikely to exceed <12,000 m³.
- Notwithstanding the above, the materials and processes to be used are not known, although concrete is likely, and therefore “Medium” DEM is deemed precautionary.

5.4. Trackout

Dust Emissions Magnitude: **Small**

Factors which determine the dust emission magnitude are vehicle size, vehicle speed, vehicle numbers, geology and duration. The Dust Emissions Magnitude above has been determined for the site based on the following:

- Less than 20 outward movements of HGVs (>3.5 t) are expected in any one day.
- Length of unpaved roads to be travelled by works vehicles will be less than 50 metres (CEMP indicates HGVs to use hardstanding areas only).

5.5. Summary of Dust Emissions Magnitudes

Activity	Dust Emission Magnitude
Demolition	Medium
Earthworks	Medium
Construction	Medium
Trackout	Small

6. SENSITIVITY OF THE AREA

A number of factors should be taken into account when determining the sensitivity of an area to dust from development, including:

- The specific sensitivities of receptors in the area.
- The proximity and number of receptors in the area.
- In the case of PM₁₀, the local background concentration.
- Site specific factors.

Sensitivity is determined in terms of three separate criteria: dust soiling, human health and ecological impacts.

6.1. Sensitive Receptors

Figures 6.1 & 6.2 shows the distance bands into which receptors fall as described in the guidance, both from the site (20, 50, 100 and 350 metres) and the associated haul routes (20 and 50 metres). The vast majority of receptors in the area are residential properties, as well as a health centre and a school. These all qualify as high-sensitivity receptors.

Figure 6.1: Receptor distance bands from proposed development site

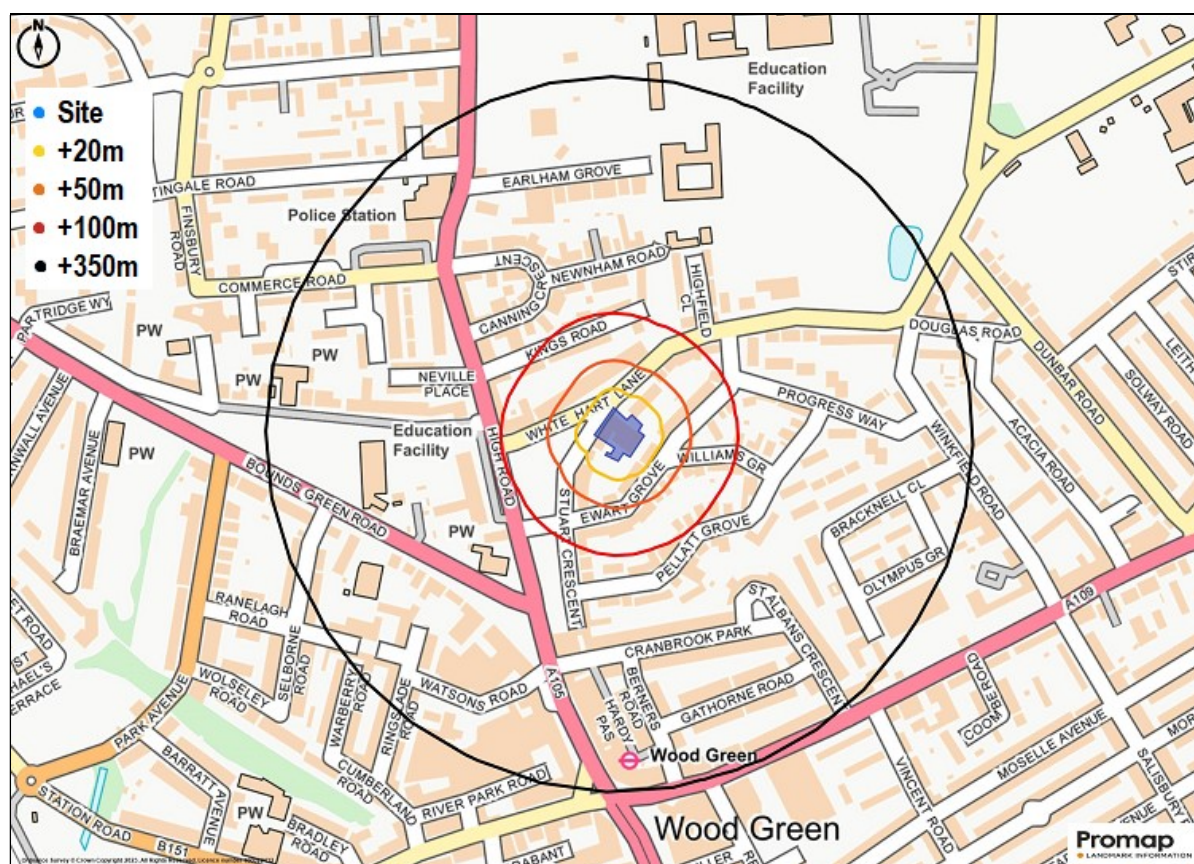
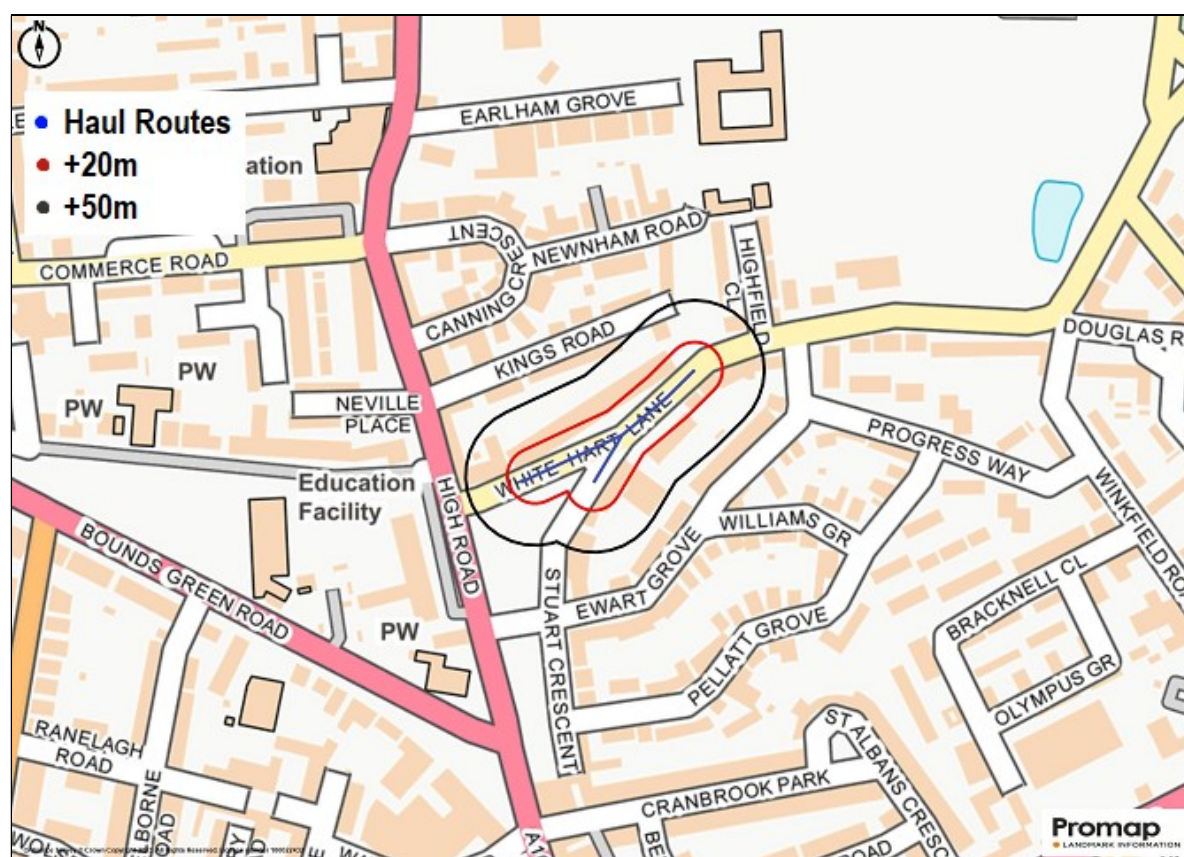


Figure 6.2: Receptor distance bands from proposed haul routes



6.2. Dust Soiling

Sensitivity: **High**

For the sensitivity of people and their property to soiling, the IAQM recommends that residential properties qualify as high sensitivity receptors due to the high level of amenity people are expected to enjoy, as well as the potential for diminished appearance, aesthetics and value to them.

There are between more than 10 high sensitivity receptors within 20 m of the site boundary; therefore, the sensitivity to dust soiling effects on people and property is “high” for demolition, earthworks and construction. There are also more than 10 high sensitivity receptors within 20 m of the associated haul routes of the site; there, the sensitivity to dust soiling on people and property is also “high” for trackout.

6.3. Human Health

Sensitivity: **Low**

For the sensitivity of people to the health effects of PM₁₀, the IAQM recommends that there are three sensitivities based on whether or not the receptor is likely to be exposed to elevated concentrations over a 24-hour period. The nearby residential properties, medical centre and school all qualify as high sensitivity receptors.

The annual mean on-site concentration of PM₁₀ has been determined by the DMRB calculation in **Section 4** of this report to be 20.5 µg/m³, i.e. less than 24 µg/m³; which despite the number of high sensitivity receptors outlined above results in a “low” sensitivity of the area to human health impacts for all activities.

6.4. Ecological Receptors

Sensitivity: **Low**

Dust deposition due to demolition, earthworks, construction and trackout has the potential to affect sensitive habitats and plant communities. Dust can have two types of effects on vegetation: Physical and Chemical. Direct physical effects include reduced photosynthesis, respiration and transpiration through smothering. Chemical changes to watercourses or soils may lead to loss of plants or animals via changes in acidity. Indirect effects can include susceptibility to stressors such as pathogens and air pollution. These changes are likely to occur only as a result of long-term demolition and construction works adjacent to a sensitive habitat. Often impacts will be reversed when the works are completed and dust emissions cease.

There are no ecological receptors that are considered to be anything greater than low sensitivity receptors within 50 m of the site or its associated haul routes; this results in a “low” sensitivity of the area to ecological impacts for all activities.

6.5. Summary of Site Sensitivity

Table 9.2 summarises the sensitivity of the area for each activity. In addition to the factors above, the likelihood of concurrent dust generating activities near the site, the history of dust generating activities in the area, and the duration and timing (season) of the works has been taken into account.

Table 6.1: Outcome of Defining the Sensitivity of the Area

Potential Impact	Sensitivity of Surrounding Area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	High	High	High	High
Human Health	Low	Low	Low	Low
Ecological	Low	Low	Low	Low

7. DEFINITION OF RISKS

Based on the dust emissions magnitudes determined in Section 4 and the receptor sensitivities determined in Section 6, the level of risk for each activity can be determined.

Table 7.1: Summary Dust Risk Table to Define Site-Specific Mitigation

Potential Impact	Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium	Medium	Medium	Low
Human Health	Low	Low	Low	Negligible
Ecological	Low	Low	Low	Negligible

The site can therefore be considered a Medium Risk Site in terms of demolition, earthworks and construction and a Low Risk Site in terms of trackout; and thus, a Medium Risk Site overall.

8. SITE SPECIFIC MITIGATION

Referring to visible dust, it is imperative to prevent statutory nuisance arising from the demolition, earthworks, construction and trackout works or other dusty activities. Therefore, a philosophy of the prevention of dust formation in the first place shall be adopted. Dealing with dust should be in the following fashion:

1. Prevention
2. Suppression
3. Containment.

These three principles are well established and are central to the control strategies to control dust. They follow a hierarchy to control the emissions.

The prior sections of this report represent the Air Quality and Dust Risk Assessment (AQDRA), as per GLA's control of dust and emissions supplementary planning guidance (SPG). Subsequently, the risk level has been identified as Medium in terms of demolition, earthworks and construction and Low in terms of trackout; and thus the site is designated as Medium risk overall.

The main reasons for this assessment level are the small size of the site and relatively low activity levels, e.g. minimal plant usage on site, minimal vehicle movements to and from site and lack of higher risk demolition activities. The high density of nearby high-sensitivity receptors does increase the risk and contributes to the Medium risk designation particularly for demolition, which has the highest potential for dust release of the four activities.

Regardless of the risk level, all employees working on site and all sub-contractors should follow best practice at all times to control and limit emissions of gaseous and particulate pollutants into the atmosphere from the construction and demolition activities, including vehicles and plant.

All qualifying plant will be registered on the NRMM register and regularly monitored to ensure compliance.

Suppression techniques should be through the use of water via hoses and dampening down of localised areas during dusty activities during the demolition/construction phases. An adequate supply of water on site that has adequate frost protection is necessary.

Regardless of regular inspections and procedures, should any airborne dust be seen to be leaving the site boundary the source of the emission will be immediately identified and corrective action will be taken without delay.

The checklist below identifies mitigation procedures, that are designated as desirable or highly recommended for Medium Risk Sites that will be implemented on site in order to minimize dust nuisance from dusty operations. Included are correct storage of raw materials, high standards of housekeeping and site management, minimization of drop heights and consideration of the prevailing wind.

The IAQM's Guidance states that the following measures are highly recommended or desirable as mitigation for all Medium risk sites:

- Communications: Develop and implement a stakeholder communications plan that includes community engagement before work commences – *Highly Recommended*.
- Communications: Display the name and contact details of person(s) accountable for air quality and dust issues on the Site boundary – *Highly Recommended*.
- Communications: Display the head or regional office contact information – *Highly Recommended*.
- Communications: Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the LPA. 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 PM₁₀ continuous monitoring and/or visual inspections – *Highly Recommended*.
- Site management: Record all dust and air quality complaints, identify the cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken – *Highly Recommended*.
- Site management: Make the complaints log available to the local authority when asked – *Highly Recommended*.
- Site management: 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 log book – *Highly Recommended*.
- 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 LPA when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of Site boundary, with cleaning to be provided if necessary - *Desirable*.
- 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 – *Highly Recommended*.
- Monitoring: 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*.
- Monitoring: Agree on dust deposition, dust flux, or real-time PM₁₀ 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*.

- Preparing and maintaining the Site: 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*.
- Preparing and maintaining the Site: Fully enclose Site or specific operations where there is a high potential for dust production and the Site is active for an extensive period – *Highly Recommended*.
- Preparing and maintaining the Site: Avoid Site runoff of water or mud – *Highly Recommended*.
- Preparing and maintaining the Site: Keep Site fencing, barriers and scaffolding clean using wet methods – *Highly Recommended*.
- Preparing and maintaining the Site: 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*.
- Preparing and maintaining the Site: 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 and the London NRMM standards, where applicable – *Highly Recommended*.
- Operating vehicle/machinery and sustainable travel: Ensure all vehicles switch off engines when stationary - no idling vehicles – *Highly Recommended*.
- Operating vehicle/machinery and sustainable travel: Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable – *Highly Recommended*.
- Operating vehicle / machinery and sustainable travel: 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*.
- Operating vehicle/machinery and sustainable travel: Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials – *Highly Recommended*.
- Operating vehicle/machinery and sustainable travel: 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 system – *Highly Recommended*.
- Operations: 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*.
- Operations: Use enclosed chutes and conveyors and covered skips – *Highly Recommended*.

- Operations: 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*.
- Operations: 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*.

The IAQM's Guidance states that the following measures are highly recommended or desirable as mitigation for all Medium risk sites in relation to demolition:

- Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust) – *Desirable*.
- Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground – *Highly Recommended*.
- Avoid explosive blasting, using appropriate manual or mechanical alternatives – *Highly Recommended*.
- Bag and remove any biological debris or damp down such material before demolition – *Highly Recommended*.

The IAQM's Guidance states that the following measures are highly recommended or desirable as mitigation for all Medium risk sites in relation to earthworks:

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

The IAQM's Guidance states that the following measures are highly recommended or desirable as mitigation for all Medium risk sites in relation to construction:

- Avoid scabbing (roughening of concrete surfaces) if possible – *Desirable*. Areas 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 the escape of material and overfilling during delivery – *Desirable*.
- For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust – *Desirable*.

The IAQM's Guidance states that the following measures are highly recommended or desirable as mitigation for all Low risk sites in relation to trackout:

- 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 – *Desirable*.
- Avoid dry sweeping of large areas – *Desirable*.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport – *Desirable*.
- Record all inspections of haul routes and any subsequent action in a site log book – *Desirable*.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable) – *Desirable*.

In addition to the mitigation contained within the IAQM Guidance, the Control of Dust and Emissions from Construction and Demolition SPG contains more specific detailed mitigation measures with regards to precise construction processes, which should be incorporated into the DMP as appropriate.

The Control of Dust and Emissions from Construction and Demolition SPG also includes details on construction dust site monitoring.

8.1. Determination of Residual Effects

The site is considered a “*Medium Risk Site*” overall and if appropriate mitigation measures are put in place, as identified in Step 3, significant effects on receptors are unlikely to occur. Considering both the construction details and the specific characteristics of the site, it is anticipated that effective mitigation will be possible and residual effects will not be considered significant.

8.2. Dust Assessment Report Summary

The DMRB screening method has been used to assess local air quality, the results of which have informed an assessment of dust from demolition and construction in accordance with IAQM guidance. Dust and other pollutant emissions from the construction, demolition, earthworks and trackout phases of the construction of the proposed development will see the site designated a “Medium Risk Site”. However, with risk-appropriate mitigation, residual effects will not be considered significant.

9. NRMM

- The use of diesel- or petrol-powered generators will be avoided wherever possible, using mains electricity or battery powered equipment instead.
- NRMM (non-road mobile machinery) used for the demolition will comply with Stage IIIB requirements of Directive 97/68/EC or exempt equipment will be used on site. NRMM will be fitted with particle traps and/ or catalytic exhaust treatment wherever possible. Records will be kept on site detailing proof of emission limits for all equipment and recorded on the NRMM register.
- The City of London Code of Practice for Deconstruction and Construction states that Stage IV requirements will apply from September 2018, although this is two years' earlier than required by the GLA.

10. INCIDENT RESPONSE

The following actions will be taken in the event of an exceedance of the agreed thresholds, obvious visual impacts and/or complaints.

- Onsite activities will be immediately inspected to identify likely sources;
- If onsite sources are identified as being responsible for exceeding the agreed threshold, the relevant activities will be halted until remedial activities can be implemented (e.g. wetting down, road sweeping, sheeting up).
- The activity will then be monitored to ensure that the mitigation measures are working and there is no repeat incident.
- Should a complaint be received the complainant will be contacted by the Community Liaison Manager to follow up.

11. TRAINING

- All site personnel should be made aware of the air quality issues covered in this plan during site induction.
- Regular Toolbox talks should be given to remind all site personnel of the requirements of dust management.
- All training should be recorded.
- Method statements and risk assessments should also be written (and briefed to all site personnel) before any works that may impact air quality are carried out on site.
- Integrated into these documents should be the specific control and risk mitigation methods relating to the air quality issues detailed in this document.

12. COMPLAINTS AND INCIDENT PROCEDURES

The Environmental Coordinator will keep records of the results of the regular monitoring undertaken. Additionally, a record of all environmental incidents that result in air pollution and remedial action taken will be recorded in an environmental incident log book.

Complaints received will be recorded and investigated by the Site Manager.

12.1. Actions to Be Taken

- Time, date, identity and contact details of complainant are to be taken;
- The wind direction, strength and weather conditions are to be noted;
- A note is to be taken if the complaint has been referred by the local authority;
- Ask the complainant to describe the dust emission - is it constant or intermittent, how long has it been occurring for and is it worse at any particular time of the day? Does it come from an identifiable source?
- As soon as possible after receipt of the complaint, a site inspection is to be undertaken, by the site manager and all dust producing activities noted. Note all dust mitigation methods that are being employed;
- If the complaint is related to an activity in the recent past, note any dust producing activities that were underway at the time. If possible, implement any remedial action possible;
- Visit the area from which the complaint originated and ascertain if there is still a problem;
- After initial investigations have been completed, contact the complainant and explain any problems and remedial actions taken;
- Notify the Project Manager, the Environmental Manager and the Local Authority that a complaint has been received, the findings of the investigation and the remedial measure(s) that were taken.

13. CONCLUSIONS & SUMMARY

With regards to the impacts of construction on air quality, dust and other pollutant emissions from the construction and demolition phases of the construction of the proposed development will see the site designated a “*Medium Risk Site*”. However, with risk-appropriate mitigation, residual effects will not be considered significant.

Appendix 1 Glossary of Terms

Appendix 1: Glossary of Terms

Air Quality Standard/Air Quality Objective: The concentrations of pollutants in the atmosphere, which can broadly be taken to achieve a certain level of environmental quality. The standards are based on an assessment of the effects of each pollutant on human health including the effects on sensitive subgroups.

Annual mean: The average of the concentrations measured for each pollutant for one year. In the case of the Air Quality Objectives, this is for a calendar year.

Air Quality Management Area (AQMA): An area that a local authority has designated for action, based upon predicted exceedances of Air Quality Objectives.

Concentration: The amount of a (polluting) substance in a volume (of air), typically expressed as a mass of pollutant per unit volume of air (for example, microgrammes per cubic metre, $\mu\text{g}/\text{m}^3$) or a volume of gaseous pollutant per unit volume of air (parts per million, ppm).

Exceedance: A period of time where the concentration of a pollutant is greater than the appropriate Air Quality Objective.

Nitrogen Oxides: Nitric oxide (NO) is mainly derived from road transport emissions and other combustion processes such as the electricity supply industry. NO is not considered to be harmful to health. However, once released into the atmosphere, NO is usually very rapidly oxidised to nitrogen dioxide (NO₂), which is harmful to health. NO₂ and NO are both oxides of nitrogen and together are referred to as nitrogen oxides (NO_x).

Particulate Matter: Fine Particles are composed of a wide range of materials arising from a variety of sources including combustion sources (mainly road traffic), and coarse particles, suspended soils and dust from construction work. Particles are measured in a number of different size fractions according to their mean aerodynamic diameter. Most monitoring is currently focused on PM₁₀ (less than 10 microns in diameter), but the finer fractions such as PM_{2.5} (less than 2.5 microns in diameter) is becoming of increasing interest in terms of health effects.

$\mu\text{g}/\text{m}^3$ microgrammes per cubic metre of air: A measure of concentration in terms of mass per unit volume. A concentration of 1 $\mu\text{g}/\text{m}^3$ means that one cubic metre of air contains one microgram (millionth of a gram) of pollutant.