387 Kentish Town Road, London

Air Quality Assessment

July, 2018

Kingstone Properties Ltd

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1 Introduction

1.1 Overview

Kingstone Property Ltd (KP) is seeking planning consent for a residential development at 387 Kentish Town Road, London, NW5 2TJ (hereafter referred to as the 'proposed development'). The applicant is planning to convert the existing hair salon into a commercial shop with a 3-bedroom residential apartment.

DustScanAQ (DS) was instructed by Great Wall Building Services on behalf of KP to carry out a desktop Air Quality Assessment in respect of a planning application to the London Borough of Camden (LBC) for consent to undertake the development.

The potential local air quality effects of the proposed development have been assessed using the latest planning guidance from Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM)[1] 'and the Department for Environment, Food and Rural Affairs (Defra)[2].

A Construction Dust Assessment has also been prepared to consider potential impacts from activities during the construction phase of the development in accordance with the latest EPUK and IAQM guidance on construction dust[3].

1.2 Objective

This report provides an assessment on the following key impacts associated with the construction and operational phase of the proposed development:

- Nuisance, loss of amenity and health impacts associated with the construction phase of the development on sensitive receptors;
- Changes in traffic related pollutant concentrations associated with the operational phase of the proposed development; and
- Assessing the suitability of the proposed development for the addition of new residential and commercial receptors.

1.3 Proposed Site Location

The proposed development is located in the unitary authority of LBC at 387 Kentish Town Road, London (see Figure 1.1). The existing site consists of a 3-storey hair salon and treatment rooms with a 33 m^2 garden located on the west side of Kentish Town Road. The existing building is to be extended into the garden to accommodate a shop, whilst the existing treatment rooms on the 1st and 2nd storeys will be converted into a 3-bedroom apartment with the 3rd bedroom located on a proposed 3rd storey. Therefore, the proposed use will consist of ground floor commercial use, and residential use on the 1st to 3rd storeys.

[1] IAQM (2017): Land Use Planning and Development Control: Planning for Air Quality.
[2] Defra (2016): Local Air Quality Management – Technical Guidance (TG16).
[3] IAQM (2016): Guidance on the Assessment of Dust from Demolition and Construction.

The street and surrounding area is largely commercial in nature, with some residential use above ground floor shops.

The proposed development is within the borough-wide Air Quality Management Area (AQMA), designated by LBC in 2002 for exceedance of both the NO_2 annual mean and PM_{10} 24 hour mean objectives.

There are no nationally ecological designations within close proximity to the proposed development.

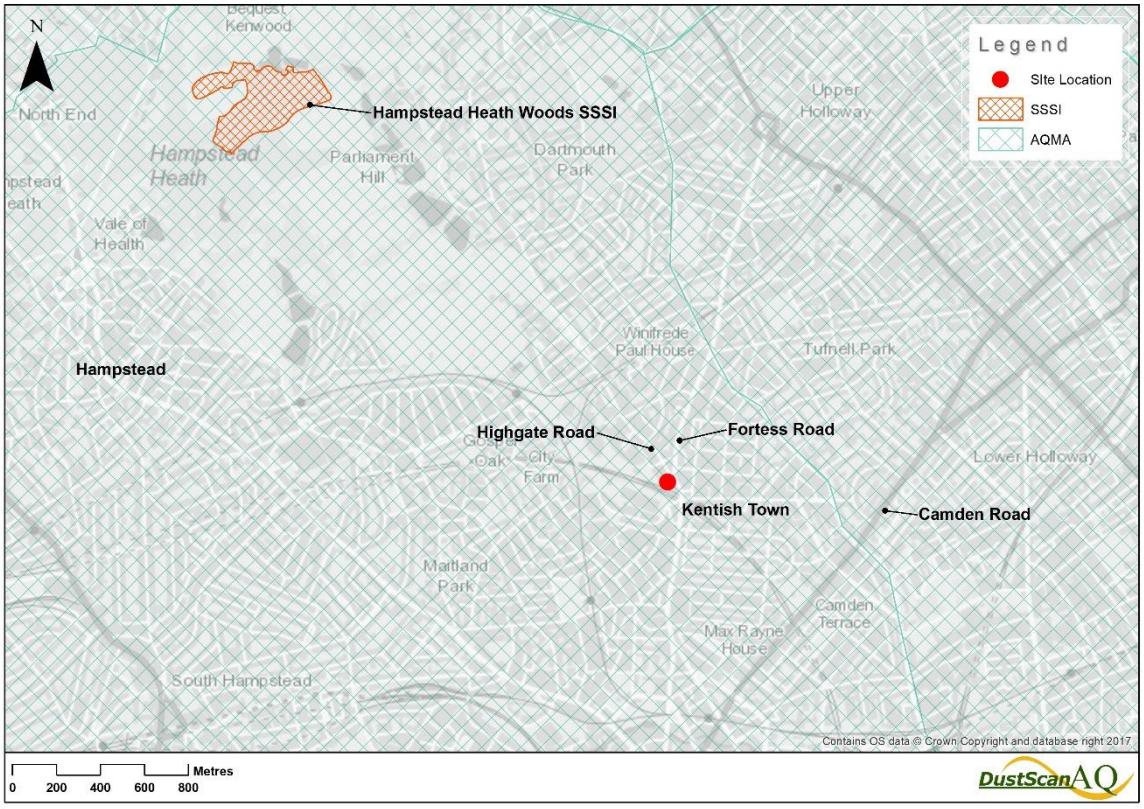

Figure 1.1: Proposed site location

1.4 Key Pollutants

The key pollutant associated with the construction phase of the project will be 'disamenity' or 'nuisance' dust. NO_2, PM_{10} and $PM_{2.5}$ may also be associated with emissions from non-road mobile machinery (NRMM) and construction related traffic.

The key pollutants associated with the operational phase of the proposed development will be road traffic emissions including nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$). These pollutants are therefore considered as part of this assessment.

Further details of the key pollutants are presented below..

1.4.1 Nitrogen Dioxide (NO_2)

Nitrogen dioxide (NO_2) and nitric oxide (NO) are collectively referred as oxides of nitrogen (NO_x). During fuel combustion, atmospheric nitrogen combines with oxygen to form nitric

oxide (NO), which is not considered harmful. Through a chemical reaction with ozone (O_3) however, NO can further combine with oxygen to create NO_2 which can be harmful to human health and vegetation. The foremost sources of NO_2 in the UK are from combustion and are mostly associated with road traffic and power generation.

1.4.2 Particulate Matter

Particulate matter as a term refers to a mixture of solid particles and liquid droplets suspended in the air. These particles come in many sizes and shapes and can be made up of hundreds of different chemicals. Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye. Others can be so small that they can only be detected using an electron microscope. Fine dust, essentially particles up to 10 micron (µm) in diameter, is commonly referred to as PM_{10}.

PM_{10} is known to arise from a number of sources such as construction sites, road traffic movements, industrial and agricultural activities. Very fine particles ($PM_{2.5}$ – $PM_{0.1}$) are known to be associated with pollutants such as oxides of nitrogen (NO_x) and sulphur dioxide (SO_2) emitted from power plants, industrial installations and road transport sources.

$PM_{2.5}$ is generally associated with combustion and traffic sources and is more likely to be associated with the operational phase of the proposed development.

1.4.3 Disamenity Dust

'Dust' is generally regarded as particulate matter up to 75 µm (micron) diameter and in an environmental context can be considered in two categories, according to size: coarser dust (essentially particles greater than 10 µm) and fine particulate matter (PM_{10} and $PM_{2.5}$) as set out above.

Coarser dust (essentially particles greater than 10 µm) is generally regarded as 'disamenity dust' and can be associated with annoyance, although there are no official standards (such as AQO) for dust annoyance[4]. Disamenity dust is more readily described than defined as it relates to the visual impact of short-lived dust clouds and the long-term soiling of surfaces.

Although it is a widespread environmental phenomenon, dust is also generated through many human activities including industrial and materials handling sites, construction and demolition sites and roads. Dust is generally produced by mechanical action on materials and is carried by moving air when there is sufficient energy in the airstream. More energy is required for dust to become airborne than for it to remain suspended.

[4] Note that the expression 'nuisance dust' refers here to 'generally visible particulate matter' rather than specifically and in a legal sense to statutory nuisance, as defined in Section 79 of the Environmental Protection Act 1990.

2 Legislation and Policy

2.1 Introduction

This section summarises all legislation, policy, statutory and non-statutory guidelines relevant to the proposed development. Furthermore, the latest regional and local planning policy guidance specifically applicable to the proposed development has been reviewed.

2.2 International (European Union)

The EU sets legally binding limit values for outdoor air pollutants to be met by EU countries by a given date. These limit values are based on the World Health Organisation (WHO) guidelines on outdoor air pollutants. These are legally binding and set out to protect human health and the environment by avoiding, preventing or reducing harmful air pollution effects.

The current air quality directive is the Directive 2008/50/EC[5] on ambient air quality and cleaner air for Europe, which entered into force in June 2008. This merged most of the existing 'Daughter' Directives[6][7][8][9] (apart from the fourth Daughter Directive), maintaining existing air quality objectives set out by 'Daughter' Directives for sulphur dioxide (SO_2), nitrogen dioxide (NO_2), and oxides of Nitrogen (NO_x), particulate matter (PM_{10} and $PM_{2.5}$), lead (P_b), benzene(C_6H_6), carbon monoxide (CO), ozone (O_3). It also includes related objectives, exposure concentration obligations and exposure reduction targets for $PM_{2.5}$ (fine particles). The 'Daughter' Directives were based upon requirements set out in the first EU Ambient Air Quality Framework Directive 96/92/EEC[10].

2.3 National (England)

The 2008 EU ambient air quality directive 2008/50/EC was transposed to English law through the introduction of the Air Quality (Standards) Regulations in 2010[11] which also incorporated the fourth EU Daughter Directive (2004/107/EC) that set target values for certain toxic heavy metals and polycyclic aromatic hydrocarbons, (PAH).

The UK government has a legal responsibility to meet the EU limit values. Part IV of the 1995 Environment Act[12] sets guidelines for protecting air quality in the UK and forms the basis of local air quality management. The Environment Act requires local authorities in the UK to review air quality in their area periodically and designate 'Air Quality Management Area' (AQMAs) where the objectives are not being achieved or are not likely to be achieved within the relevant period. Where an AQMA is designated, local authorities are also required to produce an 'Air Quality Action Plan' (AQAP) detailing the pollution reduction measures that need to be adopted to achieve the relevant air quality objectives within an AQMA.

[5] European Union. (2008), 'Ambient air quality assessment management', Framework Directive 2004/50/EC.
[6] European Union. (1999), 'Ambient air quality assessment management', Framework Directive 1999/30/EC.
[7] European Union. (2000), 'Ambient air quality assessment management', Framework Directive 2000/3/EC.
[8] European Union. (2002), 'Ambient air quality assessment management', Framework Directive 2002/3/EC.
[9] European Union. (2004), 'Ambient air quality assessment management', Framework Directive 2004/107/EC.
[10] European Union. (1996), 'Ambient air quality assessment management', Framework Directive96/62/EC.
[11] Statutory Instrument. (2010), 'The Air Quality Standards Regulations', No. 1001. Queen's Printer of Acts of Parliament.
[12] Parliament of the United Kingdom. (1990), 'Environmental Protection Act', Chapter 43. Queen's Printer of Acts of Parliament.

As part of the Environment Act, the UK Government was required to publish a National Air Quality Strategy (NAQS) to establish the system of 'local air quality management' (LAQM) for the designation of AQMAs. This led to the introduction of the first Air Quality Strategy (AQS) in 1997[13] which has since progressed through several revisions until it was replaced by the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007[14]. Each revision introduced strategies and regulations that considered measures for different pollutants by tightening existing objectives and also by introducing new ones to establish a common framework to protect human health and the environment by achieving ambient air quality improvements.

2.3.1 National Planning Policy Framework

The principal national planning policy guidance in respect of the proposed development is the National Planning Policy Framework (NPPF)[15]. The most recent update of the NPPF was published in March 2012 by the Department for Communities and Local Government (DCLG). The NPPF Section 109 states that:

"The planning system should contribute to and enhance the natural and local environment by :…preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability…"

Section 120 states that:

"To prevent unacceptable risks from pollution and land instability, planning policies and decisions should ensure that new development is appropriate for its location. The effects (including cumulative effects) of pollution on health, the natural environment or general amenity, and the potential sensitivity of the area or proposed development to adverse effects from pollution, should be taken into account…" and

Section 124 states that:

"Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan."

2.3.2 National Planning Practice Guidance

The DCLG published a number of supporting web based resources of Planning Practice Guidance (PPG)[16] to supplement the NPPF. With respect to air quality PPG provide guidance on when air quality is relevant to a planning application. It states that:

[13] Department for Environment Food and Rural Affairs. (1997), 'The United Kingdom National Air Quality Strategy', Cm 3587, Department for Environment Food and Rural Affairs.
[14] Department for Environment Food and Rural Affairs. (2007), 'The Air Quality Strategy for England, Scotland, Wales and Northern Ireland', Cm 7169, Department for Environment Food and Rural Affairs.
[15] National Planning Practice Guidance 'Air Quality Section'. Accessible at: http://planningguidance.planningportal.gov.uk/blog/guidance/air-quality-new/why-should-planning-beconcerned-about-air-quality/
[16] National Planning Practice Guidance web-based resource. Accessible at: http://planningguidance.planningportal.gov.uk/

"Concerns could arise if the development is likely to generate air quality impact in an area where air quality is known to be poor. They could also arise where the development is likely to adversely impact upon the implementation of air quality strategies and action plans and/or, in particular, lead to a breach of EU legislation (including that applicable to wildlife)."

The PPG also states that, when deciding whether air quality is relevant to a planning application, the applicant should consider whether the proposal will:

- *"Significantly affect traffic in the immediate vicinity of the proposed development site or further afield. Introduce new point sources of air pollution…,*
- *Expose people to existing sources of air pollutants…,*
- *Give rise to potentially unacceptable impact (such as dust) during construction for nearby sensitive locations…,*
- *Affect biodiversity. In particular, is it likely to result in deposition or concentration of pollutants that significantly affect a European-designated wildlife site, and is not directly connected with or necessary to the management of the site, or does it otherwise affect biodiversity, particularly designated wildlife sites…"*

2.3.3 Relevant Air Quality Standards

A summary of the relevant Air Quality Objectives (henceforth referred to as 'AQO') and the types of receptors that are relevant to this assessment are presented in Table 2.1 and Table 2.2. The AQO listed in Table 2.1 apply only at locations with relevant exposure where a member of the public could be exposed to a level of pollution concentration for the specific averaging periods for that pollutant as stated in Table 2.2.

Table 2.1: AQS relevant to the proposed development

Pollutant	Air Quality Objectives		Concentration measured as:	Applicable to:
	Concentration	Allowance		
Nitrogen Dioxide (NO_2)	200 µg/m^3	18 per calendar year	1 hour mean	All local authorities
	40 µg/m^3		Annual mean	All local authorities
Particulate Matter (PM_{10})	50 µg/m^3	35 per calendar year	24 hour mean	All local authorities
	40 µg/m^3		Annual mean	All local authorities
Particulate Matter ($PM_{2.5}$) Exposure reduction[(a)]	25 µg/m^3 [(a)]		Annual	All local authorities

Notes: [(a)] This is a target value set for a 15% reduction in concentrations at urban background aimed to achieve between 2010 and 2020

Source: Department for Environment Food and Rural Affairs (2016): 'Local Air Quality Management Technical Guidance' (TG.16).

Table 2.2: Examples of where the AQO should apply

Averaging period	*Objectives should apply at*	*Objectives should not apply at*
Annual	*All locations where members of the public might be regularly exposed. Building façades of residential properties, schools, hospitals, care homes etc.*	*Building façades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence.* *Gardens of residential properties.* *Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short-term.*
24 Hour	*All locations where the annual mean objective would apply, together with hotels. Gardens of residential properties.*[(a)]	*Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short-term.*
1 Hour	*All locations where the annual mean and 24 and 8-hour mean objectives apply.* *Kerbside sites (for example, pavements of busy shopping streets).* *Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more.* *Any outdoor locations where members of the public might reasonably have expected to spend one hour or longer.*	*Kerbside sites where the public would not be expected to have regular access.*

Note: [(a)] *"Such locations should represent parts of the garden where relevant public exposure to pollutants is likely, for example where there is seating or play areas. It is unlikely that relevant public exposure to pollutants would occur at the extremities of the garden boundary, or in front gardens, although local judgement should always be applied."*

Source: Department for Environment Food and Rural Affairs (2014): 'Local Air Quality Management Technical Guidance' (TG.16).

2.3.4 Statutory Nuisance

It is recognised that the planning system presents a way of protecting amenity. However, in cases where planning conditions are not applicable to a development/installation, the requirements of the Environmental Protection Act 1990 still apply. Under Part III of the Environmental Protection Act 1990, local authorities have a statutory duty to investigate any complaints of:

- *"any premises in such a state as to be prejudicial to health or a nuisance*
- *smoke emitted from premises so as to be prejudicial to health or a nuisance*
- *fumes or gases emitted from premises so as to be prejudicial to health or a nuisance*
- *any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance*
- *any accumulation or deposit which is prejudicial to health or a nuisance"*

Where the local authority establishes any one of these issues constitutes a statutory nuisance and believes it to be unreasonably interfering with the use or enjoyment of someone's premises and/or is prejudicial to health, an abatement notice will be served on the person responsible for the offence or the owner / occupier. Failure to comply with the notice could lead to a prosecution. However, it is considered as a defence if the best practicable means to prevent or to counteract the effects of the nuisance are employed.

2.4 Regional (London)

2.4.1 The Mayor of London's Air Quality Strategy

The Mayor of London's Air Quality Strategy[17] was published in December 2010 which includes transport and non-transport related policy measures. The document also include guidance on how regional and local planning processes will be used to enable future developments to be 'air quality neutral or better'.

Policy 15 within the Mayor's air quality strategy is committed to reporting back regularly on the progress made since the strategy has been delivered. The latest progress report was published in July 2015[18] and includes:

- Analysis of recent trends in air pollution in London;
- An update on the latest understanding of health impacts of air pollution in London;
- An update on the implementation of the transport and non-transport policies included in the Mayor's Air Quality Strategy, including measures announced by the Mayor in February 2013 such as the Ultra-Low Emission Zone;
- Setting out what further action the Mayor will take to improve air quality.

2.4.2 London Plan

The London Plan[19] is the spatial development strategy for London which was first published by then-Mayor Ken Livingstone in 2004. The document has gone through number of alterations and the with most recent alterations published in March 2016.

The London Local Plan sets out the overall strategic plan for London with an integrated approach for economic, environmental, transport and social framework for the

[17] Greater London Authority (2010). Clearing the Air: The Mayor's Air Quality Strategy.
[18] Greater London Authority (2015). Cleaner Air for London: Progress Report on the Delivery of the Mayor's Air Quality Strategy.
[19] Greater London Authority (2016). The London Plan: Spatial Development Strategy for London Consolidated with Alterations Since 2011.

development of London over the next 20–25 years and covers a number of strategies including transport and environmental issues such as climate change and air quality.

Policy 3.2 "Improving Health and Addressing Health Inequalities" states:

- *"The policies in this Plan are intended to enable Londoners to live in well designed, high quality homes…limiting…exposure to poor air quality."*
- *"The Mayor…has also produced other strategies related to…Air Quality…The Mayor will ensure that policies in this Plan are complemented by those in other mayoral strategies (particularly the Mayor's Transport Strategy, which sets carbon dioxide reduction targets to be achieved in the transport system)."*

Policy 5.1 "Climate Change Mitigation" states:

- *"The Mayor seeks to achieve an overall reduction in London's carbon dioxide emissions of 60 per cent (below 1990 levels) by 2025. It is expected that the GLA Group, London boroughs and other organisations will contribute to meeting this strategic reduction target, and the GLA will monitor progress towards its achievement annually."*

Policy 5.3 "Sustainable design and Construction" states:

- *"Minimising carbon dioxide emissions across the site, including the building and services (such as heating and cooling systems)"*
- *"Minimising pollution (including…air)"*

Policy 7.14 "Improving Air Quality" states that:

- *"Minimise increased exposure to existing poor air quality and make provision to address local problems of air quality (particularly within Air Quality Management Areas (AQMAs) and where development is likely to be used by large numbers of those particularly vulnerable to poor air quality, such as children or older people) such as by design solutions, buffer zones or steps to promote greater use of sustainable transport modes through travel plans…;*
- *Promote sustainable design and construction to reduce emissions from the demolition and construction of buildings following the best practice guidance in the GLA and London Councils' 'The control of dust and emissions from construction and demolition';*
- *Be at least 'air quality neutral' and not lead to further deterioration of existing poor air quality (such as areas designated as Air Quality Management Areas (AQMAs));*
- *Ensure that where provision needs to be made to reduce emissions from a development, this is usually made on-site. Where it can be demonstrated that on-site provision is impractical or inappropriate, and that it is possible to put in place measures having clearly demonstrated equivalent air quality benefits, planning obligations or planning conditions should be used as appropriate to ensure this, whether on a scheme by scheme basis or through joint area based approaches*

- *Where the development requires a detailed air quality assessment and biomass boilers are included, the assessment should forecast pollutant concentrations. Permission should only be granted if no adverse air quality impacts from the biomass boiler are identified."*

2.4.3 The Mayor of London Transport Strategy

On the 21st June 2017 the Mayor of London published the draft, The Mayors Transport Strategy[20] setting out the Mayor's "policies and proposals", enabling transport in London to be reshaped over the next 25 years.

The key themes within the strategy are; healthy streets and healthy people, good public transport experiences, new homes and jobs.

Chapter 3, section C "Improving air quality and the environment" includes policy 5 and 6 which relate to transport and air quality."

Policy 5 states:

"The Mayor, through TfL and working with the boroughs, will take action to reduce emissions – in particular diesel emissions – from vehicles on London's streets, to improve air quality and support London reaching compliance with UK and EU legal limits as soon as possible. Measures will include retrofitting vehicles with equipment to reduce emissions, promoting electrification, road charging, the imposition of parking charges/ levies, responsible procurement, the making of traffic restrictions/ regulations and local actions."

Policy 6 states:

"Boroughs, and working with other transport providers, will seek to make London's transport network zero carbon by 2050, which will also deliver further improvements in air quality, by transforming London's streets and transport infrastructure so as to enable zero emission operation, and by supporting and accelerating the uptake of ultra-low and zero emission technologies."

2.5 Local (London Borough of Camden)

2.5.1 London Borough of Camden Local Plan

The LBC Local Plan, adopted on 3rd July 2017, sets out LBC's planning policies and replaces the Core Strategy and Development Policies planning documents. The LBC local Plan contains two policies relating to dust and air quality.

Policy A1 states:

'*The Council will seek to protect the quality of life of occupiers and neighbours. We will grant permission for development unless this causes unacceptable harm to amenity. We will:*

[20] Greater London Authority (2017). Mayor's Transport Strategy.

a) *seek to ensure that the amenity of communities, occupiers and neighbours is protected;*

b) *seek to ensure development contributes towards strong and successful communities by balancing the needs of development with the needs and characteristics of local areas and communities;*

c) *resist development that fails to adequately assess and address transport impacts affecting communities, occupiers, neighbours and the existing transport network; and*

d) *require mitigation measures where necessary.*

The factors we will consider include:

e) *visual privacy, outlook; sunlight, daylight and overshadowing; artificial lighting levels;*

f) *transport impacts, including the use of Transport Assessments, Travel Plans and Delivery and Servicing Management Plans;*

g) *impacts of the construction phase, including the use of Construction Management Plans;*

h) *noise and vibration levels;*

i) *odour, fumes and dust;*

j) *microclimate;*

k) *contaminated land; and*

l) *impact upon water and wastewater infrastructure.*'

Policy CC4 states that:

'The Council will ensure that the impact of development on air quality is mitigated and ensure that exposure to poor air quality is reduced in the borough.

The Council will take into account the impact of air quality when assessing development proposals, through the consideration of both the exposure of occupants to air pollution and the effect of the development on air quality. Consideration must be taken to the actions identified in the Council's Air Quality Action Plan.

Air Quality Assessments (AQAs) are required where development is likely to expose residents to high levels of air pollution. Where the AQA shows that a development would cause harm to air quality, the Council will not grant planning permission unless measures are adopted to mitigate the impact. Similarly, developments that introduce sensitive receptors (i.e. housing, schools) in locations of poor air quality will not be acceptable unless designed to mitigate the impact.

Development that involves significant demolition, construction or earthworks will also be required to assess the risk of dust and emissions impacts in an AQA and include appropriate mitigation measures to be secured in a Construction Management Plan.'

2.5.2 London Borough of Camden Air Quality Action Plan

LBC has produced is own Air Quality Action Plan (AQAP) for the period 2016 to 2018[21] to replace the previous action plan which was in place from 2013 to 2015.

The key objectives for the plan are to:

- *"Encourage reductions in fossil fuel use, the adoption of clean fuels and low emission technology and promote energy efficiency;*
- *Raise awareness about air quality in Camden and promote lifestyle changes which can help reduce levels of air pollution and minimise exposure to air pollution;*
- *Improve the health and well-being of the local population, including those that work and visit Camden;*
- *Work in partnership with national and regional bodies, and with local public and private organisation, to foster and drive improvements in air quality;*
- *Lead by example and reduce NO_2 and PM_{10} emissions associated with the Council's own buildings and transport services; and*
- *Ensure actions which serve to reduce NO_2 and PM_{10} emissions complement actions to mitigate CO_2 emissions."*

Section 2 of the AQAP applies to emissions from buildings and new developments. Camden has a requirement for *"new developments to meet all best practise planning guidance available, including GLA 2014 Control of Dust and Emissions during Construction and Demolition SPG, and the GLA's 2014 Sustainable Design and Construction SPG, which requires new developments to be 'air quality neutral'."*

The AQAP sets out a number of actions relating to new developments which include:

- **Action 12:** *"Continue to work with developers and King's College London to explore best in class dust mitigation measures on Camden's construction sites."*
- **Action 14:** *"Minimise emissions from the construction and operation of new developments by requiring developers to adhere to current and any superseding best practise guidance and supplementary planning guidance."*
- **Action 15:** *"Continue to use planning conditions and obligations to require developers to adopt measures which will reduce transport emissions during operational phase of developments."*
- **Action 16:** *"Require developers to undertake an air quality assessment (AQA) in circumstances where a new development could have a negative impact on air*

[21] London Borough of Camden (2016): 'Camden's Clean Air Action Plan 2016-2018'

quality where the development is adjacent to sensitive receptors such as schools, nurseries, hospitals and doctors' surgeries, or where the development will introduce new receptors into an area of existing poor air quality."

- **Action 18:** *"Ensure the enforcement of Non Road Mobile Machinery (NRMM) air quality polices for new developments."*

Camden have also set out a transport strategy for 2011 – 2031[22] which outlines the actions the borough will take to deliver transport policies and environmental objectives including reducing air pollution.

[22] London Borough of Camden (2011): 'Camden's Transport Strategy'

3 Methodology

3.1 Overview

This section provides the details of the methodological approach taken to assess the impacts on air quality from the construction and operation of the proposed development.

3.2 Scope of the Assessment

3.2.1 Construction Phase

A construction dust assessment was carried out to consider impacts from 'disamenity' (or 'nuisance') dust, as discussed in Section 1.4.3, associated with annoyance. The development has the potential to generate dust during the construction phase of the project. Although there are no standards (such as AQO) for dust disamenity or annoyance, various 'custom and practice' criteria have become established.

For the purposes of this assessment, IAQM's 2016 construction dust guidance[23] has been used. The IAQM guidance provides a methodology (Appendix B) to evaluate potential risk of dust generation for a development and the level of mitigation required. The impact of the development is described using one of the following three categories: 'Low Risk', 'Medium Risk' and 'High Risk'. Based on the risk level, appropriate mitigation measures can be considered to minimise any effects of dust from the construction phase.

3.2.2 Operational Phase

The proposed development will not introduce any additional parking provisions and therefore based on the EPUK criteria set out in Appendix A, the need for detailed traffic modelling can be scoped out of this assessment.

The proposed development will not include any new plant or associated flue stacks, therefore the need for stack dispersion modelling can be scoped out.

For the purpose of this assessment, commercial and residential suitability has been assessed by comparing the background data against the relevant AQO as presented within Section 2.3.3.

[23] Institute of Air Quality Management (2014): 'Guidance on the Assessment of Dust from Demolition and Construction'

4 Baseline Conditions

4.1 Overview

The following section sets out the baseline conditions in relation to air quality for the proposed development. Baseline air quality information is available from a number of sources including local and national monitoring data reports and websites. For the purposes of this assessment, data has been obtained from the Defra air quality resource website[24] and from the latest LBC Annual Status Report (ASR)[25].

4.2 Existing Baseline Conditions

LBC declared a borough wide AQMA in 2002 for exceedance of both the annual mean NO_2 and the 24-hour mean PM_{10} objective.

LBC undertook automatic (continuous) monitoring of NO_2 and PM_{10} at four monitoring locations in 2016. LBC also monitored NO_2 using diffusion tubes at 14 sites across the borough. No $PM_{2.5}$ monitoring data were available.

The nearest automatic monitoring station to the proposed development is Swiss Cottage (Ref: CD1) which is at a kerbside location approximately 2.5 km west-south west of the site. The nearest urban background monitor is London Bloomsbury (Ref: LB) which is 3.4 km south southeast of the site. The nearest non-automatic monitor is on Kentish Town Road (Ref: CA16) and is located approximately 180 m south-southeast of the site.

The locations of these monitors are shown in Figure 4.1. The most recent 3 years of monitoring data available for NO_2 for both of these sites are presented in Table 4.1 while PM_{10} monitoring data from Swiss Cottage (CD1) and London Bloomsbury (LD) are presented in Table 4.2.

Table 4.1: London Borough of Camden Annual and Hourly Mean NO_2 Monitoring Results

Site ID	Monitoring Type	Distance to Kerbside	NO_2 Annual Mean Concentration (µg/m^3)			NO_2 1-hour Means (>200 µg/m^3)		
			2014	2015	2016	2014	2015	2016
Swiss Cottage (CD1)	Automatic – Kerbside	1.5m	**66**	**61**	**66**	1	-	-
London Bloomsbury (LB)	Automatic – Urban Background	27m	**45**	**48**	**42**	0	0	0
Kentish Town Road (CA16)	Non-automatic	1m	**58**	**64**	**59**	–	–	–

Note: Exceedances of objectives highlighted in **bold.**

[24] Department for Environmental Food and Rural Affairs. Accessible at: https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2015
[25] London Borough of Camden (2017): 'LB Camden Air Quality Annual Status Report for 2016'

Table 4.2: London Borough of Camden Annual and Daily Mean PM_{10} Monitoring Results

Site ID	Monitoring Type	Distance to Kerbside	PM_{10} Annual Mean Concentration (µg/m³)			PM_{10} 24-hour Means (>50 µg/m³)		
			2014	2015	2016	2014	2015	2016
Swiss Cottage (CD1)	Automatic - Kerbside	1.5m	22	20	21	12	8	7
London Bloomsbury (LB)	Automatic – Urban Background	27m	20	22	20	11	6	9

Note: Exceedances of objectives highlighted in **bold**

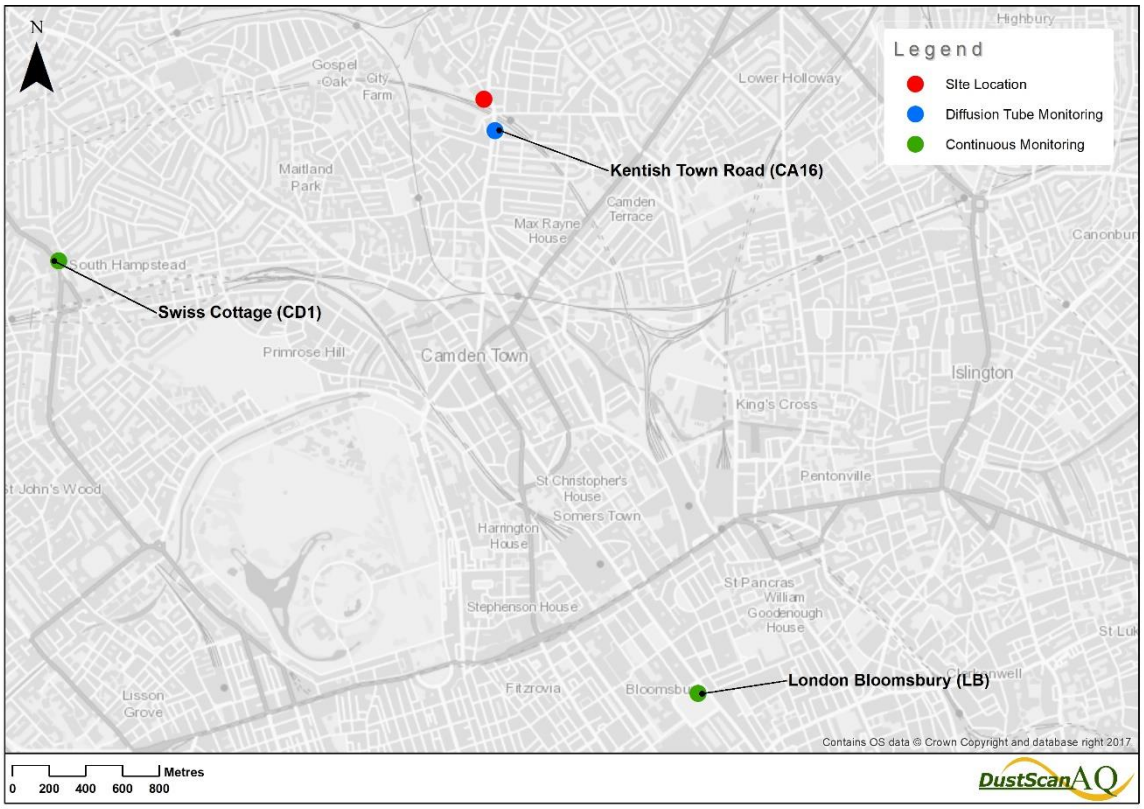

Figure 4.1: Nearest local air quality monitoring sites

4.3 Defra Modelled Background Pollution Concentrations

Defra provides background pollution concentration estimates to assist local authorities undertake their 'Review and Assessment' work. This data is available to download from Defra air quality resource website for NO_x, NO_2, PM_{10} and $PM_{2.5}$ for every 1 km x 1 km grid square for all local authorities. The current dataset is based on 2015 background data and the future year projections are available for 2015 to 2030. The background dataset provides breakdown of pollution concentrations by different sources (both road and non-road sources). Table 4.3 presents the predicted background concentrations for the earliest year of occupation (2018) for the proposed development.

Table 4.3: Defra Projected Background Concentrations (for proposed development)

Pollutant	Baseline Year (2016)	Earliest Year of Occupation (2018)
NO_2	30.3	27.6
PM_{10}	17.8	17.4
$PM_{2.5}$	11.5	11.1

Note: Data presented within the table are derived from the following ordinance survey grid squares: 528500, 185500.

4.4 Summary of Baseline Conditions

Table 4.1 shows the annual mean NO_2 concentration exceeded the annual mean objective at all presented monitoring sites for the period from 2014 to 2016. Annual mean concentrations remained relatively flat across this period.

Due to poor data capture, there is no data available for the number of exceedances of the one hour mean NO_2 objective for Swiss Cottage for the period from 2014 to 2016. However, the London Bloomsbury automatic monitor recorded only one exceedance of the one hour NO_2 objective from the period 2014 to 2016: many fewer than the 18 permissible exceedances per annum.

Table 4.2 shows that the annual mean and 24 hour mean PM_{10} objectives were met at all presented monitoring sites for the period from 2014 to 2016.

The Defra modelled background values for the proposed development grid square presented in Table 4.3 are much lower than monitored values shown in Table 4.1 and Table 4.2. Concentrations from LBC monitoring are considered more representative of concentrations at the proposed development site rather than the Defra modelled background values.

Taking in consideration the above and following the approach that LBC would like to see, concentrations from the nearest automatic monitor, Swiss Cottage (CD1), have been used to determine the ambient annual mean NO_2 and PM_{10} concentrations at the proposed development site.

5 Potential Impacts

5.1 Construction Phase

In the absence of detailed information, an assumption has been made that the construction phase of the proposed development is anticipated to commence in 2018. The impacts from demolition, earthworks, construction and track-out have been considered. Due to the small scale of the construction activities, it is unlikely there will be a significant amount of HGV movements involved. In order to assess the worst-case scenario, it has been assumed that all activities will be carried out for the duration of the construction period. Figure 5.1 shows the construction dust assessment study area based on the recommended distances by IAQM.

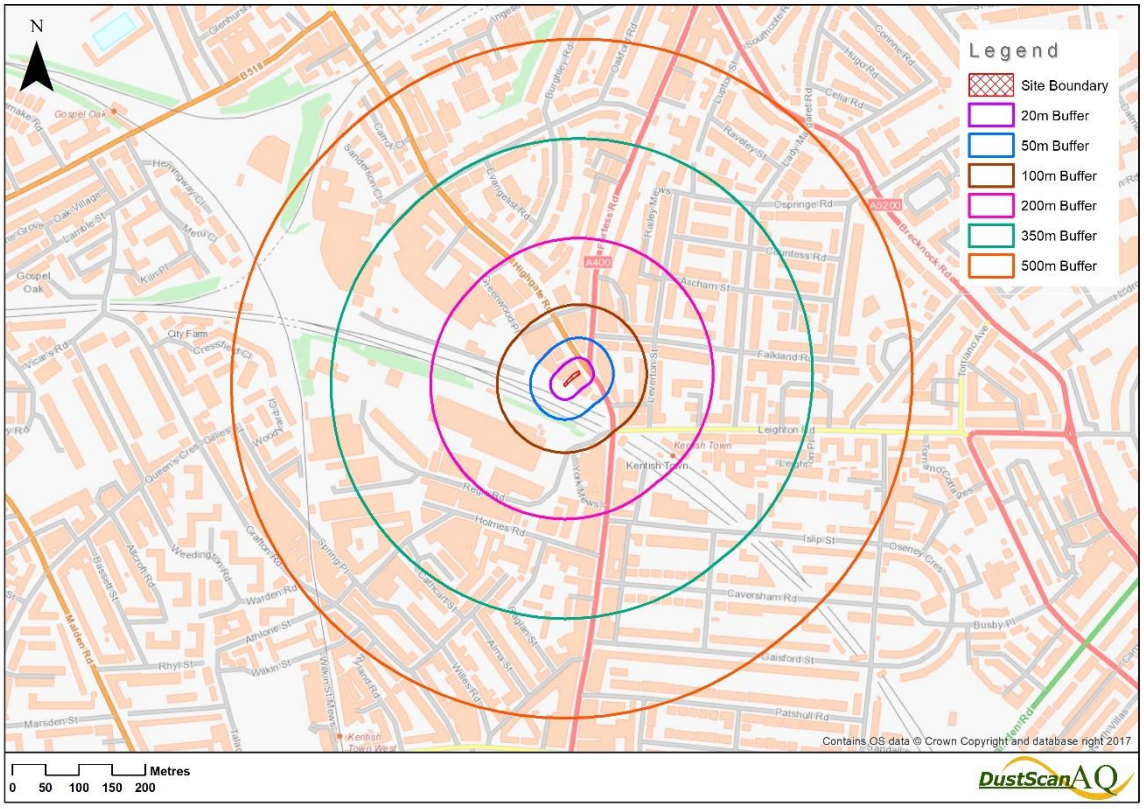

Figure 5.1: Construction Dust Assessment Buffers

The dust emission magnitude for demolition is expected to be 'Small', with internal demolition associated with the conversion of the existing salon other buildings anticipated to be far less than 20,000 m^3.

The dust emission magnitude for earthworks is expected to be 'Small', with the total site area measuring far less than 2,500 m^2.

The dust emission magnitude for construction is expected to be 'Small', with the building volume expected to fall within well below the 25,000 m^3 criteria.

Detailed information on HGV movements is not available at the time of writing. The dust emission magnitude for trackout has conservatively been assigned as 'Medium', with the peak number of daily HGV movements expected to be well within the range of 10-50.

There are no ecological receptors within 50 m of the site, therefore the risk of construction dust impacts on ecological receptors are considered to be negligible are not considered any further within the construction dust risk assessment.

According to the government's MAGIC website [26], the closest nationally designated ecological receptor is the Hampstead Heath Woods Site of Special Scientific Interest (SSSI), approximately 2.3 km northwest of the site. Given the considerable distance from the site based on the IAQM guidance in Appendix B, no further consideration has been given to the impacts of construction upon ecological designations.

Table 5.1: Dust Emission Magnitude

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

Table 5.2 presents the sensitivity of receptors to effects caused by construction activities and is based on the criteria presented in Table B.2 within Appendix B.

At the request of LBC, the PM_{10} background concentration of 21 µg/m^3 has been taken from the closest automatic monitor: Swiss Cottage (CD1).

Table 5.2: Sensitivity of Study Area

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

The overall risk of dust soiling and human health impacts to high sensitivity receptors are presented in Table 5.3. The risk is based on the criteria presented in Table B.3 to Table B.6 within Appendix B.

Table 5.3: Summary of the Risk of Construction Effects

Sensitivity of Area	Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium Risk	Low Risk	Low Risk	Medium Risk

[26] Accessible at: http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx

Human Health	Negligible	Negligible	Negligible	N/A

Based on the above, the risks associated with all construction activities, are considered to be no greater than 'Medium Risk' for dust soiling and 'Negligible' for human health impacts.

Mitigation measures appropriate for the proposed development have been presented in Appendix C. Following the implementation of these mitigation measures, the impacts from the construction phase of the proposed development on dust soiling and human health are considered to be not significant

5.2 Operational Phase

The proposed development will not introduce any additional parking spaces which, as stated in Section 3.2.2, is deemed not have a significant impact on air quality arising from operational traffic emissions. Therefore, there will be no significant operational impacts.

5.2.1 Commercial Suitability

As discussed in Section 4.4, the LBC monitoring data is considered most representative of ambient pollutant concentrations at the proposed development site.

The NO_2 and PM_{10} annual mean objectives are not applicable at the ground floor commercial element, but the NO_2 one hour mean and PM_{10} 24 hour mean objectives are applicable.

Monitored one hour mean NO_2 concentrations at the closest LBC automatic monitor with data, London Bloomsbury, are compliant with the objective which suggests that the one hour mean NO_2 objective will not be exceeded at the ground floor commercial level.

Monitored 24 hour mean PM_{10} concentrations at the closest LBC automatic monitor with data, Swiss Cottage, are compliant with the objective, which suggests that the 24 hour mean PM_{10} objective will not be exceeded at the ground floor commercial element.

5.2.2 Residential Suitability

In addition to the short term NO_2 and PM_{10} objectives applicable at the ground floor commercial element, the annual mean NO_2 and PM_{10} objectives are also applicable at the first, second and third storey residential elements.

Monitored annual mean NO_2 concentrations at the closest LBC automatic monitors with data, London Bloomsbury and Swiss Cottage, are in exceedance of the objective. The London Bloomsbury monitor is 27m from the nearest kerb, whilst the Swiss Cottage monitor is 1.5m from the nearest kerb.

Table 5.4 shows the height of the residential apartment above ground level and the distance from the apartment façade to Kentish Town Road. It is understood that contributions from road traffic emissions to ambient NO_2 concentrations reduce with distance from roads, both vertically and horizontally.

Table 5.4: Proposed building information, 387 Kentish Town Road

	Height to lowest residential storey	Distance to Kentish Town Road
387 Kentish Town Road (residential apartment 1st floor)	4m	9m

A study carried out by Wandsworth Borough Council (WBC) using diffusion tube monitoring on each level of a four-storey building adjacent to Putney High Street showed that the highest NO_2 concentrations are nearest the kerb and reduce with increasing height from ground level[27]. A reduction in NO_2 concentration of 22% was measured between the kerbside monitoring station (height 1.77m) and the first storey façade (height 4.7m).

Based on the above, it is expected that annual mean NO_2 concentrations will exceed the annual mean NO_2 objective at the first and second floor of the residential element.

Monitored annual mean PM_{10} concentrations at the closest LBC automatic monitors with data, London Bloomsbury and Swiss Cottage, are comfortably meeting the PM_{10} annual mean objective.

The one hour mean NO_2 objective and the 24-hour mean PM_{10} objective are expected to be met at all the residential elements.

Further operational mitigation measures to ensure the proposed development is suitable for residential use are listed in Appendix D.

[27] Wandsworth Borough Council (2014): 'Air Quality Progress Report 2014'

6 Conclusion

This report provides an assessment of the following key impacts associated with the construction and operational phases of the proposed residential development at 387 Kentish Town Road, London:

- Nuisance, loss of amenity and health impacts associated with the construction phase of the development on sensitive receptors;
- Changes in traffic related pollutant concentrations associated with the operational phase of the proposed development; and
- Assessing the suitability of the proposed development for the addition of new residential and commercial receptors.

A qualitative assessment of construction dust effects has been undertaken for the proposed development. Following the implementation of the mitigation measures proposed in Appendix C, the risk of construction dust impacts is considered to be not significant.

A qualitative assessment of commercial and residential suitability has been undertaken for the proposed development. Following the implementation of the operational mitigation measures proposed in Appendix D, the proposed development is considered to be safe for future tenants and occupants.

It can therefore be concluded that the proposed development is not considered to conflict with any national, regional or local planning guidance.

Appendix A: Operational Impact Assessment Methodology

The EPUK & IAQM guidance refers to the Town and Country Planning (Development Management Procedure) Order (England) 2010 [(Wales) 2012] for a definition of a 'major' development when scoping assessments required for the planning process. Based on the guidance, a 'major' development is such development where:

- The number of dwellings is 10 or above;
- The residential development is carried out of a site of more than 0.5ha where the number of dwellings is unknown;
- The provision of more than 1,000 m^2 commercial floorspace; or,
- Development carried out on land of 1ha or more.

It is recommended that consideration should be given to reduce impacts from any 'major' developments by considering:

- The impact of existing sources in the local area on the proposed development; and
- The impacts of the proposed development on the local area.

The assessment process involves two stages where:

Stage 1 scope out the need for an air quality assessment and **Stage 2** provide guidance of determining the level of assessment required for a project.

Table A 1 below sets out the Stage 1 criteria to determine the need to assess impacts arising from small developments and **Table A 2** provides more specific guidance as to when an air quality assessment is likely to be required to assess the impacts of the proposed development on the local area.

Table A 1: Stage 1 Criteria to Proceed to Stage 2

	Criteria to Proceed to Stage 2
A	If any of the following apply: • 10 or more residential units of a site area of more than 0.5ha • More than 1,000m^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

Table A 2: 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.
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 there is a risk of impacts at relevant receptors. NB. this includes combustion plant associated with standby emergency generators (typically associated with centralised energy centres) and shipping.	Typically, any combustion plant where the single or combined NO_x emission rate is less than 5 mg/sec is unlikely to give rise to impacts, provided that the emissions are released from a vent or stack in a location and at a height that provides adequate dispersion. In situations where the emissions are released close to buildings with relevant receptors, or where the dispersion of the plume may be adversely affected by the size and/or height of adjacent buildings (including situations where the stack height is lower than the receptor) then consideration will need to be given to potential impacts at much lower emission rates. Conversely, where existing nitrogen dioxide concentrations are low, and where the dispersion conditions are favourable, a much higher emission rate may be acceptable.

Appendix B: Construction Dust Assessment Criteria

IAQM guidance framework on assessing the risk of dust proposes the construction phase should be split into phases dependent on their potential impacts, determining the risk for each individually. Therefore, this assessment has determined the risk of the four construction categories put forward by the IAQM guidance:

- Demolition;
- Earthworks;
- Construction; and
- Track out (transport of dust and dirt onto the public road network).

The IAQM guidance framework states that the risk of dust impacts from the four categories can be defined as 'negligible', 'low risk', 'medium risk' or 'high risk' depending upon the scale and nature of the construction activity and the sensitivity and proximity of receptors to the construction site boundary. This categorisation is used to put forward appropriate mitigation measures, reducing the level of effects from the dust impacts so they are not significant.

The assessment of dust impacts using the IAQM guidance considers three separate effects from dust:

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

Step 1 of the assessment is set out to screen for the requirement for a more detailed assessment for the proposed development. The screening criteria states:

A 'human receptor' within:

- 350 m of the boundary of the application site; or
- 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s).

An 'ecological receptor' within:

- 50 m of the boundary of the application site; or
- 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s).

Where there are no receptors and the level of risk is deemed 'negligible', there is no need for further assessment.

Step 2A of the assessment enables the overall dust emission magnitude (small, medium or large) from each dust source (demolition, earthworks, construction and trackout) to be identified in relation with the criteria outlined in Table B.1.

Table B.1: Dust emission magnitude

Source	Large	Medium	Small
Demolition	Total building volume >50,000 m^3, potentially dusty construction material (e.g. concrete), on-site crushing and screening, demolition activities >20 m above ground level.	Total building volume 20,000 m^3 – 50,000 m^3, potentially dusty construction material, demolition activities <10 – 20 m above ground level.	Total building volume <20,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <10 m above ground, demolition during wetter months.
Earthworks	Total site area >10,000 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 >8 m in height, total material moved >100,000 tonnes.	Total site area 2,500 m^2 – 10,000 m^2, moderately dusty soil type (e.g. silt), 5-10 heavy earth moving vehicles active at any one time, formation of bunds 4 m – 8 m in height, total material moved 20,000 tonnes – 100,000 tonnes.	Total site area <2,500 m^2, soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <4 m in height, total material moved <20,000 tonnes, earthworks during wetter months.
Construction	Total building volume >100,000 m^3, on site concrete batching or sandblasting.	Total building volume 25,000 m^3 – 100,000 m^3, potentially dusty construction material (e.g. concrete), on site concrete batching.	Total building volume <25,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber).
Track out	>50 HDV (>3.5t) outward movements[a] in any one day[b], potentially dusty surface material (e.g. high clay content), unpaved road length >100 m.	10-50 HDV (>3.5t) outward movements[a] in any one day[b], moderately dusty surface material (e.g. high clay content), unpaved road length 50 m – 100 m.	<10 HDV (>3.5t) outward movements[a] in any one day[b], surface material with low potential for dust release, unpaved road length <50 m.

Notes:
[a] Vehicle movement is a one-way journey. i.e. from A to B, and excludes the return journey.
[b] HDV movements during a construction project vary over its lifetime, and the number of movements is the maximum not the average.

Step 2B allows for the sensitivity of the area (high, medium or low) to be assessed and takes into account a number of factors:

- The specific sensitivities of receptors in the area;
- The proximity and number of those receptors;
- In the case of PM_{10}, the existing local background concentration; and

- Site specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of wind-blown dust.

Receptor sensitivity has been based on the highest of any criteria being met thus, the assessment is considered as robust. The sensitivity of the area is further determined for dust soiling, human health and ecosystem effects by considering the criteria presented in Table B.2.

Table B.2: Magnitude of Receptor Sensitivity

Source	High	Medium	Low
Sensitivities of people to dust soiling effects	• 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 to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land. • Indicative examples include dwellings, museums and other culturally important collections, medium and long term car parks[b] and car showrooms.	• Users would expect[a] to enjoy a reasonable level of amenity, but would not reasonably expect[a] 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[a] to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land. • Indicative examples include parks and places of work.	• The enjoyment of amenity would not reasonably be expected[a]; or • Property would not reasonably be expected[a] 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. • Indicative examples include playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks[b] and roads.
Sensitivities of people to health effects of PM_{10}	• 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).[c] • Indicative examples include residential properties. Hospitals, schools and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.	• Locations where the people exposed are workers[d], and exposure is 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). • Indicative examples include office and shop workers, but will generally not include workers occupationally exposed to PM_{10}, as protection is covered by Health and Safety at Work legislation.	• Locations where human exposure is transient.[e] • Indicative examples include public footpaths, playing fields, parks and shopping streets.

Source	High	Medium	Low
Sensitivities of receptors to ecological effects	• 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 Britain. • Indicative examples include a Special Area 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.	• 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. • Indicative example is a Site of Special Scientific Interest (SSSI) with dust sensitive features.	• Locations with a local designation where the features may be affected by dust deposition. • Indicative example is a local Nature Reserve with dust sensitive features.

Notes:
[a] People's expectations will vary depending on the existing dust deposition in the area, see Section 4.2.
[b] Car parks can have a range of sensitivities depending on the duration and frequency that people would be expected to park their cars there, and the level of amenity they could reasonably expect whilst doing so. Car parks associated with work place or residential parking might have a high level of sensitivity compared to car parks used less frequently and for shorter durations, such as those associated with shopping. Cases should be examined on their own merits.
[c] This follows Defra guidance as set out in LAQM.TG (09).
[d] Notwithstanding the fact that the air quality objectives and limit values do not apply to people in the workplace, such people can be affected to exposure of PM_{10}. However, they are considered to be less sensitive than the general public as a whole because those most sensitive to the effects of air pollution, such as young children are not normally workers. For this reason workers have been included in the medium sensitivity category.
[e] There are no standards that apply to short-term exposure, e.g. one or two hours, but there is still a risk of health impacts, albeit less certain.
[f] Cheffing C. M. & Farrell L. (Editors) (2005), The Vascular Plant. Red Data List for Great Britain, Joint Nature Conservation Committee.

The final step, Step 2C allows for the risk of impacts to be defined. The dust emission magnitude derived in Sstep 2A is combined with the sensitivity of the area defined in step 2B to determine the risk of effects on:

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

The criteria for each of the dust sources are presented in Table B.3, Table B.4, Table B.5 and Table B.6.

Table B.3: Demolition

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

Table B.4: Earthworks

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table B.5: Construction

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table B.6: Track out

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Negligible
Low	Low Risk	Low Risk	Negligible

Appendix C: Construction Dust Mitigation Measures

The mitigation measures set out below are from IAQM's 2014 guidance for construction dust and are appropriate for the mitigation of 'Low Risk' sites. The points below can be formerly adopted into a construction dust management plan.

Communication:

- 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.

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 log book.

Monitoring:

- Carry out regular site inspections, record inspection results, and make an inspection log available to the local authority if required.
- 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.
- Avoid site runoff of water or mud.

Operating Vehicle/Machinery and Sustainable Travel:

- 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.

Waste Management:

- Avoid bonfires and burning of waste materials.

Appendix D: Operational Mitigation Measures

The IAQM planning guidance states that new developments should be designed to minimise public exposure and that a presence of an AQMA should not halt the development but ensure that the planning system minimises any impacts as far as possible.

The proposed development consists of a small number of residential units within an existing AQMA. It is recommended that the first and second floor residential units, where annual mean NO_2 concentrations are forecast to exceed the annual mean NO_2 objective, are mechanically ventilated with hermetically sealed windows.

The mechanical ventilation should include a suitable filtration system, which will filter the air to a standard that is compliant with the NO_2 annual mean objective. It is advised that the air intake is located in an area of better air quality, towards the rear façade of the proposed development away from the busy road and as high as possible.

In the case of small residential developments in areas of elevated air pollution, the IAQM planning guidance recommends the design of the development should be reviewed and ventilation arrangements made where necessary.