



Branch Hill

Basic / Screening Air Quality Assessment

December 2019

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1. Introduction

- 1.1. This Basic/Screening Air Quality Assessment has been prepared by Waterman Infrastructure & Environment to accompany the planning application for the redevelopment of the former Branch Hill House Care Home in Hampstead (hereafter referred to as the 'Site') to provide 34 residential apartments, ancillary plant, access and servicing and car parking (hereafter referred to as the 'Proposed Development').
- 1.2. The Site is located within the administrative area of London Borough of Camden (LBC). LBC has designated an Air Quality Management Area (AQMA) for exceedances of the annual mean nitrogen dioxide (NO₂) objective and the 24-hour mean objective for particulate matter with a diameter of less than 10 micrometres (µm) (PM₁₀). The AQMA covers the whole Borough. Consequently, the Site is located within this AQMA.
- 1.3. LBC has its own guidance¹ which sets out the criteria for when an air quality assessment is required to accompany a planning application and the methodology for such an assessment. The LBC guidance states an assessment is required for the following types of applications:
 - *All major development;*
 - *Any development involving biomass boilers, biomass or gas CHP (including connections to existing networks where the increased capacity is not already covered in an existing AQA);*
 - *Substantial earthworks or demolition; or*
 - *Any development that could have a significant impact on air quality either directly or indirectly.*
- 1.4. The guidance states the following air quality assessment is also required:
 - *The AQA needs to consider measures to reduce any impact to acceptable levels. This should be proportionate to the scale and type of development.*
 - *A basic AQA should be submitted for new buildings/ substantial refurbishments and changes of use where occupants will be exposed to poor air quality.*
 - *You must submit more detailed AQAs on the following types of development:*
 - *Major applications where the occupants will be exposed to poor air quality where the development is located along a busy road, diesel railway lines, or generally congested area;*
 - *The development has more than 75 new residences;*
 - *commercial developments with a floorspace of 2,500 sqm floorspace or more;*
 - *development involving substantial earthworks or demolition;*
 - *development with the potential to significantly change road traffic on any busy roads (those in excess of 10,000 vehicles per day); and*
 - *development that introduces sensitive uses into an area of poor air quality.*
- 1.5. The Proposed Development does not include any car parking other than 4 disabled spaces and would therefore not significantly change road traffic. In addition, the Energy Strategy of the Proposed Development includes the use of Ground Source Heat Pumps (GSHP). As such the Proposed Development does not include any emissions to air during its operation and, based on the above criteria, an air quality assessment of the operational phase is not considered necessary.
- 1.6. In accordance with the LBC guidance a Basic/Screening Air Quality Assessment has been undertaken, to consider air quality conditions future users of the Proposed Development would be exposed to.

¹ London Brough Camden (2018) Camden's Local Area Requirements for Planning Applications

- 1.7. The most significant pollutant during demolition and construction relates to the creation of nuisance dust and emissions from construction vehicles and construction plant. A qualitative assessment has been undertaken based on relevant air quality guidance.
- 1.8. Section 2 of this Air Quality Assessment gives a summary of legislation, planning policy, and guidance relevant to air quality. Section 3 provides a summary of the baseline conditions and considers the future air quality conditions residential users would be exposed to. Section 4 considers the construction phase. The main findings and conclusions of the assessment is given in Section 5.

2. Air Quality Legislation, Planning Policy and Guidance

Legalisation

European Legalisation

EU Framework Directive 2008/50/EC, 2008

- 2.1. Air pollutants at high concentrations can give rise to adverse effects on the health of humans and ecosystems. European Union (EU) legislation on air quality forms the basis for UK legislation and policy on air quality.
- 2.2. The EU Framework Directive 2008/50/EC² on ambient air quality assessment and management came into force in May 2008 and was implemented by Member States, including the UK, by June 2010. The Directive aims to protect human health and the environment by avoiding, reducing or preventing harmful concentrations of air pollutants.

National Legislation

Air Quality Standards Regulations, 2010

- 2.3. The Air Quality Standards Regulations³ implement Limit Values prescribed by the EU Framework Directive 2008/50/EC. The Limit Values are legally binding and the Secretary of State, on behalf of the UK Government, is responsible for the implementation.

The UK Air Quality Strategy, 2007

- 2.4. The current UK Air Quality Strategy (AQS)⁴, sets out the objectives for Local Planning Authorities (LPA) in undertaking their Local Air Quality Management (LAQM) duties. The UK AQS objectives of air pollutants relevant to transport emissions are summarised in **Table 1**.

² Council Directive 2008/50/EC of 21 May 2008 on ambient air quality and cleaner air for Europe.

³ Defra, 2010, The Air Quality Standards (England) Regulations.

⁴ Defra, 2007. 'The Air Quality Strategy for England, Scotland, Wales & Northern Ireland'

Table 1: Summary of Traffic Related AQS Objectives Pollutants

Pollutant	Objective		Date by which Objective to be Met
	Concentration	Measured as:	
Nitrogen Dioxide (NO ₂)	200µg/m ³	1 hour mean not to be exceeded more than 18 times per year	31/12/2005
	40µg/m ³	Annual Mean	31/12/2005
Particulate Matter (PM ₁₀) ^(a)	50µg/m ³	24 hour mean not to be exceeded more than 35 times per year	31/12/2004
	40µg/m ³	Annual Mean	31/12/2004
Particulate Matter (PM _{2.5}) ^(b)	Target of 15% reduction in concentrations at urban background locations	Annual Mean	Between 2010 and 2020
	25µg/m ³	Annual Mean	01/01/2020

Note: (a) Particulate matter with a mean aerodynamic diameter less than 10 microns (or micrometres – µm)

(b) Particulate matter with a mean aerodynamic diameter less than 2.5 microns

The Environment Act 1995

- 2.9. Under Part IV of the Environment Act 1995⁵, LPAs are required to review and assess the future quality of the air in their area by way of a staged process. Should this process suggest that any of the AQS objectives will not be met by the target dates, the LPA must consider the declaration of an AQMA and the subsequent preparation of an Air Quality Action Plan (AQAP) to improve the air quality in that area in pursuit of the AQS objectives.
- 2.10. LBC has designated the entire Borough as an AQMA for annual mean NO₂ and 24-hour mean PM₁₀. Details of LBC's Air Quality Action Plan and a summary of the LBC review and assessment of air quality are provided later in this Report.

Planning Policy

National Planning Policy

National Planning Policy Framework, 2019

- 2.11. The National Planning Policy Framework (NPPF)⁶, published in February 2019, sets out the Government's planning policies for England and how these should be applied.
- 2.12. Paragraph 170 states "...*Development should, wherever possible, help to improve local environmental conditions such as air and water quality...*"
- 2.13. Paragraph 180 states "...*Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development...*".
- 2.14. Paragraph 181 states "*Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the*

⁵ Office of the Deputy Prime Minister (ODPM), 1995, 'The Environment Act' 1995.

⁶ Department for Communities and Local Government, 2019, 'National Planning Policy Framework'. DCLG, London.

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.”

Planning Practice Guidance

- 2.15. The Planning Practice Guidance⁷ (PPG) states that air quality concerns are more likely to arise where development is proposed within an area of existing poor air quality, or where it would adversely impact upon the implementation of air quality strategies and / or action plans. The PPG notes that when deciding whether air quality is relevant to a planning application, considerations would include whether the development would lead to:
- Significant effects on traffic, such as volume, congestion, vehicle speed, or composition;
 - The introduction of new point sources of air pollution, such as furnaces, centralised boilers and Combined Heat and Power (CHP) plant; and
 - Exposing occupants of any new developments to existing sources of air pollutants and areas with poor air quality.

Regional Planning Policy

The London Plan: The Spatial Development Strategy for Greater London; Consolidated with Alterations since 2011, 2016

- 2.16. Policy 7.14 ‘Improving Air Quality’ of the adopted consolidated London Plan⁸ states that development proposals should:
- A. *minimise increased exposure to existing poor air quality and make provision to address local problems of air quality (particularly within Air Quality Management Areas (AQMA) 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 (see Policy 6.3);*
 - B. *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’;*
 - C. *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 (AQMA);*
 - D. *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 approach; and*

⁷ DCLG (2014), ‘Planning Practice Guidance: Air Quality (ID 32)’ (06 March 2014).

⁸ Greater London Authority (2016): The London Plan — The Spatial Development Strategy for London consolidated with alterations since 2011, GLA, London.

- E. 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.”*

Draft New London Plan, Consolidated Suggested Changes Version July 2019

2.17. The Mayor of London’s Draft New London Plan⁹ is currently being prepared after consultation ended in March 2018. The final Plan will also take account of the comments received during the consultation process and the recommendations of the panel that conduct the Examination in Public. The document will run from 2019 to 2041 to provide a longer-term view of London’s development to inform decision making.

2.18. 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 proposal 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) reduce air quality benefits that result from the Mayor’s or boroughs’ activities to improve air quality; and*
- d) 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, which do not demonstrate that design measures have been used to minimise exposure should be refused.*

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:

- a) How proposals have considered ways to maximise benefits to local air quality, and*

b) 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. The development of large-scale redevelopment areas, such as Opportunity Areas and those subject to an Environmental Impact Assessment should propose methods of achieving an Air Quality Positive approach through the new development. All other developments should be at least Air Quality Neutral.

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’.

It may not always be possible in practice for developments to achieve Air Quality Neutral standards or to acceptably minimise impacts using on-site measures alone. If a development can demonstrate that it has exploited all relevant on-site measures it may be possible to make the development acceptable through additional mitigation or offsetting payments”.

2.19. With regard to car parking, Policy T6 ‘Car parking’ states that:

“E. Where car parking is provided in new developments, provision should be made for infrastructure for electric or other Ultra-Low Emission vehicles in line with policies T6.1, T6.2, T6.3 and T6.4. All operational parking should make this provision, including offering rapid charging. New or re-provided petrol filling stations should provide rapid charging hubs and/or hydrogen refuelling facilities.”

All residential car parking spaces must provide infrastructure for electric or UltraLow Emission vehicles. At least 20 per cent of spaces should have active charging facilities, with passive provision for all remaining spaces”.

A City for all Londoners, 2016

2.20. The Mayor of London’s A City for All Londoners¹⁰ document outlines the challenges and opportunities across priority policy areas in London, as well as the changes that City Hall wants to deliver over the next four years to improve air quality. The Mayor is committed to improving air quality through the design of ‘Healthy Streets’. Such measures detailed include:

- Introducing an emissions surcharge (or ‘Toxicity Charge’) in 2017 for high-polluting older vehicles in central London;
- Introducing a Central-London Ultra-Low Emission Zone (ULEZ) in 2019 and potentially enlarging the area it covers, up to the North and South Circular Roads for all vehicles and London wide for the most polluting heavy vehicles. The new ULEZ would incorporate the J1/M1;
- Replace diesel buses with green buses (hybrid or zero emission) this includes a retrofit scheme of 3000 buses outside central London by 2020;
- All buses in central London to be ‘Euro 6’ hybrid by 2019;

¹⁰ Mayor of London (2016) A City for All Londoners, London

- All new buildings in London to be air quality positive to include reducing emissions and associated exposure;
- Planting trees on a busy road to provide a buffer between pedestrians and traffic, as well as absorbing pollutants to improve air quality; and
- Increase the use of cycling and walking.

London Environment Strategy, 2018

2.21. The London Environment Strategy¹¹ includes the following proposals to improve air quality:

- introducing the toxicity charge (T-charge) from October 2017 and introducing the Ultra-Low Emission Zone (ULEZ) by 2019;
- Making the whole bus fleet zero emission by 2037 and phasing out fossil fuels in the taxi and private hire fleets;
- The Mayor working with government and other partners to seek reductions in emissions from aviation activity (in London and the south east particularly from Heathrow), and also from rail transport and at stations;
- Providing better information about air quality, especially during high and very high pollution episodes;
- Using the planning system to help ensure that new schools and other buildings that will be used by people who are particularly vulnerable to pollutants are not located in areas of poor air quality;
- The Mayor promoting and prioritising more sustainable travel in London including walking, cycling and public transport, as part of the Healthy Streets Approach; and
- Considering introducing a new Air Quality Positive standard so new building developments would ensure that emissions and exposure to pollution are reduced.

Local Planning Policy

London Borough of Camden Local Plan, 2017

2.22. The Local Plan¹² is the basis for planning decisions and future development in the borough. The Local Plan was adopted in July 2017.

2.23. Policy CC4 Air quality of the Local Plan states:

“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.

¹¹ Greater London Authority, 2018. London Environment Strategy, May 2018

¹² LBC, 2016, Camden Local Plan Submission Draft 2016

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.”

Hampstead Neighbourhood Development Plan: 2018-2033, 2018

2.24. The Hampstead Neighbourhood Development Plan was created by the people of Hampstead. The Plan covers a 15-year period 2018-2033 and planning applications must be determined in accordance with the development plan. Policy TT1: Traffic volumes and vehicle Size states:

“Due to the critical need to improve air quality and tackle congestion within the Plan Area:

1. Planning applications which can reasonably be expected to result in a significant number of additional motor vehicle journeys post-completion should provide the following information at an appropriate level of detail to allow a robust assessment of the impact of the proposal on air quality and levels of pollution:

- a. A Transport Assessment (or Statement);*
- b. A full or outline Delivery and Servicing Management Plan (DSMP);*
- c. An Air Quality Assessment;*

which should together demonstrate (if necessary through mitigation measures) that the impact of any such vehicle journeys will be offset so that approval will not lead to an overall decrease in air quality in the Plan Area.

2. Where a Travel Plan is approved in connection with an application it should include provision for an annual monitoring report to be submitted to Camden Council for the first five years following construction.

3. Planning applications which can reasonably be expected to result in significant additional motor vehicle journeys in the plan area during construction should provide a full or outline Construction Management Plan at an appropriate level of detail to allow a robust assessment of the impact of the proposal on air quality and levels of pollution in addition to any noise, vibration or obstruction of the highway in the Plan area. The CMP should take into account the cumulative impact of development on the Plan area and demonstrate that the impact of any such vehicle journeys will be appropriately mitigated to minimise their impact on air quality and levels of pollution.

4. A DSMP or CMP should be implemented through vehicles of no more than 7.5 tonnes unladen weight within the Plan Area, other than in circumstances where this is not feasible, in which case such exceptions must be documented within the relevant plan.

5. Any proposed mitigation measures necessary to comply with this Policy TT1 will be controlled through condition or Section 106 Agreement.”

Guidance

Department for Environment, Food and Rural Affairs; Clean Air Strategy, 2019

2.25. Published in January 2019 the Clean Air Strategy¹³ sets out a coherent framework and national action to improve air quality throughout the UK.

2.26. The Strategy is underpinned by new national powers to control major sources of air pollution, in line with the risk they pose to public health and the environment, plus new local powers to act in areas with an air pollution problem. The Strategy also supports the creation of Clean Air Zones to lower emissions from all sources of air pollution, backed up with clear enforcement mechanisms.

Improving Air Quality in the UK: Tackling Nitrogen Dioxide in our Towns and Cities. UK Air Quality Plan for Tackling Nitrogen Dioxide, 2017.

2.27. The UK Government was required by the High Court to release an Air Quality Plan to meet the NO₂ Limit Value in the shortest timescale as possible. This document was adopted on the 26th July 2017¹⁴.

2.28. The revised plan focuses on reducing concentrations of NO_x and NO₂ around road vehicle emissions within the shortest possible time; the principal aims are to:

- a. reduce emissions of NO_x from the current road vehicle fleet in problem locations now; and*
- b. accelerate road vehicle fleet turnover to cleaner vehicles to ensure that the problem remains addressed and does not move to other locations.*

2.29. The other aims include reducing background concentrations of NO_x from:

- Other forms of transport such as rail, aviation and shipping;
- Industry and non-road mobile machinery; and
- Buildings, both commercial and domestic, and other stationary sources.

2.30. The Consultation Document provides additional measures to reduce NO_x and NO₂ concentrations in the UK, further than the measures detailed in the adopted 2016 Plan. Such measures include:

- Mandate local authorities to implement Clean Air Zones within the shortest possible time;
- Consultation on proposal for a Clean Air Zone Framework for Wales;
- Consultation on a draft National Low Emission Framework for Scotland;
- Commitment to establishing a Low Emission Zone for Scotland by 2018;
- Tackling air pollution on the English Road network;
- New real driving emissions requirement to address real world NO_x emissions;
- Additional funding to accelerate uptake of hydrogen vehicles and infrastructure;
- Additional funding to accelerate the uptake of electric taxis;
- Further investment in retrofitting alongside additional support of low emission buses and taxis;
- Regulatory changes to support the take up of alternatively fuelled light commercial vehicles;
- Exploring the appropriate tax treatment for diesel vehicles;
- Call for evidence on updating the existing HGV Road User Levy;
- Call for evidence on use of red diesel;
- Ensure wider environmental performance is apparent to consumers when purchasing cars;
- Updating Government procurement policy;
- New emissions standards for non-road mobile machinery;
- New measures to tackle NO_x emissions from Medium Combustion Plants; and

¹⁴ Defra (July 2017) Improving Air Quality in the UK: Tackling nitrogen dioxide in our towns and cities. UK Air Quality Plan for Tackling Nitrogen Dioxide

- New measures to tackle NOx emissions from generators.
- 2.31. The above measures do not provide any actions which are directly relevant to the operation or design of the Development.
- 2.32. A High Court ruling¹⁵ on 21st February 2018, stated the UK Government's air quality improvement plan was unlawful as *'it does not contain measures sufficient to ensure substantive compliance with the 2008 Directive and the English Regulations'*. The UK Government *'must ensure steps are taken to achieve compliance as soon as possible, by the quickest route possible and by a means that makes that outcome likely'*.
- 2.33. The judgement stated that the UK Government must produce a supplementary plan, setting out requirements for feasibility studies to be undertaken in 33 Local Authority Areas. DMBC is not one of the local authorities that is required to undertake a feasibility study.
- 2.34. In May 2018, it was announced the European Union (EU) was going to take the UK Government to the European Commission over failure to meet the Limit Values for NO₂.

Environmental Protection UK & Institute of Air Quality Management Guidance; Land-Use Planning & Development Control: Planning for Air Quality, 2017

- 2.35. Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) provide guidance for air quality considerations within the local development control processes, promoting a consistent approach to the treatment of air quality issues.
- 2.36. The EPUK and IAQM guidance explains how development proposals can adopt good design principles to reduce emissions and contribute to better air quality. The guidance also provides a method for screening the need for an air quality assessment and a consistent approach for describing the impacts at individual receptors. The EPUK and IAQM Guidance, advises that:
- "In arriving at a decision about a specific proposed development the local planning authority is required to achieve a balance between economic, social and environmental considerations. For this reason, appropriate consideration of issues such as air quality, noise and visual amenity is necessary. In terms of air quality, particular attention should be paid to:*
- *Compliance with national air quality objectives and of EU Limit Values;*
 - *Whether the development will materially affect any air quality action plan or strategy;*
 - *The overall degradation (or improvement) in local air quality; or*
 - *Whether the development will introduce new public exposure into an area of existing poor air quality"*.

The Mayor's Air Quality Strategy 'Clearing the Air', 2010

- 2.37. The Greater London Authority (GLA) Act 1999¹⁶ requires the GLA to produce an AQS for Greater London that sets out air quality objectives (to be no less than national objectives) and present measures that the Mayor, GLA and London Boroughs will take towards meeting these objectives. The Mayor's AQS¹⁷ aims to improve air quality within London by targeting the reduction of emissions related to transport and construction. Some of the initiatives proposed are as follows:
- Targeted measures for areas with poor air quality; and

¹⁵ <https://www.judiciary.gov.uk/judgments/the-queen-on-the-application-of-clientearth-no-3-claimant-v-secretary-of-state-for-environment-food-and-rural-affairs-and-others/>

¹⁶ Greater London Authority (GLA), 'The Mayor's Air Quality Strategy: Cleaning London's Air', London, 2002.

¹⁷ Greater London Authority (2010), 'Clearing the air – The Mayor's Air Quality Strategy', GLA, London.

- Use of the planning system for reducing emissions from new developments.

Mayor of London's Supplementary Planning Guidance: Sustainable Design and Construction, 2014

- 2.38. The Sustainable Design and Construction Supplementary Planning Guidance¹⁸ (SPG) provides guidance to support the implementation of the London Plan. Section 4.3 of the SPG focusses on air pollution and the effects from the construction and operation of new developments to ensure that they are 'air quality neutral'. Emission benchmarks are provided within the SPG for:
- Emissions from buildings; and
 - Transport emissions.
- 2.39. Section 4.3.17 and Appendix 5 of the SPG note that two sets of Building Emission Benchmarks (BEBs) have been defined for a series of land-use classes, one for NO_x and one for PM₁₀. Section 4.3.18 and Appendix 6 of the SPG note that the design of a development should encourage and facilitate walking, cycling and the use of public transport, thereby minimising the generation of air pollutants.
- 2.40. Given the Proposed Development does not significantly change road traffic and there are no emissions to air from GSHP, the Proposed Development is Air Quality Neutral and has not been considered further.

Mayor of London: The Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance, 2014

- 2.41. The Control of Dust and Emissions during Construction and Demolition SPG¹⁹ seeks to reduce emissions of dust, PM₁₀ and PM_{2.5} from construction and demolition activities in London. It also aims to manage emissions of NO_x from construction and demolition plant by means of a new non-road mobile machinery Ultra-Low Emissions Zone (ULEZ). The SPG provides guidance on the implementation of London Plan Policy 7.14 'Improving Air Quality', as well as a range of policies that deal with environmental sustainability, health and quality of life.

London Local Air Quality Management Policy Guidance, 2016

- 2.42. The Local Air Quality Management Policy Guidance LLAQM.PG (16)²⁰ provides additional guidance on the links between transport and air quality. LLAQM.PG (16) describes how road transport contributes to local air pollution and how transport measures may bring improvements in air quality. Key transport-related Government initiatives are set out, including regulatory measures and standards to reduce vehicle emissions and improve fuels, tax-based measures and the development of an integrated transport strategy.
- 2.43. LLAQM.PG (16) also provides guidance on the links between air quality and the land use planning system. The guidance advises that air quality considerations should be integrated within the planning process at the earliest stage, and is intended to aid local authorities in developing action plans to deal with specific air quality issues and create strategies to improve air quality. LLAQM.PG (16)

¹⁸ Greater London Authority (2014), 'Sustainable Design and Construction - Supplementary Planning Guidance', Greater London Authority, London.

¹⁹ Mayor of London 2014 'The Control of Dust and Emissions During Construction and Demolition Supplementary Planning Guidance'

²⁰ Defra (2016), 'London Local Air Quality Management (LLAQM) Policy guidance 2016 (LLAQM.PG (16))', DEFRA, London.

summarises the means in which the land use planning system can help deliver compliance with the air quality objectives.

Institute of Air Quality Management: Guidance on the Assessment of Dust from Demolition and Construction, 2014

- 2.44. The IAQM Construction Dust Guidance²¹ provides guidance to consultants and Environmental Health Officers (EHOs) on how to assess air quality impacts from construction related activities. The guidance provides a risk-based approach based on the potential dust emission magnitude of the site (small, medium or large) and the sensitivity of the area to dust impacts. The importance of professional judgement is noted throughout the guidance. The guidance recommends that once the risk class of the site has been identified, the appropriate level of mitigation measures are implemented to ensure that the construction activities have no significant impacts.

London Borough of Camden Air Quality Action Plan, 2016-2018

- 2.45. The LBC Air Quality Action Plan (AQAP), Camden's Clean Air Action Plan 2016-2018²² aims to continue to reduce concentrations of PM₁₀ and PM_{2.5}, and to meet the EU Objective for NO₂. The key objectives of 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 organisations, to foster and drive improvements in air quality;*
 - *Lead by example and reduce NO₂ and PM₁₀ emissions associated with the Council's own buildings and transport services; and*
 - *Ensure actions which serve to reduce NO₂ and PM₁₀ emissions complement actions to mitigate CO₂ emissions.”*

²¹ Institute of Air Quality Management, 2014, 'Guidance on the Assessment of dust from demolition and construction
²² LBC, 2013, 'Camden's Clean Air Action Plan 2016-2018'

3. Baseline Conditions

London Borough of Camden Review and Assessment Process

- 3.1. Between 1998 and 2001 LBC undertook the first round of Review and Assessment of air quality²³, which concluded that it was necessary to declare the whole Borough as an AQMA for the annual mean objective for NO₂ and the 24-hour mean objective for PM₁₀.
- 3.2. The Updating and Screening Assessments (USAs) completed in August 2003²⁴, 2006²⁵ and 2009²⁶ concluded that the LBC AQMA designation should remain and no further air quality assessment was required.
- 3.3. The fourth round of Review and Assessment²⁷ identified that Camden no longer exceeded the 24-hour mean objective for PM₁₀ at three of their automatic monitoring sites. However, LBC attributed this to the change in the methodology used to measure PM₁₀ concentrations rather than improvements in emissions, and therefore, the AQMA order remained unchanged.
- 3.4. The fourth round of Review and Assessment additionally indicated that several diffusion tube sites and one automatic site at roadside locations exceeded the 1-hour mean NO₂ AQS objective. LBC undertook further modelling work to understand the spatial distribution of PM₁₀ and NO₂ exceedances across the Borough. The modelling revealed that a number of roads in Camden which experience high volumes of traffic and a large proportion of HGV vehicles, exceeded both short and long term NO₂ and PM₁₀ AQS objectives.
- 3.5. The report published by LBC as part of the fifth round of Review and Assessment²⁸ confirmed that the NO₂ annual mean AQS objective was still being exceeded at all the Council's automatic monitoring sites and most of the NO₂ diffusion tube sites. Although the report confirmed that PM₁₀ concentrations now meet the AQS objectives at all monitoring sites, no amendment to the AQMA order has been suggested.
- 3.6. The latest report²⁹ published by LBC and available on their website confirmed the findings of the previous rounds of review and assessment and while there has been a declining trend in NO₂ levels across the borough, most levels exceeded the annual mean objective and therefore the AQMA should be retained.

Local Air Quality Monitoring

Bloomsbury Automatic Monitor

- 3.7. LBC currently undertakes air quality monitoring at four automatic monitors within the Borough. This includes an urban background automatic monitor at Bloomsbury, 5km to the south east of the Site. The monitoring results for NO₂ and PM₁₀ at the Bloomsbury automatic monitor are presented in **Table 2** from 2013 to 2017.

23 LBC, June 1998, 'Statutory Review and Assessment of Air Quality in the London Borough of Camden Stages 1 and 2'

24 LBC, August 2003, 'Second Round of Review and Assessment of Air Quality: Updating and Screening Assessment'

25 LBC, August 2006, 'Third Round of Review and Assessment of Air Quality: Updating and Screening Assessment'

26 LBC, August 2009, '2009 Air Quality Updating and Screening Assessment for London Borough of Camden'

27 LBC, June 2010, '2009 Progress Report for London Borough of Camden'

28 LBC, July 2013, '2013 Air Quality Progress Report for the London Borough of Camden'

29 LBC, May 2017, 'LB Camden Air Quality Annual Status Report for 2016'

Table 2: Measured Concentrations at the Bloomsbury Urban Background Monitor

Pollutant	Averaging Period	AQS Objective	2014	2015	2016	2017	2018
NO ₂	Annual Mean (µg/m ³)	40µg/m ³	45	48	42	38	36
	1-Hour Mean (No. of Hours)	200µg/m ³ not to be exceeded more than 18 times a year	0	0	0	0	0
PM ₁₀	Annual Mean (µg/m ³)	40µg/m ³	20	22	20	19	18
	24-Hour Mean (No. of Days)	50µg/m ³ not to be exceeded more than 35 times a year	11	6	9	6	2
PM _{2.5}	Annual Mean (µg/m ³)	25µg/m ³	-	11	12	13	10

Notes: Data obtained from LBC Air Quality Annual Status Report for 2017
Exceedences of the AQS Objectives shown in **bold** text.

- 3.8. The data in **Table 2** shows the annual mean NO₂ AQS objective of 40µg/m³ was exceeded between 2014 to 2016 (ranging between 42µg/m³ to 48µg/m³) but was below the annual mean NO₂ AQS objective in 2017 (as 38µg/m³) and 2018 (as 36µg/m³).
- 3.9. As shown in **Table 2**, from 2015 to 2018 there has been a year on year decline in annual mean NO₂ concentrations.
- 3.10. The NO₂ 1-hour mean objective and the PM₁₀ and PM_{2.5} objectives were met in all years.

Frogнал Way Urban Background NO₂ Diffusion Tube

- 3.11. LBC also use NO₂ diffusion tubes to monitor air quality at 14 locations throughout the Borough. This includes an urban background diffusion tube at Frogнал Way, approximately 60m south of the Site.
- 3.12. The results for the latest years from the Frogнал Way diffusion tube are presented in **Table 3**.

Table 3: Measured NO₂ Concentrations at the Frogнал Way Diffusion Tubes (µg/m³)

ID	Site	Classification	Distance to centre of Site (m)	2013	2014	2015	2016	2017
CA7	Frogнал Way	Urban Background	600	31.95	28.55	27.78	27.91	29.10

Notes: 2013-2016 Data obtained from LBC Air Quality Annual Status Report for 2016, 2017 Data from: <https://opendata.camden.gov.uk/stories/s/Camden-Air-Quality-Monitoring/bmrm-k7pv/>
Exceedences of the AQS Objectives shown in **bold** text.

- 3.13. The results in **Table 3** shows the annual mean NO₂ AQS objective of 40µg/m³ was met in all years between 2013 and 2017.

Defra Air Quality Background Maps

- 3.14. In addition to the urban background monitoring undertaken by LBC, background concentrations of NO_x, NO₂, PM₁₀ and PM_{2.5} are available from the Defra Air Quality Archive for 1 x 1 km grid squares for assessment years between 2015 and 2030. **Table 4** presents the Defra background concentrations for the year 2017 for the grid square the Site is located within (526500,186500).

Table 4: Defra Background Map in 2017 for the Grid Square at the Location of the Site

Pollutant	Annual Mean Concentration ($\mu\text{g}/\text{m}^3$)	AQS Objective
NO _x	34.7	-
NO ₂	23.4	40 $\mu\text{g}/\text{m}^3$
PM ₁₀	16.0	40 $\mu\text{g}/\text{m}^3$
PM _{2.5}	10.3	25 $\mu\text{g}/\text{m}^3$

- 3.15. The data in **Table 4** shows that all pollutants are below the respective AQS objectives.
- 3.16. The 2017 Defra background map annual mean NO₂ concentration (of 23.4 $\mu\text{g}/\text{m}^3$) is below the 2017 Bloomsbury automatic monitor (of 38 $\mu\text{g}/\text{m}^3$) and is slightly lower than the monitored concentration at the Frogna Way diffusion tube (of 29.1 $\mu\text{g}/\text{m}^3$ in 2017).

London Atmospheric Emissions Inventory

- 3.17. The London Atmospheric Emissions Inventory (LAEI) and associated pollution maps, produced by the GLA, provide detailed estimates of pollution levels London-wide for select years. The maps for the latest predicted year is 2020 and the pollutant concentrations at the Site (grid reference as 526520,186040) are shown below in **Table 5**.

Table 5: LAEI Maps in 2020 for the Grid Square at the Location of the Site

Pollutant	Annual Mean Concentration ($\mu\text{g}/\text{m}^3$)	AQS Objective
NO ₂	29.7	40 $\mu\text{g}/\text{m}^3$
PM ₁₀	23.2	40 $\mu\text{g}/\text{m}^3$
PM _{2.5}	14.4	25 $\mu\text{g}/\text{m}^3$

Notes Data Source: <https://data.london.gov.uk/dataset?q=laei>

- 3.18. The data in **Table 5** shows that all pollutants are below the respective AQS objectives. The LAEI maps also show the annual mean NO₂ concentration (of 29.7 $\mu\text{g}/\text{m}^3$) is very similar to the monitored concentration at the Frogna Way diffusion tube (of 29.1 $\mu\text{g}/\text{m}^3$ in 2017).

Predicted Future Exposure (Residential Users)

- 3.19. On review of the Site, the local area and given that the Site is not located on a major road, it is considered the Frogna Way diffusion tube (which is 600m south of the Site) is representative of NO₂ concentrations at the Site.
- 3.20. Based on the results from the Frogna Way diffusion tube for NO₂ and considering the PM₁₀ and PM_{2.5} concentrations obtained from the Bloomsbury automatic monitor, Defra and LAEI, it is considered that the AQS objectives are likely to be met for future residential users of the Site. The introduction of residential users is therefore considered **not significant**.
- 3.21. It should also be acknowledged the monitoring results do not take account of the following actions, which are considered to improve air quality at the Site:
- improvements in NO₂ concentrations following the recent UK High Court Ruling, which requires NO₂ concentrations to be reduced in the shortest timescale possible (see 'UK Air Quality Plan for Tackling Nitrogen Dioxide' in **Section 2: Air Quality Legislation, Planning Policy and Guidance**);
 - the UK Government's commitment to ban diesel and petrol cars by 2040 and the promotion of zero emission vehicles; and

- the Mayor of London's measures to improve air quality in the shortest timescale possible (see measures as listed under 'A City for all Londoners' in **Section 2: Air Quality Legislation, Planning Policy and Guidance**).

Operational Mitigation Measures

3.22. Whilst it is considered the Development is unlikely to change local air quality conditions, and the introduction of residential users are not significant, **Table 6** presents the measures inherent to the Development and to be included during the operational phases, which are likely to benefit air quality.

Table 6: Summary of Mitigation Measures

Phase	Mitigation Measures
Measures included in the design of the Development	Car-free Development with only 4 disabled car parking spaces provided
	76 No. secure cycle parking spaces

4. Demolition and Construction Phase Qualitative Assessment

Assessment Methodology

Dust Emissions

- 4.1. The effects of dust emissions from the construction phase has been based on the Mayors 'The Control of Dust and Emissions during Construction and Demolition SPG', which takes account of the guidance published by the IAQM.
- 4.2. The approach to the assessment includes:
 - consideration of planned construction activities and their phasing; and
 - a review of the sensitive uses in the area immediately surrounding the Site in relation to their distance from the Site.
- 4.3. Following the Mayors SPG, construction activities can be divided into the following four distinct activities:
 - Demolition – any activity involved in the removal of an existing building;
 - Earthworks – the excavation, haulage, tipping and stockpiling of material, but may also involve levelling the site and landscaping;
 - Construction – any activity involved with the provision of a new structure; and
 - Trackout – the movement of vehicles from unpaved ground on a site, where they can accumulate mud and dirt, onto the public road network where dust might be deposited.
- 4.4. The Mayors SPG considers three separate dust effects, with the proximity of sensitive receptors being taken into consideration for:
 - annoyance due to dust soiling;
 - potential effects on human health due to significant increase in exposure to PM₁₀; and
 - harm to ecological receptors.
- 4.5. To determine the risk of the construction phase, the following four step process, as set out in **Table 7**, has been undertaken.

Table 7: Summary of the Mayor SPG for Undertaking a Construction Dust Assessment

Step	Description
1	<p>Screen the Need for a Detailed Assessment</p> <p>Simple distance based criteria are used to determine the requirement for a detailed dust assessment. An assessment will normally be required where there are 'human receptors' within 50m of the boundary of the site and / or within 50m of the route(s) used by construction vehicles on public highway, up to 500m from the site entrance or 'ecological receptors' within 50m of the boundary of the site and/or within 50m of the route(s) used by construction vehicles on public highway, up to 500m from the site entrance.</p>
2	<p>Assess the Risk of Dust Effects</p> <p>The risk of dust arising in sufficient quantities to cause annoyance and/or health or ecological effects should be determined using four risk categories: negligible, low, medium and high based on the following factors:</p> <ul style="list-style-type: none"> • the scale and nature of the works, which determines the risk of dust arising (i.e. the magnitude of potential dust emissions) classed as small, medium or large; and • the sensitivity of the area to dust effects, considered separately for ecological and human receptors (i.e. the potential for effects) defined as low, medium or high. • Provide a map of nearest receptors.
2a	<p>Define the potential Dust Emission Magnitude</p> <p>Classify the magnitude of the likely risk as small, medium or large for the four activities.</p>
2b	<p>Define the Sensitivity of the Areas</p> <p>Define the sensitivity of receptors as High, Medium or Low. Define sensitivity of people to Dust Soiling Effects and define the sensitivities of people to the health effects of PM₁₀.</p>
2c	<p>Define the Risk of Impacts</p> <p>Combine the magnitude (as detailed in 2a) and the sensitivity (in 2b) to determine the risk of impacts with no mitigation applied.</p> <p>Summarises the risk of dusts impacts for the four activities in a table</p>

- 4.6. Following the above air quality dust risk assessment appropriate dust and pollution measures are provided to ensure the air quality impacts of construction are minimised and any mitigation measures employed are effective.
- 4.7. The potential impacts and effects of construction activities on local air quality were based on professional judgement and with reference to the criteria set out in the Majors SPG guidance. This includes an assessment of the risk of dust effects arising from the likely construction activities, based on the magnitude of potential dust emissions and the sensitivity of the area.

Demolition and Construction Vehicle Exhaust Emissions

- 4.8. The IAQM guidance on assessing construction vehicle exhaust emission impacts states that:
- "Experience of assessing the exhaust emissions from on-site plant (also known as non-road mobile machinery or NRMM) and site traffic suggests that they are unlikely to make a significant effect on local air quality, and in the vast majority of cases they will not need to be quantitatively assessed. For site plant and on-site traffic, consideration should be given to the number of plant/vehicles and their operating hours and locations to assess whether a significant effect is likely to occur. For site traffic on the public highway, if it cannot be scoped out, then it should be assessed using the same methodology and significance criteria as operational traffic impacts"*.
- 4.9. Given the size of the Site (6,300m²), and the duration of the construction phase, in accordance with the IAQM guidance, a quantitative assessment of the exhaust emissions from construction traffic is not required, and a qualitative assessment is appropriate.

Demolition and Construction Plant Emissions

- 4.10. In accordance with the London Plan, all construction plant would need to adhere to the emissions standards for NO₂ and PM₁₀ set out for Non-Road Mobile Machinery (NRMM). As such, it is considered a quantitative assessment of construction plant emissions is not required.

Determining Significance of Effects

Dust Emissions

- 4.11. The potential effects of construction activities on local air quality were based on professional judgement and with reference to the criteria set out in the Majors SPG guidance and IAQM's Construction Dust Guidance. Appropriate mitigation that would be implemented to minimise any adverse effects on air quality were also considered. Details of the assessor's experience and competence to undertake the dust assessment is provided in **Appendix B: Assessor Experience**.
- 4.12. The assessment of the risk of dust effects arising from the likely construction activities, as identified by the Majors SPG guidance, is based on the magnitude of potential dust emissions and the sensitivity of the area. The risk category matrix for construction activity types, taken from the Majors SPG guidance, is presented in **Table 8** to **Table 11**.

Table 8: Risk Category from Demolition Activities

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

Table 9: Risk Category from Earthworks Activities

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 10: Risk Category from Construction Activities

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 11: Risk Category from Trackout Activities

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

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

- 4.13. The risk category determined for each of the construction activity types is used to define the appropriate, site specific, mitigation measures that should be applied. The guidance recommends that significance is only assigned to the effect after considering mitigation and assumes that all actions to avoid or reduce the environmental effects are an inherent part of the proposed development, and that in the case of construction mitigation (secured through planning conditions, legal requirements or required by regulations), this will ensure that potential significant adverse effects will not occur.
- 4.14. Experience of implementing mitigation measures for construction activities demonstrates that total mitigation is normally possible. Accordingly, the guidance recommends that the significance of construction activity effects should only be considered post-mitigation where the residual effects (in accordance with the above evidence based theory) would not be 'significant'. It therefore follows that; within this assessment no significance criteria are provided for the pre-mitigation likely effects of the construction work.

Demolition and Construction Vehicle Exhaust Emissions

- 4.15. The significance of the effects from demolition and construction vehicle exhaust emissions on air quality were based on professional judgement.

Demolition and Construction Plant Emissions

- 4.16. As all construction plant is required to meet the NRMM emissions standards for NO₂ and PM₁₀ in the London Plan, the significance of the effects from construction plant emissions on air quality was also based on professional judgement.

Demolition and Construction Effects

Site Evaluation / Screen the Need

- 4.17. The nearest residential properties are located within 50m of the Site on Branch Hill to the east of the Site and Heysham Lane to the north and west of the Site. However, it is noted the Site is surrounded by existing woodland, which would be retained and act as a barrier to the movement of dust during demolition and construction.
- 4.18. There are no ecological receptors' within 50m of the boundary of the site and/or within 50m of the route(s) used by construction vehicles on public highway and therefore the ecological impacts have not been considered further. In accordance with **Table 7**, the assessment will proceed to detailed assessment.

Potential Dust Emission Magnitude

- 4.19. The risk of dust impacts from the demolition and construction phase has been considered based upon the magnitude of works as detailed in the Mayor's SPG. This includes:
- Demolition - The estimate for the total volume of buildings to be demolished would be between 20,000m³ - 50,000m³. Based on this and considering the criteria in paragraph 4.27 of Mayor's SPG, the potential dust emissions during demolition activities would be of **medium** magnitude.

- Earthworks - The area of the Site is 0.63ha, or 6,300m². Given the area surrounding the Site and the size of the Site it is estimated that there could be more than 10 heavy earth moving vehicles active at any one time. Based on this and considering the criteria in paragraph 4.29 of Mayor's SPG, the potential dust emissions during earthworks activities would be of **medium** magnitude.
- Construction – it is estimated the total volume of buildings to be constructed would be less than 25,000m³. Based on this and considering the criteria in paragraph 4.31 of Mayor's SPG, the potential dust emissions during construction activities would be of **small** magnitude.
- Trackout – Given the surrounding site location and the size of the Site it is estimated that the number of HDVs would be between 10-50 HDV trips in any one day. Based on this, and considering the criteria in paragraph 4.33 of Mayor's SPG, the potential for dust emissions due to trackout activities would be of **medium** magnitude.

4.20. A summary of the potential Dust Emission Magnitude is presented in **Table 12**.

Table 12: Dust Emission Magnitude

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

Sensitivity of the Area

4.21. As detailed in the Mayor's SPG the sensitivity of the area has taken account of the following factors:

- The specific sensitivities of receptors in the area;
- The proximity and number of those receptors;
- The local background PM₁₀ concentration; and
- Site-specific factors, such as whether there are trees or other vegetation to reduce the risk of wind-blown dust.

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

4.22. As discussed above, the nearest residential properties are located within 50m of the Site, located on Branch Hill to the east of the Site and Heysham Lane to the north and west of the Site.

4.23. Based on Table 4.2 of the Mayor's SPG, given that there are 10-100 High Sensitivity receptors within 50m, it is considered the area is of medium sensitivity to dust and soiling effects on people and property.

4.24. The summary of the sensitivity of people to Dust and Soiling Effects is detailed in **Table 13**.

Table 13: Sensitivity of the Area to Dust and Soiling Effects on People and Property

Activity	Sensitivity of Area to Dust and Soiling Effects
Demolition	Medium

Activity	Sensitivity of Area to Dust and Soiling Effects
Earthworks	Medium
Construction	Medium
Trackout	Medium

Sensitivity of the Area to Human Health Impacts

- 4.25. As shown in Tables 2 to 5, the highest predicted annual mean PM₁₀ concentration is predicted from the LAEI Maps as 23.2ug/m³. This is below the annual mean Air Quality Strategy Objective for PM₁₀ of 40ug/m³.
- 4.26. Based on Table 4.3 of the Mayor's SPG, given that there are estimated to be 10-100 receptors within 50m and that PM₁₀ concentrations are below 24ug/m³, it is considered the area is of medium sensitivity to human health impacts.
- 4.27. The summary of the sensitivity of people to the health effects of particulate matter is detailed in **Table 14** below.

Table 14: Sensitivity of the Area to Human Health Impacts

Activity	Sensitivity of Area to Human Health Impacts
Demolition	Medium
Earthworks	Medium
Construction	Medium
Trackout	Medium

Risk of Impacts

- 4.28. Based on the dust emissions magnitude as set out in **Table 12** and taking account of the sensitivity of the area as detailed in **Tables 13** and **14**, the overall risk impacts have been identified and presented in **Table 15**. This is based on the matrices set out in Tables 8 to 11. The predicted impacts are prior to, and do not take account of, mitigation applied.

Table 15: Summary of Dust Risk

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

- 4.29. The Site is considered **medium risk** to dust soiling impacts consequently, mitigation would be required to ensure that adverse impacts be minimised, reduced and, where possible, eliminated.

Construction Vehicle Exhaust Emissions

- 4.30. Plant operating on the Site and construction related vehicles entering and egressing the Site from / to the local road network would have the potential to increase local air pollutant concentrations, particularly in respect of NO₂ and particulate matter (both PM₁₀ and PM_{2.5}).

- 4.31. At this stage, the number of HDVs associated with the development is not known. However, based on the size of the Site, it is estimated that number of HDVs would be between 10- 50 HDV trips in any one day. Considering the existing NO₂ concentrations from the Froggnal Way diffusion tube, which is 60m south of the Site, and the construction phase would be temporary it is considered construction traffic emissions would be small and not significant to existing air quality levels.

Construction Plant Emissions

- 4.32. In accordance with the London Plan all construction plant would need to adhere to the emissions standards for NO₂ and PM₁₀ set out for NRMM. It is therefore considered the likely effect of construction plant on local air quality would be **not significant**.

Demolition and Construction Mitigation Measures and Residual Effects

Demolition and Construction Dust

- 4.33. A range of environmental management controls would be developed and set out in a Construction Management Plan (CMP), with reference to the IAQM guidance for a **medium** risk site, and would include (but not limited to) measures set out below as listed in the Mayor of London SPG and LBC's Code of Practice for Construction Sites:
- removal of materials that have potential to produce dust, where possible;
 - enclosure of material stockpiles at all times and damping down of dusty materials during dry weather;
 - provision of appropriate hoarding and / or fencing to reduce dust dispersion and restrict public access;
 - maintenance of Site fencing, barriers and scaffolding clean using wet methods;
 - control of cutting or grinding of materials on the Site and avoidance of scabbling;
 - dust generating machinery e.g. disk cutters to be fitted with vacuums;
 - appropriate handling and storage of materials, especially stockpiled materials;
 - restricting drop heights onto lorries and other equipment;
 - fitting equipment with dust control measures such as water sprays, wherever possible;
 - using a wheel wash, avoiding of unnecessary idling of engines and routing of Site vehicles as far from sensitive properties as possible;
 - ensuring bulk cement and other fine powder materials are delivered in enclosed tankers and stored silos with suitable emission control systems to prevent escape of material and overfilling during delivery;
 - using gas powered generators rather than diesel if possible and ensuring that all plant and vehicles are well maintained so that exhaust emissions do not breach statutory emission limits;
 - switching off all plant when not in use;
 - no fires would be allowed on the Site; and
 - ensuring that a road sweeper is available to clean mud and other debris from hard-standing, roads and footpaths.
- 4.34. Such measures are routinely and successfully applied to construction projects throughout the UK and are proven to reduce significantly the potential for adverse nuisance dust effects associated

with the various stages of demolition and construction work. Taking account of the mitigation measures, the likely residual effect of nuisance dust is **not significant**.

Demolition and Construction Vehicle Exhaust Emissions

- 4.35. As above, it is considered the CMP prepared for the Site would include construction traffic vehicle management such as vehicle routing, hours of operation, loading and unloading procedures. Considering the existing background concentrations in the local area; the use of a CMP; and the demolition and construction phase would be temporary, the overall effect from demolition and construction vehicle exhaust emissions would be **not significant**.

Demolition and Construction Plant Emissions

- 4.36. Even in the absence of mitigation, given that NRMM need to adhere to the emissions set out in the London Plan, the likely residual effect of any emissions from construction plant operating on the Site would be **not significant**.

5. Summary and Conclusions

- 5.1. This Basic/ Screening Air Quality Assessment has been undertaken to accompany the planning application for the change of use of Branch Hill House from care home (Use Class C2) to residential (Use Class C3) and associated external alterations, demolition of the 1960s extension and erection of replacement building, including basement, comprising residential accommodation (Use Class C3), ancillary plant, access and servicing and car parking.
- 5.2. The Development does not include any car parking other than 4 disabled spaces and would therefore not significantly change road traffic. In addition, the Energy Strategy of the Proposed Development includes the use of GSHP. As such the Proposed Development does not include any emissions to air during its operation. It is considered the effect of the operational Development would be **not significant**.
- 5.3. Considering the monitoring data in the vicinity of the Site, the future concentrations for the users of the Development is considered **not significant** and the Site is suitable for residential use.

UK and Ireland Office Locations

