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HOMES FOR LAMBETH
PROPOSED DEVELOPMENT
CORAL DAY NURSERY (WOOTTON STREET), LAMBETH

AIR QUALITY ASSESSMENT

DECEMBER 2020

the journey is the reward

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DECEMBER 2020

Project Code:	**HFLNurseryWoottonSt(A).9**
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Issue Date:	**December 2020**
Status:	**Rev 3**

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Homes for Lambeth
Proposed Development
Coral Day Nursery (Wootton Street), Lambeth
Air Quality Assessment

List of Contents

Sections

Figures

Tables

Appendices

1 Introduction

1.1 Mayer Brown Limited has been instructed by Homes for Lambeth to undertake an Air Quality Assessment (AQA) in respect of the proposed redevelopment of the Coral Day Nursery, Wootton Street, Lambeth.

1.2 The proposals include:

- 36 residential units;
- 380 m^2 D1 Use;
- Disabled and estate parking bays; and
- Cycle parking.

1.3 This AQA has been undertaken in order to assess any likely air quality impacts associated with the proposed development upon the surrounding area and to establish whether the site location is considered suitable for the proposed use.

1.4 In the event that potential impacts are identified, specific mitigation measures have been recommended in order to minimise significant pollution impacts and help safeguard the health and wellbeing of any existing and proposed sensitive receptors within the local area.

1.5 The AQA is divided up into the following sections:

- **Section 2** – Existing Site;
- **Section 3** – Proposed Development;
- **Section 4**- Legislation and Policy Context;
- **Section 5**- Assessment Methodology and Significance Criteria;
- **Section 6**- Baseline Site Conditions;
- **Section 7**- Evaluation of Potential Effects;
- **Section 8**- Mitigation Measures; and
- **Section 9**- Residual Effects and Conclusions

1.6 The appendices consist of the following:

- **Appendix A** – Construction Dust Assessment
- **Appendix B** – Air Quality Neutral Assessment

2 Existing Site

2.1 The development site is located within the London Borough of Lambeth, to the south of London Waterloo East Station. The site location in relation to the local highway network is illustrated in **Figure 2.1** below.

Figure 2.1: Site in Relation to the Local Highway Network

2.2 The locality has a mix of commercial uses including retail premises, professional service, restaurants, and residential properties.

2.3 The application site is located on Wootton Street, Lambeth. The site is bound by Wootton Street to the north, Greet Street to the east and Windmill House to the west. To the south of the site is Windmill House Road, which is a private road that is gated at both ends.

2.4 The site is occupied by Coral Day Nursery, which is currently vacant and has been identified as surplus to Lambeth's requirements. The site is accessed from Windmill House Road.

2.5 The existing red line boundary is illustrated in **Figure 2.2** below.

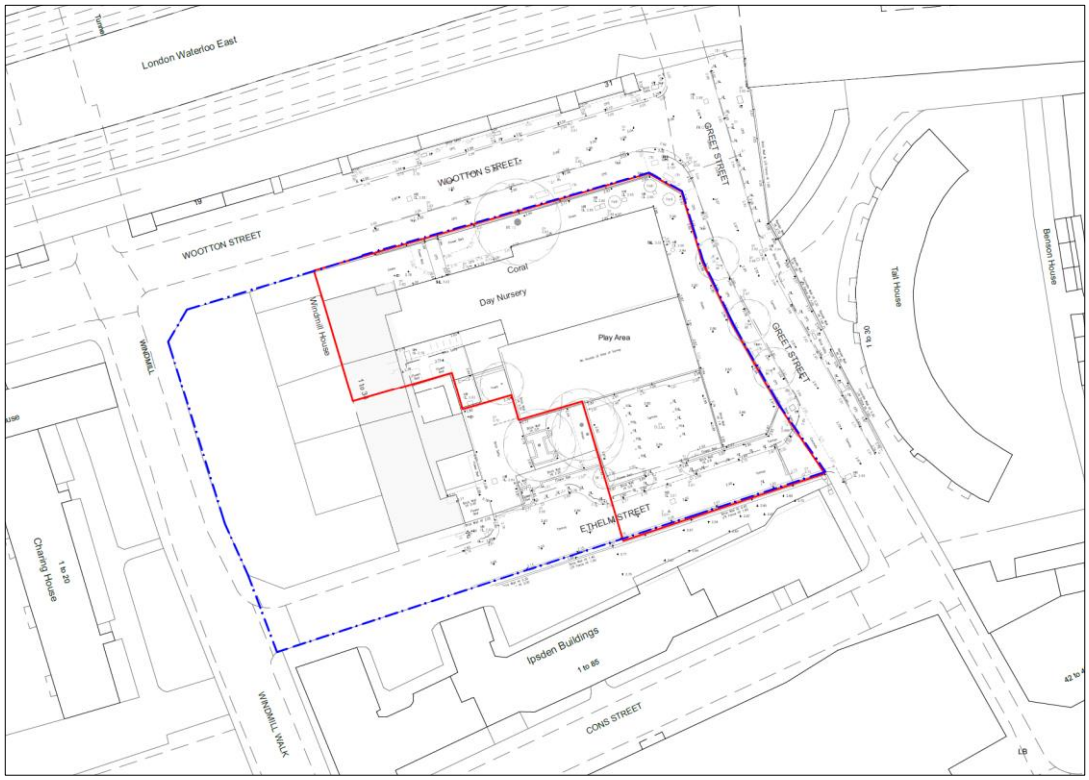

Figure 2.2: Existing Red Line Boundary

3 Proposed Development

3.1 The proposals consist of a new development comprising of the following:

- 36 residential apartments
- 380m^2 D1 use;
- Disabled and estate parking bays; and
- Cycle parking

1.1. The scheduled unit types are as follows:

- 16 x 1-bed (6 affordable; 10 private);
- 16 x 2-bed (8 affordable, 8 private); and
- 4 x 3-bed (3 affordable, 1 private).

3.2 proposed ground floor layout is shown in **Figure 3.1** below.

Figure 3.1: Proposed Ground Floor Layout

4 Legislation and Policy Context

4.1 This section provides a summary of all the relevant legislation and policies that are applicable to the proposed development.

National Planning Policy

The Air Quality Strategy[1]

4.1 The Air Quality Strategy (AQS) has been prepared following obligations imposed upon the UK Government to produce standards, objectives and measures for improving ambient air quality, following The Environment Act 1955.

4.2 The AQS sets out a framework for Local Authorities to reduce adverse health effects from ambient air pollution and ensures that international and national commitments are met, using the Local Air Quality Management (LAQM) system.

4.3 The AQS sets standards and objectives for pollutants to protect human health, vegetation and ecosystems. The pollutant objectives are the future dates by which each standard is to be achieved, taking into account economic considerations, practical and technical feasibility.

4.4 The main air quality pollutants of concern with regards to new developments such as this one is the traffic related pollutants of Nitrogen Dioxide (NO_2) and Particulate Matter (PM_{10} and $PM_{2.5}$).

4.5 The relevant air quality objectives, as they currently apply in the United Kingdom are presented in **Table 4.1** below.

Pollutant	Air Quality Objectives		Date to be achieved by
	Objectives	Measured as	
Nitrogen Dioxide (NO_2)	200 µg/m^3	1-hour mean. Not to be exceeded more than 18 times a year	31 December 2005
	40 µg/m^3	Annual mean	

[1] Department of Environment, Food and Rural Affairs in Partnership with the Scottish Executive, Welsh Assembly Government and Department of the Environment Northern Ireland. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2011). The Stationery Office (TSO). Norwich.

Particles (PM_{10})	50 µg/m^3	24-hour mean. Not to be exceeded more than 35 times a year	31 December 2004
	40 µg/m^3	Annual mean	
Particles – Except Scotland ($PM_{2.5}$)	25 µg/m^3	Annual mean	2020
Particles – UK Urban Areas ($PM_{2.5}$)	Target of 15% reduction in concentrations at urban background		Between 2010 and 2020

Table 4.1: Air Quality Objectives in the UK

Air Quality Standards Regulations 2010

4.6 The binding limits for concentrations in outdoor air of key air pollutants that impact public health was set by the 2008 ambient air quality directive (2008/50/EC) which replaced nearly all previous EU air quality legislation. The limit values were made law in England through the Air Quality Standards Regulations 2010. This imposes duties on the Secretary of State relating to achieving limit values.

4.7 With regards to dust, it is recognised that major construction works may give rise to dust emissions within the PM_{10} and $PM_{2.5}$ size fraction and it is noted within section 79 of the Environmental Protection Act 1990 that a statutory nuisance is defined as:

'Any dust or effluvia arising from an industrial, trade or business premises and being prejudicial to health or a nuisance'

National Planning Policy Framework (NPPF) 2019[2]

4.8 The NPPF was updated in February 2019 and supersedes all the previous versions. The purpose of the document is to set out the Government's policies in relation to planning for England and how these should be applied.

4.9 Section 9 of the NPPF refers to promoting sustainable transport. In relation to air quality, paragraph 102 states that:

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

[2] Ministry of Housing, Communities and Local Government, February 2019, National Planning Policy Framework, London

….

c) opportunities to promote walking, cycling and public transport use are identified and pursued;

d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains

…"

4.10 Additionally, it states:

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

4.11 Section 15 of the document also refers to air quality within planning. 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…"

4.12 Paragraph 181 adds that:

"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement…"

4.13 In relation to the planning conditions and obligations, paragraphs, 54 and 55 state the following:

"Local planning authorities should consider whether otherwise unacceptable development could be made acceptable through the use of conditions or planning obligations. Planning obligations should only be used where it is not possible to address unacceptable impacts through a planning condition.

Planning conditions should be kept to a minimum and only imposed where they are necessary, relevant to planning and to the development to be permitted, enforceable, precise and reasonable in all other respects. Agreeing conditions early is beneficial to all parties involved in the process and can speed up decision making. Conditions that are required to be discharged before development commences should be avoided, unless there is a clear justification."

Planning Practice Guidance – Air Quality[3]

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

4.15 The guidance refers to the specific issues that may need to be considered when assessing air quality impacts. It states:

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

- *Lead to changes (including any potential reductions) in vehicle-related emissions in the immediate vicinity of the proposed development or further afield…*
- *Introduce new point sources of air pollution…*
- *Expose people to harmful concentrations of air pollutants…*
- *Give rise to potentially unacceptable impacts (such as dust) during construction for nearby sensitive locations;*
- *Have a potential adverse effect on biodiversity…"*

4.16 Guidance on how detailed an air quality assessment need to be is provided and states:

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

4.17 Reference to how air quality can be mitigated states that:

"Mitigation option will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact. It is important that local planning authorities work with the applicants to consider appropriate mitigation so as to

[3] Ministry of Housing, Communities and Local Government, November 2019, Planning Practice Guidance-Air Quality, Ministry of Housing, Communities and Local Government, London. Available on: https://www.gov.uk/guidance/air-quality--3#history

ensure new development is appropriate for its location and unacceptable risks are prevented…"

London Local Air Quality Management Technical Guidance 2019 (LLAQM TG.19)[4]

4.18 The LLAQM framework is the required process used by local authorities to review and improve air quality within their areas. After a review and successful consultation, the new LLAQM was published in October 2019.

4.19 The LLAQM TG.19 was prepared by the Greater London Authority (GLA) to support London boroughs in carrying out their duties under the Environment Act 1995 and connected regulations.

4.20 In response to an Air Quality Management Area (AQMA) being declared, London boroughs should produce an Air Quality Action Plan within 12 months. Once a draft has been prepared, the action plan should be submitted to the GLA for initial appraisal prior the public consultation. London Boroughs should update their Air Quality Action Plan every 5 years as a minimum, to reflect current policy and to improve their effectiveness.

Regional Planning Policy

The London Plan – Consolidated with Alterations (March 2016)[5]

4.21 Under legislation establishing the Greater London Authority (GLA), the Mayor has to produce a spatial development strategy which has become – 'the London Plan'. The London Plan is the overall strategic plan setting out an integrated economic, environmental, transport and social framework for the development of London.

4.22 Policy 5.3: Sustainable Design and Construction refers to air quality and requires that:

"…

Major development proposals should meet the minimum standards outlined in the Mayor's supplementary planning guidance and this should be clearly demonstrated within a design and access statement. The standards include measures to achieve other policies in this Plan and the following sustainable design principles:

…

d minimising pollution (including noise, air and urban runoff)

[4] Greater London Authority (GLA), 2019, London Local Air Quality Management (LLAQM) Technical Guidance 2019 (LLAQM.TG (19)), GLA, London

[5] Greater London Authority (GLA), 2016, The London Plan- The Spatial Development Strategy for London Consolidated with Alteration Since 2011, GLA, London

…"

4.23 Policy 5.7: Renewable Energy relates to air quality and states that:

"…

All renewable energy systems should be located and designed to minimise any potential adverse impacts on biodiversity, the natural environment and historical assets, and to avoid any adverse impacts on air quality."

4.24 Policy 7.14: Improving Air Quality adds:

"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 (AQMAs) and where development is likely to be used by large numbers of those particularly vulnerable to poor air quality, such as children and older people)….

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…

c be at least 'air quality neutral' and not lead to further deterioration of existing poor air quality…

d ensure that where provision needs to be made to reduce emissions from a development, this is usually made on-site…

e where the development requires a detailed air quality assessment and biomass boilers are included, the assessment should forecast pollutant concentrations…"

The London Plan – Intend to Publish (December 2019)[6]

4.25 The adopted London Plan is currently under review and the new London Plan will replace this document once adopted. The Examination in Public (EiP) on the London Plan was held between 15th January and 22nd May 2019. The Panel of Inspectors appointed by the Secretary of State issued their report and recommendations to the Mayor on 8th October 2019.

4.26 The Mayor has considered the Inspectors' recommendations and, on the 9th December 2019, issued to the Secretary of State his intention to publish the London Plan along with a clean and tracked version of the Intend to Publish London Plan.

[6] Greater London Authority (GLA), (2019), Intend to Publish London Plan, GLA, London

4.27 In Chapter 1 Planning London's Future - Good Growth, GG3: Creating a Healthy city, relates to air quality and states:

"To improve Londoners' health and reduce health inequalities, those involved in planning and development must:

…

F. seek to improve London's air quality, reduce public exposure to poor air quality and minimise inequalities in levels of exposure to air pollution …"

4.28 Policy D3B: Optimising site capacity through the design-led approach refers to air quality and requires that:

"Development proposals should:

…

9) help prevent or mitigate the impacts of noise and poor air quality

…"

4.29 Paragraph 3.3.9 adds:

"Measures to design out exposure to poor air quality and noise from both external and internal sources, should be integral to development proposals and be considered early in the design process. Characteristics that increase pollutant or noise levels, such as poorly-located emission sources, street canyons and noise sources should also be designed out wherever possible. Optimising site layout and building design can also reduce the risk of overheating as well as minimise minimising carbon emissions by reducing energy demand."

4.30 Chapter 9 of the documents refers to Policy SI1: Improving air quality, which states:

*"**A.** Development plans, through relevant strategic, site specific and area-based policies should seek opportunities to identify and delivery further improvements to air quality and should not reduce air quality benefits that result from the Mayor's or boroughs' activities to improve air quality.*

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

1. Development proposals should not:

a) *lead to further deterioration of existing poor air quality*

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

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

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

a) Development proposals must be at least air quality neutral

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

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

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

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

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.*

***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. "*

4.31 Paragraph 9.1.1 adds:

"Poor air quality is a major issue for London which is failing to meet requirements under legislation. Poor air quality has direct impacts on the health, quality of life and life expectancy of Londoners. The impacts tend to be most heavily felt in some of London's most deprived neighbourhoods, and by people who are most vulnerable to the impacts such as children and older people. London's air quality should be significantly improved and exposure to poor air quality, especially for vulnerable people, should be reduced."

4.32 Paragraph 9.1.15 confirms that:

"Where the Air Quality Assessment or the air quality positive approach assumes that specific measures are put in place to improve air quality, prevent or mitigate air quality impacts, these should be secured through the use of planning conditions or s106 agreements. For instance, if ultra-low NOx boilers are assumed in the assessment, conditions should require the provision of details of the installed plant prior to the occupation of the building, or where larger plant is used for heating, post installation emissions tests should be required to ensure that the modelled emission parameters are achieved."

4.33 Under Chapter 10 – Transport, paragraph 10.4.3 refers to air quality and states:

"It is important that development proposals reduce the negative impact of development on the transport network and reduce potentially harmful public health impacts. The biggest transport-related impact of development on public health in London is the extent to which it enables physical activity from walking, cycling and using public transport. The other main impacts on public health relate to air quality…"

London Environment Strategy, May 2018[7]

4.34 Changes made by the Localism Act 2011 brought in a requirement for the original six separate environmental strategies to be brought together into a single London Environment Strategy ("the strategy") under section 351A of the Greater London Authority Act 1999. This included The Mayer's Air Quality Strategy – Cleaning the Air, 2010.

4.35 The London Environment Strategy sets out an ambitious vision for improving London's environment for the benefit of all Londoners. This strategy sets out a vision for London in 2050, that will realise the potential of London's environment to support good health and quality of life and to make the city a better place to live, work and do business. The

[7] Greater London Authority (GLA), May 2018, London Environment Strategy, GLA, London

Mayor wants London to be the world's greenest global city. This will mean making it: Greener, cleaner and ready for the future.

4.36 The London Environment Strategy sets out bold policies and proposals in seven policy areas, to make this vision a reality. The key aims for London are:

- "*for London to have the best air quality of any major world city by 2050, going beyond the legal requirements to protect human health and minimise inequalities;*
- *for London to be the world's first National Park City, where more than half of its area is green, where the natural environment is protected, and where the network of green infrastructure is managed to benefit all Londoners;*
- *for London to be a zero carbon city by 2050, with energy efficient buildings, clean transport and clean energy;*
- *to make London a zero waste city. By 2026 no biodegradable or recyclable waste will be sent to landfill, and by 2030 65 per cent of London's municipal waste will be recycled;*
- *for London and Londoners to be resilient to severe weather and longer-term climate change impacts. This will include flooding, heat risk and drought;*
- *for Londoners' quality of life to be improved by reducing the number of people adversely affected by noise and promoting more quiet and tranquil spaces; and*
- *for London to transition to a low carbon circular economy"*

4.37 Chapter 4: Air Quality has the following aim:

"*London will have the best air quality of any major world city by 2050, going beyond the legal requirements to protect human health and minimise inequalities.*"

4.38 Objective 4.1 adds:

"Support and empower London and its communities, particularly the most disadvantages and those in priority locations, to reduce their exposure to poor air quality."

4.39 Policy 4.1.1 states:

"*Make sure that London and its communities, particularly the most disadvantaged and those in priority locations, are empowered to reduce their exposure to poor air quality*".

4.40 Policy 4.1.2 states the following:

"*Improve the understanding of air quality health impacts to better target policies and action*".

4.41 Objective 4.2 adds:

"Achieve legal compliance with UK and EU Limits as soon as possible, including by mobilising action from London Boroughs, Government and other partners"

4.42 Policy 4.2.1 refers to reducing emissions and switching to more sustainable travel. It states:

"*Reduce emissions from London's road transport network by phasing out fossil fuelled vehicles, prioritising action on diesel, and enabling Londoners to switch to more sustainable forms of transport".*

4.43 Policy 4.2.2 adds:

"Reduce emissions from non-road transport sources, including by phasing out fossil fuels"

4.44 Policy 4.2.3 states:

"Reduce emissions from non-transport sources, including by phasing out fossil fuels".

4.45 Policy 4.2.4 states:

"The Mayor will work with the government, the London boroughs and other partners to accelerate the achievement of legal limits in Greater London and improve air quality"

4.46 Policy 4.3.1 and 4.3.2 refer to meeting World Health Organization (WHO) air quality guidelines, establishing new targets for pollutants and zero emission transport. They state:

"*The Mayor will establish new targets for $PM_{2.5}$ and other pollutants where needed. The Mayor will seek to meet these targets as soon as possible, working with government and other partners"*

"The Mayor will encourage the take up of ultra low and zero emission technologies to make sure London's entire transport system is zero emission by 2050 to further reduce levels of pollution and achieve WHO air quality guidelines"

4.47 Policy 4.3.3 states:

"*Phase out the use of fossil fuels to heat, cool and maintain London's buildings, homes and urban spaces, and reduce the impact of building emissions on air quality*".

4.48 Policy 4.3.4 states:

"*Work to reduce exposure to indoor air pollutants in the home, schools, workplace and other enclosed spaces"*.

Sustainable Design and Construction – Supplementary Planning Guidance[8]

4.49 This document provides guidance on how boroughs can take forward the new approaches set out in the London Plan, including carbon-off-setting, and the application of 'air quality neutral' assessments.

4.50 Policy 5.3: Sustainable Design and Construction requires that Major Development should apply a number of Sustainable Design Principles including:

"…

d minimising pollution (including noise, air and urban runoff)'

…"

4.51 It also refers to the Mayor's strategic target to:

"…

contribute to the achievement of EU limit values for air pollution

…"

4.52 Additional air quality specific priorities which cross reference with the requirements of the London Plan Policies (LPP) include:

- Developers are to design their schemes so that they are at least 'air quality neutral' (LPP 7.14);
- Developments should be designed to minimise the generation of air pollution. (LPP 5.3 and 7.14);
- Developments should be designed to minimise and mitigate against increased exposure to poor air quality (LPP 3.2, 5.3, and 7.14);
- Developers should select plant that meets the standards for emissions from combined heat and power and biomass plants set out in Appendix 7 (LPP 7.14); and
- Developers and contractors should follow the guidance set out in the emerging The Control of Dust and Emissions during Construction and Demolition SPG when constructing their development (LPP 5.3 and 7.14).

4.53 The principles of the 2013 draft Control of Dust and Emissions during Demolition and Construction (and subsequent 2014 final issue) SPG are embedded within the 2014 IAQM document 'Guidance on the assessment of dust from demolition and construction and this has been applied within this assessment.

[8] Greater London Authority (GLA), April 2014, Sustainable Design and Construction Supplementary Planning Guidance, GLA, London

Local Planning Policy

Lambeth Local Plan (2015)[9]

4.54 The Lambeth Local Plan sets out planning policies for Lambeth to guide development over the next 15 years to 2030.

4.55 Within section 2 of the document, Lambeth council have set out evidence that has been used to develop the strategy. In relation to air quality, paragraph 2.40 states:

"the whole borough is within an Air Quality Management Area in relation to a breach of nitrogen dioxide (annual mean and hourly mean) and particulate matters (daily mean and annual mean) objectives as specified in the Air Quality Regulations 2020…"

4.56 Policy T1 – Sustainable Travel relates to air quality and states:

"(a) The council will promote a sustainable pattern of development in the borough, minimising the need to travel and reducing dependence on the private car

…"

4.57 The justification adds:

"…Lambeth's Air Quality Report 2009 indicated that levels of nitrogen dioxide and fine particles are likely to continue to fail government targets. These are best tackled by reducing the use of motorised transport and using clear and more efficient fuels for transport…"

4.58 Policy Q2 – Amenity states:

"Development will be supported if:

…

(vi) adequate outdoor amenity space is provided free from excessive noise or disturbance, pollution or odour…"

Draft Revised Lambeth Local (January 2020)[10]

4.59 Following approval by Lambeth Council, the Draft Revised Lambeth Local Plan Proposed Submission Version January 2020 has been published for consultation. The six-week publication period ran until the 13th March 2020.

[9] London Borough of Lambeth (LBL), 2015, Lambeth Local Plan, LBL

[10] London Borough of Lambeth (LBL), 2020, Proposed Submission Version Draft Revised Lambeth Local Plan, LBL

4.60 Under section 9 – Environment and Green Infrastructure, paragraph 9.2, there is reference to air quality which states:

"Lambeth will apply London Plan policy SI1 Improving air quality to all development proposals in the borough, along with associated Mayoral guidance on Air Quality Neutral and Air Quality Positive standards and on ways to reduce construction and demolition impacts…"

4.61 Policy Q2 – Amenity still applies and states:

"Development will be supported if:

…

vi) adequate outdoor amenity space is provided, practical in layout, free from excessive noise or disturbance, pollution or odour…"

Lambeth Transport Plan 2011[11]

4.62 The Lambeth Transport Plan 2011 sets out how the Lambeth are delivering the London Mayor's Transport Strategy until 2031.

4.63 Under 4.2.2 Objective 1: Promote sustainable healthy travel behaviour it states:

"…

The Mayor is committed to bring about a cycle revolution and increasing levels of walking across London. Encouraging more cycling and walking is also a key priority for Lambeth in terms of promoting sustainable and healthy travel behaviour. Not only is this identified as a key priority within our Sustainable Community Strategy and Local Development Framework, but it also contributes to other LTP objectives relating to air quality and reducing CO2 emissions

…"

4.64 Objective 3: Improve Air Quality adds:

"Whilst transport is not the only sector responsible for contributing to poor air quality, road transport is the dominant source of oxides of Nitrogen (NOx) in Lambeth.

…

In terms of transport's contribution to poor air quality, there are two main ways in which to help tackle poor air quality. These are:

[11] London Borough of Lambeth (LBL, 2011, Lambeth Transport Plan, LBL

1. *Reduce the need to travel and/or travel sustainably, either by reducing unnecessary journeys in the first place, or by switching journeys to walking or cycling, public transport or car clubs.*
2. *Using cleaner and more efficient fuels for motorised forms of transport*

4.65 This air quality assessment has taken into consideration all the above policies and guidelines.

5 Assessment Methodology and Significance Criteria

5.1 This section outlines the assessment methodology and the criteria that have been used to assess the significance of risk associated with the proposed development.

5.2 **Table 5.1** below summarises the key information sources used in this assessment.

Data Sources	Details
Department for Environment, Food and Rural Affairs (Defra)	The Local Air Quality Management Tools contain information pertaining to monitoring networks across the UK and provides tools, which aid in the estimation of pollutant concentrations with reference to the year of study.
	Defra (2018). LAQM Background Maps - 1 x 1 km grid background maps for NO_x, NO_2, PM10 and $PM_{2.5}$
Environmental Protection UK (EPUK) & Institute of Air Quality Management (IAQM)	EPUK (2010). Development Control: Planning For Air Quality, (2010 Update) This guidance has been produced to help ensure that air quality is properly accounted for in local development control processes.
	IAQM (2014). Guidance on the assessment of dust from demolition and construction
	The EPUK & IAQM Land-Use Planning & Development Control: Planning for Air Quality (2017) [12] provides advice and guidance on how an air quality assessment should be undertaken.
The National Atmospheric Emissions Inventory (NAEI)[13]	This is a website run by Ricardo AEA Technology where emission data can be obtained which relates the vehicle fleet composition for the year of study.
London Councils	Air Quality and Planning Guidance[14]. This guidance is aimed at local authorities, developers and their consultants, and provides technical advice on how to deal with planning applications that could have an impact on air quality.
Greater London Authority (GLA), Air Quality Consultants and Environ	Sustainable Design and Construction – Supplementary planning Guidance (2014) [15].
	Air Quality Neutral Planning Support Update: GLA 80371(2014) [16]. This report has been commissioned by the GLA to provide support to the development of the Mayor's policy related to "air quality neutral" developments.
	Non-Road Mobile Machinery (NRMM) Low Emissions Zone. From 1st of September 2015 the NRMM regulations apply to all major developments, within London, using NRMM between 37 and 560kW.
	LLAQM Technical Guidance, TG (19) [17]: Published by GLA in 2019 in order to support London Boroughs in carrying out their duties under the Environmental Act 1995 and connected regulations.

Table 5.1: Key Information Sources

[12] Environmental Protection UK & Institute of Air Quality Management (EPUK & IAQM) (2017) Land-Use Planning & Development Control: Planning for Air Quality, EPUK & IAQM, London
[13] http://naei.defra.gov.uk
[14] London Councils. (2007),Air Quality and Planning Guidance, The London Air Pollution Planning and the Local Environment (APPLE) working group, London
[15] Mayor of London (2014). Sustainable Design and Construction – Supplementary Planning Guidance (SPG). Greater London Authority (GLA). London.
[16] Air Quality Consultants (AQC) (2014). Air Quality Neutral Planning Support Update: GLA80371. AQC. Bristol
[17] Greater London Authority (GLA) (2019) London Local Air Quality Management (LLAQM)Technical Guidance (LLAQM.TG (19)). DEFRA. London

Scope of Air Quality Assessment

5.3 This Air Quality Assessment considers the suitability of the site for the proposed development and assesses whether any significant air quality impacts are anticipated as a result of the construction and/or the operation of the proposed development.

5.4 A staged assessment approach has been adopted. This ensures that the approach taken for the assessment of risk is proportional to the risk of an unacceptable impact being caused. Where a simple review of the likely impacts associated with the proposed development clearly demonstrates that the risk of a health/annoyance impact is negligible, this will be sufficient to conclude that no further or detailed assessment is necessary.

5.5 In cases where the risk involved cannot be regarded as negligible, a more detailed and quantitative assessment will be undertaken.

5.6 The specific methodology and impact criteria used in this assessment is detailed below.

Dust Assessment

5.7 The Institute of Air Quality Management (IAQM) published the 'Guidance on the assessment of dust from demolition and construction' in February 2014 which provides guidance on how to assess and mitigate the impacts of dust emissions from demolition and construction sites. This document was updated in June 2016 (Version 1.1) and supersedes the 2012 IAQM guidance on the assessment of the impacts of construction on air quality and the determination of their significance. This approach is broadly replicated within the Greater London Authority (GLA) construction dust document (2014) and provides detail for a clear and concise construction dust assessment.

5.8 The potential impacts associated with construction activities will be assessed in accordance with the IAQM Guidance. IAQM Guidance provides a five-step assessment procedure to assess the potential impacts of construction dust pre-mitigation, provide mitigation measures specific to the risk and assess the post-mitigation impacts.

5.9 It recommends that the assessment procedure follows the following framework:

- Screen the requirement for a more detailed assessment;
- Assess the risk of dust impacts of the four phases of construction (demolition, earthworks, construction and trackout), taking into account:
    - the scale and nature of the works, which determines the potential Dust Emission Magnitude; and
    - the sensitivity of the area.

- Determine the site-specific mitigation for the potential activities;
- Examine the residual effects and determine whether or not these are significant; and
- Prepare the Construction Dust Assessment.

5.10 In the process of screening the need for a detailed assessment, the following criteria is used:

"An assessment will normally be required where there is:

- a 'human receptor' within:
  - 350m of the boundary of the site; or
  - *50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).*
- *an 'ecological receptor' within:*
  - *50m of the boundary of the site; or*
  - *50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s)."*

5.11 When defining the sensitivity of an area/receptor, the factors within **Table 5.2** below are used.

Area Sensitivity	Human Receptors	Ecolgoical Receptors
High	People would be present continuously, 10-100 dwellings within 20m of the site, exposed over a time period relevant to the air quality objective for PM_{10}, very sensitive receptors (e.g. residential properties, hospitals, schools, care homes)	International or national designation, locations where there is a community of a particularly dust sensitive species (e.g. Special Area of Conservation SAC)
Medium	People would not be expected to be present here continously for extended periods, locations where people exposed are workers and exposure is over a time period relevant to the air quality objective for PM_{10}, 1-10 dwellings within 20m of the site, medium sensitive receptors (e.g. parks, place of work- office and shop workers)	Locations where there is particularly important plant species, national designation where the features may be affected by dust deposition (e.g. Sites of Special Scientific Interest SSSI
Low	People would be expeceted to be present only for limited periods, human exposure is transient,	Locations with a local designation where the features may be affected by dust deposition (e.g. Local Nature Reserve)

Table 5.2: IAQM Factors for Defining the Sensitivity of an Area

Building Emissions

5.12 Any emissions associated with the proposed energy strategy have been assessed in line with the recommendations provided within the Energy Statement prepared by Hodkinson.

Transport Emissions.

5.13 The EPUK & IAQM Guidance – 'Planning For Air Quality' has been used to assess potential traffic impacts associated with the development.

5.14 **Table 5.3** below provides the criteria used for screening the need for an Air Quality Assessment.

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

Table 5.3: Indicative Criteria for Requiring an Air Quality Assessment

5.15 If any of the above criteria are met, then the significance of air pollution impacts must be assessed. This may either be a Simple or a Detailed Assessment. In accordance with the EPUK & IAQM Guidance, a Simple Assessment is one relying on already published information and without quantification of impacts, in contrast to a Detailed Assessment that must be completed with the aid of a dispersion model.

Air Quality Neutral Assessment

5.16 London's air quality problems are primarily a result of a very large number of sources each contributing a small amount. In light of these issues, both the London Plan and the 2018 London Environment Strategy make reference to new developments being "air quality neutral".

5.17 The Air Quality Neutral Planning Support Update: GLA 80371 (Air Quality Consultants and Environ, 2014) and Mayor of London's Sustainable Design and Construction – Supplementary Planning Guidance (SPG) (April 2014) set out the guidance on preparing air quality neutral assessments.

5.18 An air quality neutral assessment is considered required for the following developments:

- 10 or more residential dwellings (or where the area is not given, an area of more than 0.5 ha); or
- For all other uses, where the floor space is 1,000 sqm or more (or the site area is 1ha or more)

Impact Criteria

5.19 In the event that the initial screening indicates that there is a potential risk of impact, guidance is provided also by EPUK & IAQM on how to determine the magnitude and the significance of any changes in air pollutant concentrations and/or exposure as a result of a proposed development.

5.20 This process takes the following into account:

- the magnitude of the change (% change of annual mean concentration);
- the concentration relative to the Air Quality Strategy (AQS) objective (above or below the objective); and
- the direction of change (adverse or beneficial).

5.21 The magnitude of an impact should be described by using the criteria set out in **Table 5.4** below. The criteria are based upon the change in pollutant concentration resulting from the proposed development as a percentage of the Air Quality Action Level (AQAL) which in this case is NO_2 and PM_{10} annual mean objective levels of 40 µg/m^3.

Change Magnitude	NO_2/PM_{10} Annual Mean	No Days PM_{10}> µg/m^3
Large	Increase/decrease >10% (>4 µg/m^3)	Increase/decrease >4 days
Medium	Increase/decrease 6-10% (2.4-4 µg/m^3)	Increase/decrease 2-4 days
Small	Increase/decrease 2-5% (0.8-2 µg/m^3)	Increase/decrease 1-2 days
Imperceptible	Increase/decrease <1% (<0.4 µg/m^3)	Increase/decrease <1 day

Table 5.4: Impact Magnitude for Changes in NO_2 and PM_{10} Concentrations

5.22 The significance of the impact will be dependent upon the magnitude of change in relation to the relevant AQAL. This is set out in **Table 5.5** below.

Long term average Concentration at receptor in assessment year.	% Change in concentration relative to Air Quality Action Level (AQAL)*			
	1	2-5	6-10	>10
75% of less of AQAL (<30 µg/m^3)	Negligible	Negligible	Slight	Moderate
76 – 94% of AQAL (30-38 µg/m^3)	Negligible	Slight	Moderate	Moderate
95 – 102% of AQAL (38-41 µg/m^3)	Slight	Moderate	Moderate	Substantial
103 – 109% of AQAL (41 - 44 µg/m^3)	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL (>44 µg/m^3)	Moderate	Substantial	Substantial	Substantial

*Air Quality Action Level – in this case the objective levels.

Table 5.5: Impact Descriptors for Individual Receptors

5.23 Therefore, once the magnitude and the significance of the change has been established, the impact at each relevant receptor can be described. The impact magnitude at each receptor location can be described using the changes stated above as being of Imperceptible, Small, Medium or Large magnitude, or Negligible, Slight Moderate or Substantial significance and also as being either Temporary or Permanent.

5.24 The overall significance should be described separately for both the impact of emissions related to the proposed development on existing receptors, and for the impacts of emissions from existing source(s) on new exposure being introduced from the proposed development. This is discussed below.

Exposure Criteria

5.25 The London Councils Air Quality and Planning Guidance takes into account the now superseded Planning Policy Statement 23: Planning and Pollution Control and is aimed at developers, their consultants and local authorities in order to ensure consistency in the approach to dealing with Air Quality and planning in London.

5.26 When determining both the significance of exposure to air pollution and the levels of mitigation required, consideration should be given to the Air Pollution Exposure Criteria (APEC). The APEC criteria is set out in **Table 5.6** below.

	Applicable Range Nitrogen Dioxide Annual Mean	Applicable Range PM_{10}	Recommendation
APEC – A	> 5% below national objective	**Annual Mean:** > 5% below national objective **24 hr:** > 1-day less than national objective	No air quality grounds for refusal; however, mitigation of any emissions should be considered.
APEC – B	Between 5% below or above national objective	**Annual Mean:** Between 5% above or below national objective **24 hr:** Between 1-day above or below national objective.	May not be sufficient air quality grounds for refusal, however appropriate mitigation must be considered e.g., Maximise distance from pollutant source, proven ventilation systems, parking considerations, winter gardens, internal layout considered, and internal pollutant emissions minimised.
APEC – C	> 5% above national objective	**Annual Mean:** > 5% above national objective **24 hr:** > 1-day more than national objective.	Refusal on air quality grounds should be anticipated, unless the Local Authority has a specific policy enabling such land use and ensure best endeavours to reduce exposure are incorporated. Worker exposure in commercial/industrial land uses should be considered further. Mitigation measures must be presented with air quality assessment, detailing anticipated outcomes of mitigation measures.

Table 5.6 Air Pollution Exposure Criteria

5.27 It should be noted that air quality is not well suited to the rigid application of a generic significance matrix to determine the overall significance of a development and individual receptor sensitivity should also be taken into account. Therefore, professional judgement should be employed throughout, and the assessment should take into account any site-specific considerations.

5.28 Both the impact and exposure criteria will be applied to the findings of this assessment, where required.

6 Baseline Site Conditions

Local Air Quality Management

6.1 The proposed development site falls within the jurisdiction of the London Borough of Lambeth (LBL).

6.2 Under the Air Quality Strategy, there is a duty on all Local Authorities to consider the air quality within their boundaries and prepare an annual update report.

6.3 A review of the Air Quality Assessments undertaken by LBL has indicated that the Borough has declared one Air Quality Management Area (AQMA) which encompasses the whole Borough. The AQMA was declared in 2007 as a result of exceedances of the annual and 24-hour mean objectives for Particulate Matter (PM_{10}) and the 1-hour and annual mean objectives for Nitrogen Dioxide (NO_2).

Background

6.4 The Defra mapping tool (reference year 2018) has been used to establish the pollutant background concentrations. Due to the site falling between two 1km grid squares (X:531500; Y:180500 and X:531500; Y:179500) an average of both has been calculated and used.

6.5 The NOx, NO_2, PM_{10} and $PM_{2.5}$ background concentrations for 2019 are provided in **Table 6.1** below.

Pollutant	2019 (µg/m^3)
NOx	61.23
NO_2	36.05
PM_{10}	19.66
$PM_{2.5}$	12.68

Table 6.1: Defra Annual Background Concentrations for 2019

Local Monitoring

6.6 In August 2020, LBL published their latest Air Quality Annual Status Report which provides monitoring data for 2019.

Automatic Monitoring

6.7 LBL operated three automatic monitoring stations in 2019. The site location in relation to all three automatic monitors is illustrated in **Figure 6.1** below.

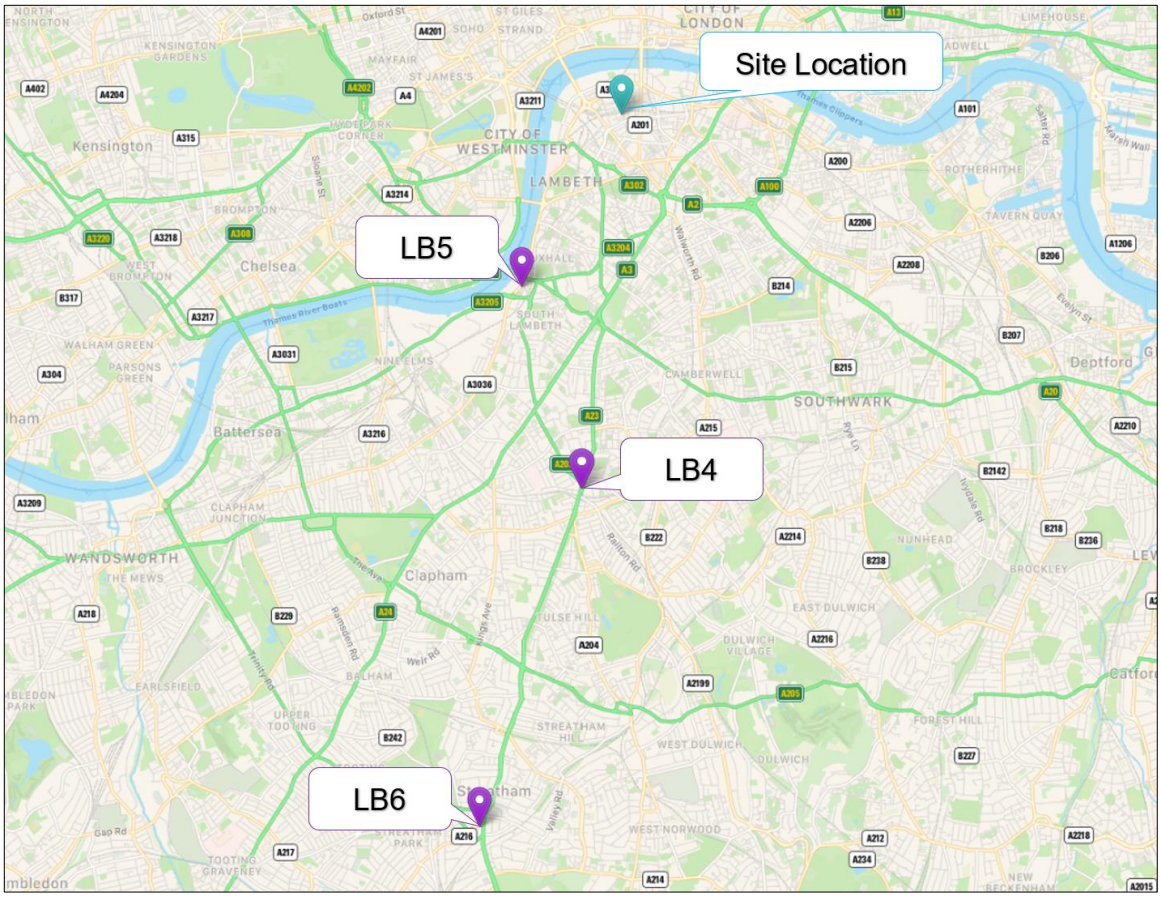

Figure 6.1: Site Location in Relation to all Automatic Monitoring Locations

6.8 The latest results for all automatic monitors are provided within **Table 6.2** below.

ID	Site Name	Coordinates (X;Y)	Site Type	2019 Annual Mean Concentration (µg/m^3)		
				NO_2	PM_{10}	$PM_{2.5}$
LB4	Brixton Road	531070; 175593	Kerbside	**60.1 (75)**	25	-
LB5	Vauxhall Bondway Interchange	530317; 177952	Industrial	**45.6 (48)**	38	-
LB6	Streatham Green	529971; 171570	Background	31.8 (32)	19	-

Table 6.2: Latest Annual Mean Concentrations for all Automatic Monitoring Locations

Non-Automatic Monitoring

6.9 Additionally, LBL also undertakes non-automatic monitoring of NO_2, at various locations within the Borough, using diffusion tubes. The closest non-automatic monitoring locations in relation to the development site are illustrated in **Figure 6.2** below.

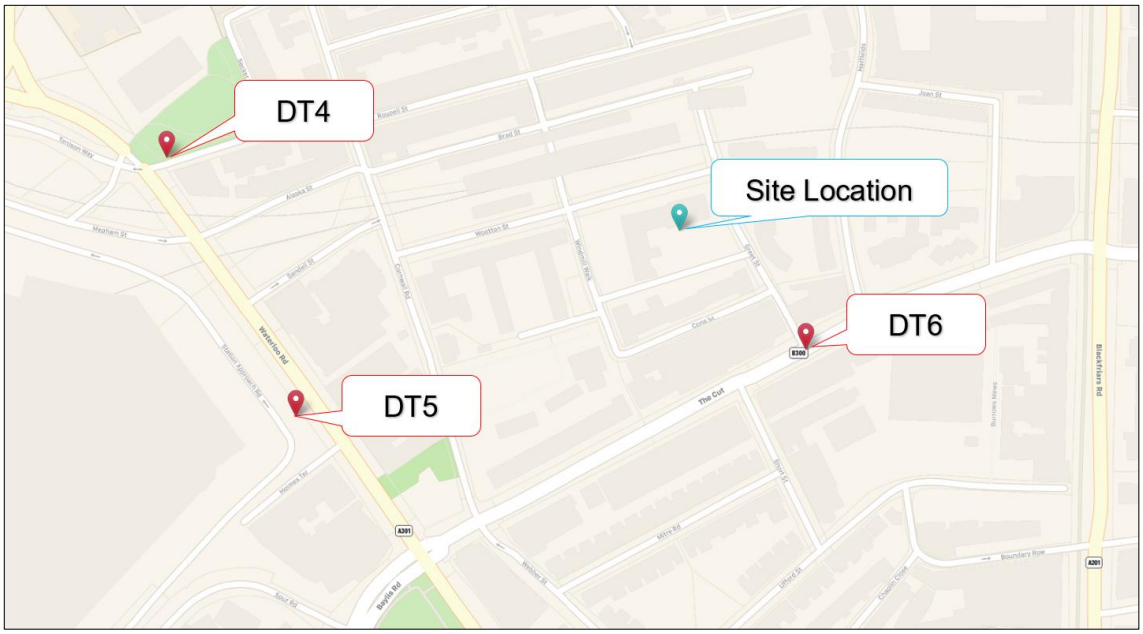

Figure 6.2: Site Location in Relation to the Closest Non-Automatic Monitoring Locations

6.10 The latest results for the closest non-automatic monitoring locations are provided within **Table 6.3** below.

ID	Site Name	Coordinates (X;Y)	Site Type	NO_2 Annual Mean Concentration ($\mu g/m^3$)
				2019
DT4	Waterloo Rd / Exton Street	531139; 180048	Roadside	36.39
DT5	Waterloo Rd / Holmes Terrace	531214; 180048	Roadside	**50.33**
DT6	98 The Cut	531494; 179951	Roadside	39.43

Table 6.3: Annual NO_2 Concentrations for the Closest Non-Automatic Monitoring Locations

6.11 **Table 6.3** above demonstrates that the majority of the closest non-automatic monitoring locations are below the annual mean objective for NO_2, with the exception of DT5. However, DT5 is located on the kerb of A301 Waterloo Road, with the Station Approach Road (Cab Road) to its west, just outside Waterloo Station. This location experiences a huge amount of queuing and idling traffic throughout the day and night. As such, this location is not considered representative of the pollution concentrations anticipated to be experienced at the proposed development site and has been excluded from the site suitability analysis.

6.12 Based on data from the closest and most representative monitoring locations to the proposed development site, it is anticipated that the site is likely to fall between APEC A and B for site suitability.

6.13 Therefore, in accordance with the exposure criteria set out in **Table 5.6**, APEC-A and B state the following:

APEC A: *"No air quality grounds for refusal; however, mitigation of any emissions should be considered"*

APEC B: "*May not be sufficient air quality grounds for refusal, however appropriate mitigation must be considered e.g., Maximise distance from pollutant source, proven ventilation systems, parking considerations, winter gardens, internal layout considered, and internal pollutant emissions minimised."*

6.14 Suitable mitigation measures have been considered within **Section 8** of this AQA.

7 Evaluation of Potential Effects

Construction

Construction Dust

7.1 During the construction phases, there is the potential for emissions of dust to cause annoyance, nuisance and health effects to sensitive receptors, both human and ecological if located close to the site.

7.2 The construction activities associated with the proposed development can be separated into four stages:

- Demolition;
- Earthworks;
- Construction; and
- Trackout.

7.3 There are a number of human receptors within 350m of the site boundary therefore a dust assessment has been undertaken in order to evaluate and minimise potential dust effects during the aforementioned four stages.

7.4 The construction dust assessment is included in **Appendix A.**

Construction Traffic and Plant

7.5 Throughout the construction period, there will be a number of construction vehicles, stationary plant and vehicles used by the construction workforce. These may potentially present an additional source of air pollutants in the vicinity of the proposed development site.

7.6 Any likely pollutant impacts should be addressed through Best Available Techniques (BAT) mitigation measures. Likely BAT are provided in **Section 8**.

Completed Development

Development Traffic

7.7 The Transport Assessment undertaken for the same application by Mayer Brown Limited has provided a comparison between the traffic generated by the existing site use and the proposed development, which confirmed the net traffic impact associated with the proposed development.

7.8 This is included in **Table 7.1** below.

	Morning Peak			Evening Peak			Daily		
	In	Out	Total	In	Out	Total	In	Out	Total
Existing	9	7	17	8	9	17	42	42	84
Proposed	11	11	22	10	10	20	60	60	120
Net Impact	**2**	**4**	**5**	**2**	**1**	**3**	**18**	**18**	**36**

Table 7.1: Trip Generation

7.9 **Table 7.1** above demonstrates that the daily vehicle trips for the proposed development are unlikely to result in a significant detrimental pollution impact upon the local road network and the current pollution levels.

7.10 Additionally, this level of traffic impact does not meet EPUK & IAQM criteria, in **Table 5.3,** for requiring further or detailed assessment. Therefore, it has not been considered necessary to quantify traffic related air quality impacts as a result of the operation of the proposed development.

Building Emissions

7.11 The associated energy and sustainability assessment prepared for the proposed development by Hodkinson recommends the use of Air Source Heat Pumps (ASHPs) to provide both water and space heating for the site.

7.12 ASHPs being electric, are not directly associated with any NOx or Particulate emissions and therefore meet the London's Sustainable Design and Construction – Supplementary Planning Guidance and the EPUK & IAQM criteria. Therefore, no further assessment of building emissions is considered required.

7.13 Compliance with relevant regulations and standards, at this stage, should be secured through planning conditions, where necessary.

Air Quality Neutral

7.14 An Air Quality Neutral Assessment has been undertaken in accordance with the Air Quality Neutral Planning Support Update: GLA 80371 (Air Quality Consultants and Environ, 2014). This is included in **Appendix B**.

8 Mitigation Measures

Construction Dust

8.1 A construction dust assessment has been completed for the proposed development in accordance with IAQM and GLA guidance and is presented in **Appendix A**. Within the assessment, site specific mitigation measures have been identified which ensure compliance with relevant standards.

8.2 The role of air quality monitoring within the package of mitigation measures that is proposed has also been considered since monitoring proposals are frequently incorporated into planning conditions.

8.3 The mitigation measures outlined below, should make up part of a Construction Environmental Management Plan (CEMP) that should be implemented to minimise the potential adverse construction dust impacts throughout all the relevant construction stages.

Demolition:

- Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust);
- Wherever reasonably practicable, retain walls and windows while the rest of the building is demolished to provide a screen against dust;
- Bag and remove any biological debris or damp down such material before demolition; and
- Ensure effective water suppression is used during demolition operations, handheld sprays are more effective than hoses attached to equipment as the water can be directed to where it is required.

Earthworks:

- Avoid scabbling (roughening of concrete surfaces) if possible;
- Avoid carrying out any earthworks during dry weather if reasonably practicable having regard to programme and contracting arrangements for the relevant works or provide and ensure appropriate use of water to control dust; and
- Re-vegetate any earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.

Construction:

- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out unless required for a particular process;

- Mix large quantities of cement, grouts and other similar materials in enclosed areas remote from site boundaries and potential receptors;
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery; and
- For small supplies of fine powder ensure bags are sealed after use and are stored appropriately to prevent dust.

Trackout:

- Ensure any vehicles arriving and leaving site are securely covered to prevent escape of materials during transport;
- Routinely clean public roads and any access routes using wet sweeping methods; and
- Avoid dry sweeping.

General Mitigation Measures:

- Ensure regular cleaning of hardstanding surfaces using wet sweeping methods;
- Display the head or regional office contact information, and the name and contact details of person(s) accountable for air quality on the site boundary;
- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site;
- Log all air quality complaints, identify the cause(s), take appropriate measures to reduce emissions in a timely manner and record all measures taken. Make the complaints log available to the Local Authority when requested;
- Carry out regular on-site and off-site inspections to monitor dust soiling effects, with cleaning to be provided if necessary. Increase the frequency of inspections when activities with a high potential to produce dust are being carried out;
- Erect barriers around the site, any dusty activities and stockpiles (the last of which should be covered);
- Screen areas of the building, where dust producing activities are taking place, with debris screens or sheeting;
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period;
- Remove materials that have a potential to produce dust as soon as possible, unless they are being re-used. If they are to be re-used, on site covers should be used;
- Ensure all vehicles switch off engines when stationary, so that there are no idling vehicles;

- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine sprays on such equipment wherever possible;
- Avoid bonfires and the burning of waste materials; and
- Special provisions will apply for any materials containing asbestos. The safety method statement should outline the control measures necessary to minimise the risks to an acceptable level and all statutory notices will be placed with the Health and Safety Executive (HSE).

8.4 It is important that attention is paid to any construction activity that takes place in close proximity to the site boundary, potentially at the closest location to sensitive receptors.

Dust Monitoring:

8.5 The dust monitoring requirements are usually split in three categories as follows:

- **Negligible/Low risk** category sites- should not normally be necessary to undertake any quantitative air quality monitoring, although in some circumstances it may be applicable to undertake occasional surveys in the vicinity of the site boundary at least once on each working day.
- **Medium risk** category sites- should normally be adequate to undertake surveys of dust flux over the site boundary, and/or dust deposition/soiling rates around the site at nearby receptors, although this may have resource implications, and an approach based on continuous particulate matter monitoring may be preferred.
- **High risk** category sites- normally be necessary to supplement the monitoring for medium risk sites with monitoring of ambient PM concentrations. It is recommended that priority be assigned to the measurement of PM_{10}, as emissions of dust from construction sites are predominantly in the coarser fractions.

8.6 The proposed development site has been classified as having a **low to medium risk** of dust soiling.

8.7 Therefore, dust monitoring, as specified above, should be undertaken during the relevant stages of construction to ensure that:

- The construction activities do not give rise to any exceedances of the air quality objectives for PM_{10} or $PM_{2.5}$;
- The agreed mitigation measures to control dust emissions are being applied and are effective and
- Any high levels of dust is attributed to specific activities on site to ensure that appropriate corrective measures take place.

8.8 The implementation of the specific mitigation measures given above within the CEMP will ensure that any potential adverse impacts from construction dust during all construction stages are avoided. It is noted by the IAQM that, through the use of effective mitigation, the effects of dust from construction activity will normally not be considered significant.

8.9 Compliance should be secured through planning conditions, where necessary.

Construction Traffic and Plant

8.10 As previously stated, there is potential for air pollutant impacts to arise from construction plant and vehicles associated with the scheme. The following BAT should still be implemented during the construction phase.

- All vehicles should switch off engines when stationary, no idling vehicles;
- On-road vehicles to comply with the requirements of the Low Emission Zone and the London Non-Road Mobile Machinery (NRMM) standards, where applicable;
- All NRMM to use ultra-low sulphur diesel (ULSD) where available;
- Minimise the movement of construction traffic around the site;
- Maximising efficiency (this may include alternative modes of transport, maximising vehicle utilisation by ensuring full loading and efficient routing);
- Vehicles should be well maintained and kept in a high standard of working order;
- Avoid the use of diesel or petrol powered generators by using mains electricity or battery powered equipment where possible; and
- Locate plant away from boundaries close to residential areas.

Operational

Traffic Emissions

8.11 The AQA has demonstrated that the predicted net traffic is unlikely to result in a detrimental pollution impact upon the local road network and the current pollution levels. Therefore, it is not anticipated that mitigation measures will be required.

Building Emissions

8.12 The associated energy statement prepared for the proposed development by Hodkinson Consultants has indicated that the development is to be fitted with Air Source Heat Pumps (ASHP's) to provide both water and space heating for the site.

8.13 The recommended system is electric and as such not directly associated with any NOx or Particulate emissions. Therefore, no mitigation measures are considered required.

8.14 Compliance with relevant regulations and standards should be secured through planning conditions, where necessary.

Air Quality Neutral Assessment

8.15 The Air Quality Neutral Assessment undertaken **(Appendix B)** predicts that the Total Transport Emissions associated with the proposed development are expected to be slightly higher than the Existing Transport Emissions.

8.16 Usually, under these conditions, some mitigation/offsetting measures, either on site, or off site in the vicinity of the development, would be required.

8.17 However, the proposed development is largely car free aside from disabled access bays. As such, the majority of the 'additional' trips are likely to arise from the disabled car parking provision. This is a standard requirement within the London Plan and unable to be eliminated from the proposals.

8.18 Additionally, the development has been designed to encourage uptake in sustainable modes of travel including pedestrian / cycle-based journeys and use of public transport.

8.19 Therefore, it is not anticipated that mitigation measures would be required.

Site Suitability

8.20 The closest, most representative monitored levels for NO_2 demonstrate that the site is likely to fall between APEC A and APEC B for site suitability. Therefore, mitigation measures are likely to be required in order to safeguard health and wellbeing of proposed residents.

8.21 In order to provide the future residents with suitable indoor air quality, the installation of a MVHR system should be considered in order to ensure that suitable ventilation is provided to all dwellings without the need to open window.

8.22 Any ventilation system (including any air conditioning unit) should be fitted with appropriate NOx filters and draw air in from a suitable location, away from pollution sources, ideally at roof level where pollutant concentrations are reduced.

8.23 The location of the air inlet should be carefully considered to ensure suitable location away from any potential sources of pollution (i.e. roads, boiler flues/exhausts). The location of the air inlet(s) should be agreed with LBL prior to construction commencing (secured by condition) and be fully accessible for regular cleaning and maintenance.

8.24 Also, a key factor for reducing exposure is to inform future residents of the potential impacts associated with prolonged exposure to elevated pollution levels. As such, it might be considered beneficial to provide future residents with a welcome pack containing air quality information which will allow them to follow appropriate advice on the protection against high concentration levels during peak periods.

8.25 Examples of free services which provide up to date information on the current air quality levels for residents in London are set out in **Table 8.1**.

Service	Website	Service Provided
Defra	www.twitter.com/defraukair	Official, automated feed for UK Air Quality from Defra. Latest info on Pollution, Forecasts & Health Advice.
airText	www.airtext.info	Free text message service providing air quality alerts for Greater London.
London Air	www.londonair.org.uk	Free downloadable air quality app providing real time air quality index across London, in addition LAQM data for London Boroughs is available.

Table 8.1: London Air Quality Information Services

9 Residual Effects and Conclusions

9.1 The London Borough Lambeth (LBL) have declared one Air Quality Management Area (AQMA) which encompasses the entire Borough. The AQMA was declared as a result of exceedances of the annual and 24-hour mean objective levels for Particulate Matter (PM_{10}) and the 1-hour and annual mean objective levels for Nitrogen Dioxide (NO_2).

9.2 A review of all the monitoring sites within the Borough has been undertaken. Based on the closest most representative monitoring locations and in accordance with the exposure criteria in **Table 5.6**, the proposed redevelopment site is likely to fall between APEC A and APEC B for site suitability.

9.3 Therefore, in order to ensure appropriate indoor air quality within the proposed residential units, it is recommended that a suitable ventilation system should be incorporated within the proposed development to provide adequate indoor air quality conditions, reducing the need for opening windows. Compliance with relevant requirements should be secured through appropriate planning conditions, where necessary.

9.4 A construction dust assessment has been undertaken for the four stages of construction activities associated with the proposed development in accordance with GLA and IAQM guidance on the assessment of dust from demolition and construction (**Appendix A**).

9.5 Mitigation measures have been proposed for construction traffic and stationary plant associated with the proposed development.

9.6 Following the successful implementation of the specific mitigation measures, the residual effects of construction dust and emissions from construction plant/vehicles upon the local area and sensitive receptors although adverse, will be temporary and considered to be ‘not significant’.

9.7 The Air Quality Neutral Assessment undertaken (**Appendix B)** predicts that the Total Transport Emissions associated with the proposed developments are expected to be slightly higher than the Existing Transport Emissions. However, the proposed developments are car free and the majority of the ‘additional’ trips are likely to arise from the disabled car parking provision, which is a standard requirement within the London Plan and unable to be eliminated from the proposals.

9.8 The Associated Energy Strategy prepared for the proposed development recommends the use of Air Source Heat Pumps to provide both water and space heating for the site.

9.9 Heat pumps being electric, are not directly associated with any NO_x or Particulate emissions.

9.10 Therefore, both building and transport emissions are considered to be compliant with the London's Sustainable Design and Construction – Supplementary Planning Guidance.

9.11 Compliance to relevant regulations and standards should be secured through planning conditions, where necessary.

Conclusion

9.12 At this stage, based on the information available, the proposed development is very unlikely to raise any significant adverse impacts upon the health and/or quality of life of any existing neighbours, as a result of any anticipated changes to air quality.

9.13 It is therefore concluded that the proposed development is likely to comply fully with air quality related national, regional and local planning policy and any mitigation can, if considered necessary, be enforced by means of appropriate planning conditions, consistent with paragraph 54 and 55 of the National Planning Policy Framework and the recommendations within the GLA's Sustainable Design and Construction SPD.

Appendix A:
Construction Dust Assessment

CONSTRUCTION DUST ASSESSMENT

A.1 The construction dust assessment has been completed in accordance with 2014 IAQM guidance and the GLA and follows the procedures as outlined in Section 5 of this report.

Screen the Need for a Detailed Assessment

A.2 The following screening criterion has been applied to the assessment: An assessment will normally be required where there is:

- a 'human receptor' within:
  - 350m of the boundary of the site; or
  - 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).
- an 'ecological receptor' within:
  - 50m of the boundary of the site; or
  - 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).

A.3 There are a number of human receptors within 350m of the site boundary. Therefore, a dust assessment is required due to the proposed development location meeting some of the above criteria.

Assess the Risk of Dust Impacts

A.4 The construction activities associated with the proposed development have been separated into four stages:

- Demolition
- Earthworks;
- Construction; and
- Trackout.

A.5 The assessment of the risk of dust impacts has been completed in two stages:

- Determine the potential dust emission magnitude; and
- Determine the sensitivity of the area to dust impacts.

A.6 The potential dust emission magnitude for all four of the construction stages have been determined to be either Small, Medium or Large according to the criteria presented in **Table A1** below.

Construction Activity	Dust Emission Magnitude Scale		
	Small	Medium	Large
Site Clearance/ Demolition	Total building volume <20,000m^3, construction material with low potential for dust release, demolition activities <10m above ground, works during wetter months.	Total building volume 20,000-50,000m^3, potentially dusty construction material, demolition activities 10-20m above ground level.	Total building volume >50,000m^3, potentially dusty material, on-site crushing and screening, activities >20m above ground level.
Earthworks	Total site area <2,500m^2, soil type with large grain size, <5 heavy earth moving vehicles active at one time, bunds <4m high, total material moved <20,000t, works during wetter months.	Total site area 2,500-10,000m^2, moderately dusty soil type, 5-10 heavy earth moving vehicles active at one time, bunds 4-8m high, total material moved 20,000-100,000t.	Total site area >10,000m^2, potentially dusty soil type, >10 heavy earth moving vehicles active at one time, bunds >8m high, total material moved >100,000t.
Construction	Total building volume <25,000m^3, construction material with low potential for dust release.	Total building volume 25,000-100,000m^3, potentially dusty construction material, on site concrete batching.	Total building volume >100,000m^3, on site concrete batching, sandblasting.
Trackout	<10 HDV* outwards movements in any one day, surface material with low potential for dust release, unpaved road length <50m.	10-50 HDV outward movements in any one day, moderately dusty surface material, unpaved road length 50-100m.	>50 HDV outward movements in any one day, potentially dusty surface material, unpaved road length >100m.
* HDV – Heavy Duty Vehicle (>3.5t), Note – In each case, not all the criteria need to be met, and that other criteria may be used if justified.			

Table A1: Dust Emission Magnitude Criteria

A.7 The completed assessment of Dust Emission Magnitude is shown in **Table A2** below.

Construction Activity	Dust Emission Magnitude	Justification
Demolition	Small	Total building volume <20,000m^3
Earthworks	Small	Total site area <2,500m^2
Construction	Small	Estimated total building volume <25,000m^3,
Trackout	Small	Estimated <10 HDV* outwards movements in any one day,

Table A2: Dust Emission Magnitude Assessment

A.8 Due to the scale of the proposed development the magnitude of dust emissions has been assessed as small.

A.9 The sensitivity of the area has been assessed in relation to a number of factors such as; the specific sensitivities of receptors in the area, the proximity and number of those receptors and in the case of PM_{10}, the local background concentration and by following the significance criteria in **Tables A3, A4 and A5** below.

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

Table A3: Sensitivity of the Area to Dust Soiling Effects of People and Property

Receptor Sensitivity	Annual Mean PM_{10} Concentration	Number of Receptors	Distance from the source (m)				
			<20	<50	<100	<200	<350
High	>32 µg m^{-3}	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32 µg m^{-3}	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28 µg m^{-3}	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24 µg m^{-3}	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>32 µg m^{-3}	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	28-32 µg m^{-3}	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	24-28 µg m^{-3}	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<24 µg m^{-3}	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

Table A4: Sensitivity of the Area to Human Health Impacts

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

Table A5: Sensitivity of the Area to Ecological Impacts

A.10 In addition to **Tables A3, A4 and A5** any site-specific factors have been taken into account when defining the sensitivity of the area:

- any history of dust generating activities in the area;
- the likelihood of concurrent dust generating activity on nearby sites;
- any pre-existing screening between the source and the receptors; and
- the duration of the potential impact, as a receptor may become more sensitive over time.

A.11 The sensitivity of the area assessment has been completed based on the following:

- Approximately >100 'high' sensitive receptors within 20m of the site;
- Low PM_{10} background but located in close proximity to 'high' receptors; and
- No 'high' sensitive receptors in relation to ecology within 50m of the site

A.12 The completed assessment of Sensitivity of the Area in **Table A.6** below.

Receptor Sensitivity	Sensitivity of the Surrounding Area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	High	High	High	High
Human Health	Medium	Medium	Medium	Medium
Ecological	Low	Low	Low	Low

Table A6: Sensitivity of the Surrounding Area Assessment

A.13 The completed pre-mitigation impact risk assessment incorporating the sensitivity of the area (**Table A6**) and the dust emissions magnitude (**Table A2**) for the four construction activities is shown in **Table A7** below.

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

Table A7: Summary of Dust Risk (pre-mitigation)

A.14 As a result, the pre-mitigation risk of dust soiling has been assessed low to medium. The human health risk was considered low and the ecological risk has been assessed as negligible.

Site-specific Mitigation

A.15 From the identification of the risk of impacts with no mitigation applied in **Table A7**, it is possible to determine the specific mitigation measures that can be applied in relation to the level of risk associated with the construction activity.

A.16 Additionally, the role of air quality monitoring within the package of mitigation measures that is proposed needs to be considered since monitoring proposals are frequently incorporated into planning conditions.

A.17 The mitigation measures described below are suggested as measures that should be included in a site-specific Construction Environmental Management Plan (CEMP).

Demolition:

- Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust);
- Wherever reasonably practicable, retain walls and windows while the rest of the building is demolished to provide a screen against dust;
- Bag and remove any biological debris or damp down such material before demolition; and
- Ensure effective water suppression is used during demolition operations, handheld sprays are more effective than hoses attached to equipment as the water can be directed to where it is required.

Earthworks:

- Avoid scabbling (roughening of concrete surfaces) if possible;
- Avoid carrying out any earthworks during dry weather if reasonably practicable having regard to programme and contracting arrangements for the relevant works or provide and ensure appropriate use of water to control dust.

Construction:

- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out unless required for a particular process;
- Mix large quantities of cement, grouts and other similar materials in enclosed areas remote from site boundaries and potential receptors;
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery; and
- For small supplies of fine powder ensure bags are sealed after use and are stored appropriately to prevent dust.

Trackout:

- Ensure any vehicles arriving and leaving site are securely covered to prevent escape of materials during transport;
- Routinely clean public roads and any access routes using wet sweeping methods; and
- Avoid dry sweeping.

General Mitigation Measures:

- Ensure regular cleaning of hardstanding surfaces using wet sweeping methods;
- Display the head or regional office contact information, and the name and contact details of person(s) accountable for air quality on the site boundary;
- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site;
- Log all air quality complaints, identify the cause(s), take appropriate measures to reduce emissions in a timely manner and record all measures taken. Make the complaints log available to the Local Authority when requested;
- Carry out regular on-site and off-site inspections to monitor dust soiling effects, with cleaning to be provided if necessary. Increase the frequency of inspections when activities with a high potential to produce dust are being carried out;
- Erect barriers around the site, any dusty activities and stockpiles (the last of which should be covered);
- Screen areas of the building, where dust producing activities are taking place, with debris screens or sheeting;
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period;
- Remove materials that have a potential to produce dust as soon as possible, unless they are being re-used. If they are to be re-used, on site covers should be used;
- Ensure all vehicles switch off engines when stationary, so that there are no idling vehicles;
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine sprays on such equipment wherever possible;
- Avoid bonfires and the burning of waste materials; and

- Special provisions will apply for any materials containing asbestos. The safety method statement should outline the control measures necessary to minimise the risks to an acceptable level and all statutory notices will be placed with the Health and Safety Executive (HSE).

A.18 It is important that attention is paid to any construction activity that takes place in close proximity to the site boundary, potentially at the closest location to sensitive receptors.

Dust Monitoring:

A.19 The dust monitoring requirements are usually split into three categories as follows:

- **Negligible/Low risk** category sites- should not normally be necessary to undertake any quantitative air quality monitoring, although in some circumstances it may be applicable to undertake occasional surveys in the vicinity of the site boundary at least once on each working day.
- **Medium risk** category sites- should normally be adequate to undertake surveys of dust flux over the site boundary, and/or dust deposition/soiling rates around the site at nearby receptors, although this may have resource implications, and an approach based on continuous particulate matter monitoring may be preferred.
- **High risk** category sites- normally be necessary to supplement the monitoring for medium risk sites with monitoring of ambient PM concentrations. It is recommended that priority be assigned to the measurement of PM10, as emissions of dust from construction sites are predominantly in the coarser fractions.

A.20 The proposed development site has been classified as having a low to medium risk of dust soiling.

A.21 Therefore, dust monitoring in accordance with the above criteria should ideally be undertaken during the relevant stages of construction to ensure that:

- The construction activities do not give rise to any exceedances of the air quality objectives for PM_{10} or $PM_{2.5}$.
- The agreed mitigation measures to control dust emissions are being applied and are effective.
- Any high levels of dust are attributed to specific activities on site to ensure that appropriate corrective measures take place.

A.22 The implementation of the specific mitigation measures given above within a CEMP will ensure that the potential adverse impacts from construction dust during all construction stages are avoided. It is noted by the IAQM that through the use of effective mitigation, the effects of dust from construction activity will normally be considered 'not significant'.

Determine Significant Effects

A.23 Prior to the implementation of any mitigation measures the highest significance of adverse effects was medium risk for dust soiling, low risk for human health and negligible risk for ecological, with dust emissions magnitude considered to be small.

A.24 The mitigation measures listed above have been chosen due to their suitability to the site and to reduce the risk of adverse effects from the four stages of construction.

A.25 Through the implementation of site-specific mitigation measures (listed above), which are designed to mitigate potential dust impacts, will ensure that potential significant adverse dust effects will not occur, and the residual effect will normally be 'not significant'. Appropriate mitigation measures should be secured by planning condition where necessary.

Conclusions of Construction Dust Assessment

A.26 The completion of the construction dust assessment has shown that the residual effect of the proposed development in the context of construction dust emissions will be 'not significant'. This conclusion has been made based on the small dust emissions magnitude related to the scale of development and the assumption that the suggested mitigation measures will be implemented (secured by planning condition) and is relevant for all sensitive receptors within 350m of the site.

A.27 It should be noted that even with a rigorous CEMP in place, it is not possible to guarantee that all mitigation measures will be effective at all times. If there is an interruption in the water supply used for dust suppression or adverse weather conditions are experienced that exacerbate dust emissions, the receptors may experience occasional, short term dust annoyance.

A.28 However, the likely scale of this would not normally be considered sufficient to change the conclusion of this assessment. It is therefore important to consider all mitigation measures and provide a frequent review and assessment procedure at each stage, to ensure that mitigation measures continue to provide the maximum attenuation level possible.

Appendix B:
Air Quality Neutral Assessment

AIR QUALITY NEUTRAL ASSESSMENT

B.1 The following air quality neutral assessment has been undertaken in accordance with the Air Quality Neutral Planning Support Update: GLA 80371 (Air Quality Consultants and Environ, 2014).

B.2 The Associated Energy Strategy prepared for the proposed development by Hodkinson has indicated that the development will be fitted with ASHPs. Heat pumps being electric, are not directly associated with any NOx or Particulate emissions.

B.3 Therefore, the proposed building emissions are in accordance with the minimum standards/requirements outlined within the London's Sustainable Design and Construction - Supplementary Planning Guidance.

B.4 The key element to be considered in this assessment is transport emissions associated with the operation of the proposed development.

Transport Emissions Calculations

B.5 The potential for transport neutrality will be calculated by comparing traffic emissions for the proposed development with those associated with the current use of the site.

B.6 The traffic attraction associated with the existing and proposed uses of the site, have been based upon the transport statement undertaken by Mayer Brown Limited for the same application. Details of the number of trips used are presented in **Table B1** below.

Development	Land Use	Daily Trip Attraction
Existing	Nursery	84
Proposed	Residential (C3)	36
	D1	84

Table B1: Predicted Daily Traffic Generation for the Site

B.7 Total Transport Emissions of NO_x and PM_{10} will be calculated for the existing and proposed development by multiplying the predicted traffic generation by the average distance travelled.

B.8 The average (arithmetic mean) journey lengths for residential, office and retail developments derived from the London Travel Demand Surveys (LTDS) are set out in **Table B2** below.

Land Use	Distance (Km)		
	CAZ	Inner	Outer
Retail (A1)	9.3	5.9	5.4
Office (B1)*	3.0	7.7	10.8
Residential (C3)*	4.3	3.7	11.4
*Based on the LTDS destination Note that these distances are based on a straight line between the origin and destination of a trip, not actual trip lengths			

Table B2: Average Distance Travelled by Car per Trip

B.9 As indicated in **Table B2** above, the average distance trip lengths for D1 is not available. Therefore, in the absence of this data, D1 has been assessed as Retail (A1).

B.10 Due to the location of the proposed development, the first column representing 'CAZ' will be used.

B.11 The predicted average distance travelled per year is presented in **Table B3** below.

Development	Land Use	Number of vehicle trips per year*	Average distance travelled per trip (km/trip)**	Distance Travelled (km/year)
Existing	Nursery ***	30,660	9.3	285,138
Proposed	Residential (C3)	13,140	4.3	56,502
	Class D1***	30,660	9.3	285,138
			Total:	**341,640**
Difference				**+56,502**
*based on Transport Statement predicted daily traffic generation times 365 days **based on the London Travel Demand Survey for Inner London as shown in the supporting guidance *** Assessed as A1.				

Table B3: Calculation of Total Average Distance Travelled Per Year

B.12 The Total Transport Emissions are then calculated by multiplying the total distance travelled by the relevant emission factor for NOx and PM_{10}.

B.13 The Total Transport Emissions are then compared in order to assess whether the proposed development results in any additional NOx or PM_{10} emissions when compared to the site's current use.

B.14 The results are presented in **Table B4** below.

Development	Total distance travelled per year (km)	Transport Emission Factor (g/Vehicle-km)	Total Transport Emissions (kg)
NOx			
Existing	285,138	0.4224	120.4
Proposed	341,640	0.4224	144.3
Difference			**+23.9**
PM_{10}			
Existing	285,138	0.0733	20.9
Proposed	341,640	0.0733	25.0
Difference			**+4.1**
*based on emission factors provided in Table 10 of GL A80371 air quality neutral planning support			

Table B4: Calculation of Total Transport Emissions

B.15 **Table B4** demonstrates that the predicted Total Transport Emissions associated with the proposed development is expected to be slightly higher than the Existing Transport Emissions.

B.16 However, the proposed development is car free and as such the majority of the 'additional' trips are likely to arise from the disabled car parking provision, which is a standard requirement within the London Plan and therefore unable to be eliminated from the proposals.