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Air Quality Impact Assessment

45-54 Saffron Hill and 3 Saffron Street, London

On behalf of

Saffron Hill Investment Holdings Limited

Document Number 14810-01 v1.03

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Report History

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1. Introduction

Saffron Hill Investment Holdings Ltd. commissioned Environmental Efficiency to produce an Air Quality Impact Assessment, to support the development planning application for the redevelopment of 45-54 Saffron Hill and 3 Saffron Street, London (thereafter referred to as "the Site") and to satisfy the requirements of the London Plan 2021 and the Camden Local Plan 2017.

Environmental Efficiency is a multidisciplinary environmental consultancy based in Ireland, operating throughout the UK and the EU. The company specialises in air quality impact assessments and has a significant amount of experience carrying air quality impact assessments for a wide range of developments. Environmental Efficiency also have a significant amount of experience in environmental and occupational air monitoring.

Felix Kaufmann is an Environmental Consultant with Environmental Efficiency who has over a year of experience. Felix has a BSc in City Planning and Environmental Policy and a MSc in Environmental Policy. Felix' experience includes environmental licensing, carbon footprint assessments, and air quality assessments.

"Demolition of existing car park and offices, and erection of a new building providing Class E Commercial floorspace and flexible Class E café/restaurant space, along with associated landscaping and works".

The site is located near the southern edge of Camden, London. It is bound by Saffron Street to the North, Saffron Hill to the West, St. Cross Street to the South and buildings to the East. Part of the site's western side is also bound by another building. The site currently consists of a six-storey car park and an office extension located on the 7th and 8th floor. An overview of the Site Location showing the proposed development is shown in Figure 1-1.

An air quality assessment (AQA) is required for all major developments that will generate elevated emissions and developments that will result in additional traffic generation. The entire Camden Borough is within an Air Quality Management Area (AQMA). Therefore, careful considerations have been given to the air quality impacts of the proposed development.

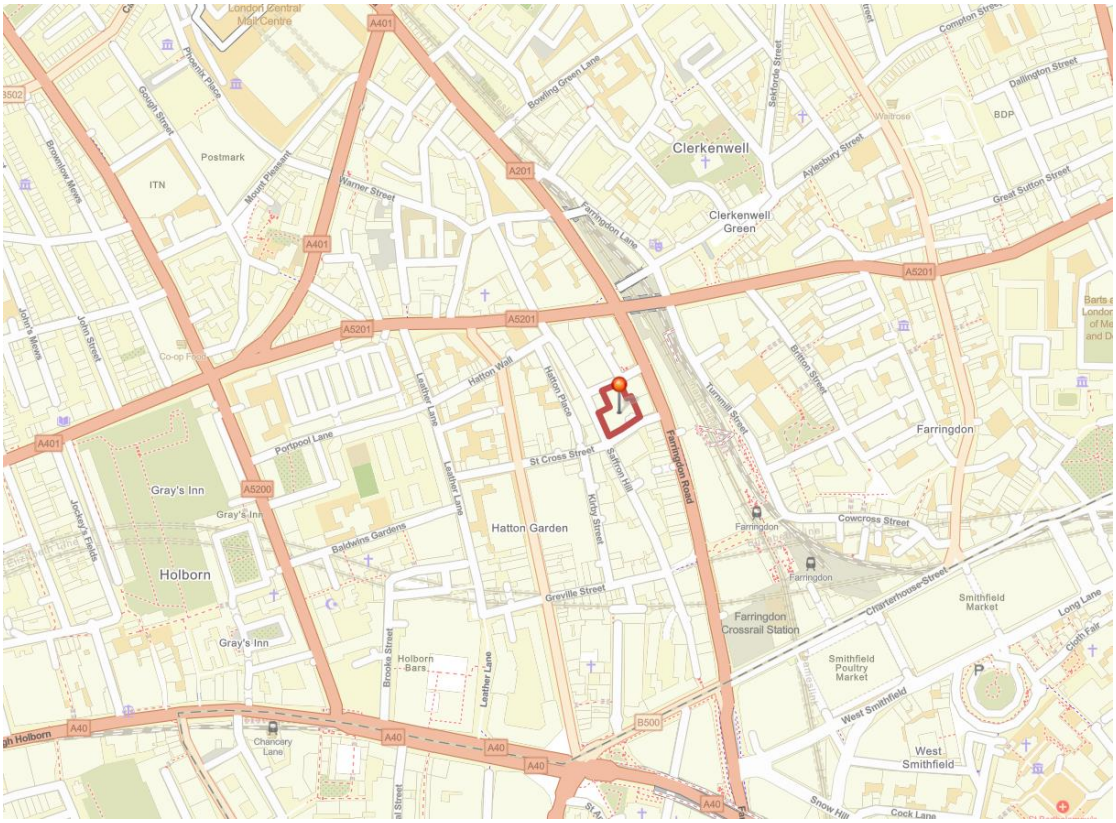


Figure 1-1 Site Overview Location

1.1 Potential Impacts

This assessment presents the findings of the AQIA for both the construction and operational phases. It details and characterises the baseline air environment in the proximity of the application site and assesses the impact the proposed development will have upon the receiving air environment. During the construction phase, activities on the site could give rise to dust, which, if transported beyond the site boundary, could have an adverse effect on local air quality. During the operational phase, emissions associated with traffic emissions have the potential to affect local pollution levels, both within and surrounding the site. For both phases, mitigation measures are identified where required, to eradicate and diminish any adverse impacts identified.

The AQIA considers the potential impact on future users of the Proposed Development as the site is located within an existing AQMA. Since very few developments are 'zero emission' developments, all appropriate measures to minimise emissions of air pollution at the design stage have been considered and have incorporated best practice in the design, construction, and operation of the development.

The Camden Council Standards, DEFRA, the London Air Quality Network (LAQN) and the London Atmospheric Emissions Inventory (LAEI), were reviewed to determine whether the existing air quality environment is unacceptable for the proposed development, or whether the development will have an unacceptable impact on the air quality. This AQIA also considers the potential impact on future users of the Proposed Development, as the site is located within an existing AQMA.

Sensitive receptors are areas where the occupants are more susceptible to the effects of exposure to adverse changes in air quality. The locations of nearby existing receptors were noted and a study of the proposed development design to determine the locations of new sensitive receptors was completed.

This assessment includes consideration of the potential impacts on local air quality resulting from:

- Dust and particulate matter generated by on-site activities during the construction phase.
- Increases in pollutant concentrations because of exhaust emissions arising from construction traffic and plant.
- Increases in pollutant concentrations cause by exhaust emissions arising from traffic generated by the development once operational.
- A detailed modelling of emissions will not be provided, given the size of the development.

2. Legislation and Relevant Air Quality Standards

The majority of air quality legislation in the UK originated from health-based studies presented by the World Health Organisation (WHO). The WHO has published numerous guidelines for global air quality backed up by the latest research from around the world. These guidelines are neither standards nor legally binding criteria; they offer guidance in decreasing the health impacts of air pollution based on specialist assessments of current scientific evidence. However, governments utilise these guidelines as the foundation for their own air quality standards and often the UK legislation is more rigorous than the WHO Air Quality guidelines.

2.1 EU Directive

The European Union (EU) has issued an Air Quality Directive (2008/50/EC – the "Air Quality Directive") that sets standards for a range of pollutants that are considered harmful to human health and the environment. These limit values comprise a concentration value for the pollutant, an averaging period over which it is measured, the date by which the limit values are to be achieved and, in some cases, an acceptable number of exceedances of the value per year.

As part of the European Green Deal, a revision to this Directive has been proposed last year. This revision would result in the standards and more importantly, the limit values set by the Directive, being aligned more closely with those of the World Health Organisation (WHO). This would lead for example, the annual limit value for fine particulate matter (PM2.5) to be reduced by more than half of what it currently is. This is revision is not in effect yet. However, it should be monitored closely.

2.2 UK Air Quality Strategy

The UK Government's policy on air quality is set out in the Air Quality Strategy (AQS) for England, Scotland, Wales, and Northern Ireland. The AQS sets out a framework for reducing hazards to health from air pollution. It also ensures that the EU and international agreements are met within the UK. However, on the 28th of April 2023, the Air Quality Strategy for England was published. This document supersedes the AQS: Volume 1 in England only. In Wales, Scotland, and Northern Ireland, the AQS of 2007 remains in effect.

The AQS for England is specifically directed at all local authorities in England, including those in London. Therefore, any decisions made by the Camdem London Borough Council must have

regard to that document. The standards set out in this AQS are intended for the protection and improvement of human health, economic growth, biodiversity, and the UK's efforts towards a net-zero economy. However, as this AQS is directed at all local authorities in England, not enough direct guidance on policy and action plans is provided.

The AQS requires local authorities to assess their air quality for the relevant pollutants and submit annual status reports. Each AQMA must also be accompanied by an Air Quality Action Plan. In relation to Camden London Borough, this is laid out in the Camden Clean Air Action Plan 2023 – 2026. This is in line with the Environment Act 1995, outlined in section 2.3.2 below.

The air pollutants of particular concern to the AQS are fine particulate matter (PM2.5), nitrogen oxides (NO_2 and NO), and ammonia (NH_3). They also cover coarse particulate matter (PM10), sulphur dioxide (SO_2), benzene, 1,3-butadiene, carbon monoxide, lead, and ozone (O_3).

2.3 The Air Quality Standards Regulations

The Air Quality Standards (Amendment) Regulations 2016 amend the Air Quality Standards Regulations 2010 (S.I. 2010/1001). Those Regulations transpose Directive 2008/50/EC on ambient air quality etc. and Directive 2004/107/EC relating to arsenic etc. in ambient air. Both Directives were amended by Commission Directive 2015/1480. These legally bound documents set limit values for concentrations in outdoor air or major air pollutants that impact public health such as NO2, PM10 and PM2.5.

Air Quality Standards are concentrations recorded over a given period, which are deemed to be adequate in terms of what is scientifically known about the effects of each pollutant. They can also be used as a benchmark to determine how achievement of the limit values should be assessed, including consideration of locations and length of exposure in relation to the averaging period of the limit values (i.e., 15 minutes, one hour, 24 hours etc). This helps indicate whether air pollution is getting better or worse. Defra is responsible for reporting on air quality in the UK on an annual basis.

2.3.1 Environment Act 2021

The Environmental Act 2021 established a legally binding duty on the UK Government to bring forward at least two new air quality targets in secondary legislation by 31st of October 2022. However, due to an influx of responses to the public consultation, the UK postponed the implementation of these targets. The targets that have since been published in 2023 and are now in effect under the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023:

- *'The annual mean concentration target is that by the end of 31st December 2040 the annual mean level of $PM_{2.5}$ in ambient air must be equal to or less than 10 µg/m³ ("the target level")'.*
- *'The population exposure reduction target is that there is at least a 35% reduction in population exposure by the end of 31st December 2040 ("the target date"), as compared with the average population exposure in the three-year period from 1st January 2016 to 31st December 2018 ("the baseline period")'.*

2.3.2 Environment Act 1995

Local authorities are required to periodically review and assess the quality of air within their administrative area as outlined in Part IV of the Environment Act, 1995. The reviews must

consider both the air quality at the time of review and likely future air quality during the 'relevant period' and determine whether any air quality objectives prescribed in regulations are being achieved or are likely to be achieved in the future. If targets are not achieved, the existing Air Quality Action Plan must be reviewed and updated. An Air Quality Action Plan must already be in place for the areas that have been designated AQMAs.

2.3.3 Environmental Protection Act 1990

Section 79 of the Environmental Protection Act 1990 (as amended) makes provision for the identification and management of statutory nuisances. The Act identifies statutory nuisance, in relation to air quality, as:

- *'Any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance'.*
- *'Any accumulation or deposit which is prejudicial to health or a nuisance'.*

The level at which nuisances occur can greatly vary and dependent on perception, with effects influenced by existing conditions and the degree of change that has ensued. Where a statutory nuisance has been demonstrated the local authority must serve an abatement notice, non-compliance with which would constitute a legal offence. The abatement notice may prevent or restrict occurrence or re-occurrence of the nuisance, or the local authority may, itself, undertake action to abate the nuisance and recover any associated expenses.

2.3.4 National and Local Air Quality Objectives

The air quality objectives are policy-based targets set by the UK Government that are often expressed as maximum concentrations not to be exceeded either without exception or with a limited number of exceedances within a specified timescale.

Pollutant	Objective	Averaging Period
Nitrogen dioxide - NO_2	200 µg/m³ not to be exceeded more than 18 times per year	1-hour mean
Nitrogen dioxide - NO_2	40 µg/m³	Annual mean
Fine and coarse particulate matter - PM_{10}	50 µg/m³ not to be exceeded more than 35 times/ year	24-hour mean
Fine and coarse particulate matter - PM_{10}	40 µg/m³	Annual mean
Sulphur dioxide (SO_2)	266 µg/m³ not to be exceeded more than 35 times per year	15 minute mean
Sulphur dioxide (SO_2)	350 µg/m³ not to be exceeded more than 24 times per year.	1 hour mean
Sulphur dioxide (SO_2)	125 µg/m³ not to be exceeded more than 3 times per year	24 hour mean
Benzene	16.25 µg/m³	Running annual mean
Benzene	5.00 µg/m³	Annual mean
1,3-butadiene	2.25 µg/m³	Running annual mean
Carbon monoxide	10.00 mg/m³	Maximum daily running 8-hour mean
Lead	0.5 µg/m³	Annual mean
Lead	0.25 µg/m³	Annual mean

Figure 2-1 Local Air Quality Management Framework

Pollutant and metric	Target	Target year
$PM_{2.5}$ annual mean concentration	Interim target: 12 µg/m³	2028
$PM_{2.5}$ annual mean concentration	Legally binding target: 10 µg/m³	2040
$PM_{2.5}$ population exposure	Interim target: 22% reduction in exposure compared to 2018	2028
$PM_{2.5}$ population exposure	Legally binding target: 35% reduction in exposure compared to 2018	2040

Figure 2-2 Environment Act PM2.5

Pollutant	Objective	Concentration measured as	Date to be achieved by (and maintained thereafter)
PM_{10}	50 µg/m³ not to be exceeded more than 35 times a year	24 hour mean	31 December 2004
PM_{10}	40 µg/m³	annual mean	31 December 2004
$PM_{2.5}$	20 µg/m³	annual mean	1 January 2020
$PM_{2.5}$	Target of 20% reduction in concentrations at urban background	annual mean	Between 2010 and 2020
Nitrogen dioxide (NO_2)	200 µg/m³ not to be exceeded more than 18 times a year		1 January 2010
Nitrogen dioxide (NO_2)	40 µg/m³		1 January 2010
Ozone (O_3)	100 µg/m³ not to be exceeded more than 10 times a year	8 hour mean	

Figure 2-3 Air Quality Standards Regulations

Pollutant	Level	Averaging time
Oxides of nitrogen (NO_x)	30 µg/m³	One calendar year
Sulphur dioxide (SO_2)	20 µg/m³	Calendar year and winter (1st October to 31st March)

Figure 2-4 Air Quality Standards Regulations (Levels for protection of vegetation)

	2005 baseline (kilotonne)	Reduction required by 2020	2020 to 2029 ceiling (kilotonne)	Reduction required by 2030	2030 onward ceiling (kilotonne)
NO_x	1710	55%	769	73%	462
SO_2	785	59%	322	88%	94
NMVOCs	1123	32%	763	39%	685
$PM_{2.5}$	115	30%	81	46%	62
NH_3	279	8%	257	16%	235

Figure 2-5 National Emission Ceilings Regulations

2.3.5 Standards for Dust

There are no national or EU limits for dust deposition. However, the TA Luft Technical Instructions on Air Quality (TA Luft, 2002) provide a guideline for the rate of dust deposition

of 350 mg/m2/day averaged over one year. As standard practice, the Environment Agency refer to this limit when setting dust deposition limits for sites or facilities.

2.4 Regional Strategies

2.4.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) sets out policies, which will apply to the preparation of local plans and to development management decisions. It sets out the Government's economic, environmental, and social planning policies for England, articulating the Government's vision of sustainable development, which should be interpreted and applied locally to meet local aspirations. The plan was published in 2012 and has since been updated as of the 5th of September 2023.

The NPPF sets out the Government's planning policies on the conservation and enhancement of the natural environment, with the following paragraphs relating to air quality; Paragraph 8c, Paragraph 103, Paragraph 174e, Paragraph 181, Paragraph 183, and Paragraph 205c.

2.4.2 The London Plan 2021

The legislation in the London Plan stipulates that those involved in planning and developing must carry out an Air Quality Assessment and seek to improve Londoners' health by 'improving London's air quality, reduce public exposure to poor air quality and minimise inequalities in levels of exposure to air pollution.'

Policy SI1 on 'Improving air quality' is the principal policy relating to air quality, which states that to tackle poor air quality, protect health and meet legal obligations the following criteria should be addressed:

Development proposals should not:

- Lead to further deterioration of existing poor air quality,
- 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,
- Create unacceptable risk of high levels of exposure to poor air quality.

To meet the requirements stated above, as a bare minimum:

- Development proposals must be at least air quality neutral,
- 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 retrofitted mitigation measures,
- An Air Quality Assessment must be submitted along with the development proposal. Air Quality Assessments should show how the development will meet requirements of the Development proposals in Air Quality Focus Areas, or those that are likely to be used by a large number of people particularly vulnerable to poor air quality, such as children and elderly people, which do not demonstrate that design measures have been used to minimise exposure should be refused.
- *'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'; and, o*
- *'Development proposals should ensure that where emissions need to be reduced to meet the requirements of Air Quality Neutral or to make the impact of development*

on local air quality acceptable, this is done on-site. Where it can be demonstrated that emissions cannot be further reduced by on-site measures, off-site measures to improve local air quality may be acceptable, provided that equivalent air quality benefits can be demonstrated within the area affected by the development'.

2.4.3 The London Local Air Quality Management Framework

The Mayor's London Local Air Quality Management (LLAQM) framework is the statutory process utilized by local authorities to review and improve air quality within their areas. In 2019, boroughs were consulted on a range of updates and improvements to the LLAQM. After a successful consultation, the new LLAQM was published in October 2019. The following updates were undertaken:

- Ensure boroughs are taking ambitious action, which is properly co-ordinated at the regional level, and which supports Mayoral objectives including those set out in the London Environment Strategy.
- Ensure that London boroughs continue to work towards achievement of World Health Organization safe limits for pollutants even when legal limits are met.
- Update information in the guidance documents to reflect new research, policies, and priorities.
- Update Cleaner Air Borough Status (a recognition scheme for boroughs that was introduced under the previous Mayor) so that it is transparent and fair, now promotes continual improvement, and clearly aligns with new LLAQM priorities.

2.4.4 Local Implementation Plans (LiPs)

Local Implementation Plans (LIPs) set out how each London borough will meet the objectives of the Mayor's Transport Strategy. They are required under the Greater London Authority Act 1999. LIPs provide a way of ensuring transport improvements are wll-integrated across London. Each LIP will address priorities such as improving accessibility, safety and security, reducing traffic congestion and improving bus services.

2.4.5 Mayor's Air Quality Strategy (MAQS)

The Mayor of London launched his Air Quality Strategy 'Clearing the Air' in 2010. This sits alongside the Mayor's Climate Change Mitigation and Energy Strategy 'Delivering London's Energy Future,' which was published in 2011. The Mayor's Air Quality Strategy is focused on delivering improvements to London's air quality and identifies road traffic as the largest contributor to air pollution. The strategy sets out a framework for improving air quality and specifics several measures to reduce emissions in London, these include:

- Development of electric vehicle infrastructure.
- Congestion charging and the London Low Emission Zone (LEZ).
- Smarter travel initiatives to encourage a shift to greener modes of transport.
- Funding and supporting car clubs (especially hybrid and electric cars).
- Maintaining roads in good repair to reduce the contribution of particulate matter from road surface wear.
- Smooth traffic.
- Bus emissions programme, so that older buses have been fitted with particulate traps and diesel-electric hybrid buses are introduced as quickly as possible.
- Publication and implementation of the London Best Practice Guidance for controlling dust and emissions from construction.

2.5 Local Authority Responsibilities

2.5.1 Local Air Quality Management

Under the Environment Act 1995 local authorities have a statutory responsibility to partake in Local Air Quality Management (LAQM). This includes the review and assessment of air quality within the borough on a regular basis. Currently a three-year cycle of review is in place with local authorities required to produce an annual progress report. If a Local Authority identifies any locations within its boundaries where the Air Quality Objectives are not likely to be achieved, it must declare the area as an Air Quality Management Area (AQMA). The Local Authority is subsequently required to put together a plan to improve air quality in that area.

Local Authorities which have wholly or partly designated their Boroughs as Air Quality Management Areas are required under LAQM to produce an Air Quality Action Plan. AQAPs provide the mechanism by which local authorities, in collaboration with other agencies, will state their intentions for working towards the air quality objectives using the powers they have available.

2.5.2 Camden Planning Guidance on Air Quality 2021

The Camden Planning Guidance (CPG) on Air Quality was prepared to support the policies outlined in the Camden Local Plan of 2017. The CPG provides details on when an AQA is required by a development, what areas should be covered by said AQA, and its methodological approach.

Under the CPG, an Air Quality Assessment is to cover:

- An inventory of PM10 and NO2 emissions associated with the proposed development, including type and quantity of emission concentrations, during construction and operational phase.
- Atmospheric dispersion modelling to predicted NO2 and PM10 concentrations, both with and without the proposed development.
- An assessment of the significance of air quality impacts during both the construction and operational phases.
- Consideration of the potential cumulative impacts on air quality which may arise during the construction and operational phases as a result of emissions arising from other developments within a 100m radius.
- Where a biomass boiler or combined heat and power (CHP)/combined cooling, heating and power (CCHP) will be used for on-site energy generation, applicants are to complete the Council's Air Quality Information Request Form.
- Applications which include biomass boilers or biomass CHP, the air quality assessment shall compare the impact of emissions from the intended biomass boiler/CHP and a gas boiler/CHP of identical thermal rating.
- An indication of the number of new occupants and users of the site who will be exposed to poor air quality as a result of the development.
- An assessment of the impacts on air quality of the demolition and construction phase and details of mitigation methods for controlling dust and emissions from plant and machinery.
- An outline of, and justification for, mitigation measures associated with the design, location and operation of the development in order to reduce air pollution and exposure to poor air quality.

A detailed atmospheric dispersion model is not part of the scope of this report.

Major developments are also required to submit an air quality neutral assessment. This assessment is to:

- Determine the relevant emission benchmark for buildings for NO2 and PM10 at the site, based on its land use and location; then calculate the site's NO2 and PM10 emissions from the buildings and compare them with the buildings benchmark.
- Determine the relevant emission benchmark for transport for NO2 and PM10 at the site; then calculate them with the transport benchmark.

2.5.3 Camden Local Plan 2017 – CC4 Air Quality

The Camdem Local Plan of 2017 replaces the Core Strategy and Development Policies planning documents, that were adopted in 2010, in setting out the Council's planning policies. This Local Plan covers the period from 2016 – 2031.

The Local Plan, through Policy CC4, sets out the Council's aim to mitigate the impact of development on air quality and to ensure that exposure to poor air quality is reduced in the borough. The Policy outlines the following:

- The Council will take into account the impact of air quality when assessing development proposals, through the consideration of both the exposure of occupants to air pollution and the effect of the development on air quality.
- Air Quality Assessments (AQAs) are required where development is likely to expose residents to high levels of air pollution. Where the AQA shows that a development would cause harm to air quality, the Council will not grant planning permission, unless measures are adopted to mitigate the impact.
- Developments that introduce sensitive receptors (i.e., housing, schools) in locations of poor air quality will not be acceptable unless designed to mitigate the impact.
- Development that involves significant demolition, construction or earthworks will also be required to assess the risk of dust and emissions impacts in an AQA and include appropriate mitigation measures to be secured in a Construction Management Plan.

The Local Plan states that the effects of developments on air quality must include emissions from construction and demolition, emissions from the combustion of fuel for energy within the building, and emissions from transport to and from the building.

2.5.4 Camden Clean Air Action Plan 2023 – 2026

The Camden Clean Air Action Plan 2023 – 2026 was prepared by the Camden London Borough Council. The plan describes several actions to deliver enhancements in air quality that can be considered under the following seven themes:

1. The reduction of emissions from construction.
    - Reducing the impact of air pollution from construction and development on public health.
2. The reduction of emissions from buildings.
    - Reducing the impact of air pollution from building operation and use (heating, power, and commercial and industrial processes) on public health.

3. The reduction of emissions from transport.
    - Reducing the impact of air pollution from transport on public health.
4. Supporting communities and schools.
    - Supporting and empowering communities and schools to reduce and avoid exposure to air pollution.
5. Indirect emissions and lobbying.
    - Leading by example, working with others, and advocating for greater action on air quality and health.
6. Public health and awareness.
    - Helping everyone to be aware of the importance of clean air and the roles we all have in protecting health.
7. Indoor air quality.
    - Raising awareness about the causes and impact of poor indoor air quality and workplace air pollution exposure.

The actions to be carried out under each theme are in relation to the council and the actions they aim to take in the near future. Therefore, this document will primarily be used to provide the AQIA with a general overview of the areas to pay particular attention to.

2.5.5 London Borough Camden Air Quality Annual Status Report for 2022

This document was published in August 2023 and describes the air quality of Camden throughout 2022. It also outlines actions and activities to improve the air quality of the area. These actions and activities are concerned with enforcing regulations for the betterment of air quality throughout Camden by the Council, planners, project developers and local communities. Some key actions outlined within this document include:

- Ensure all major development sites have a demolition management plan (DMP) and/or a construction management plan (CMP) approved by the air quality officer.
- Develop and implement a power generator hierarchy for construction sites with the aim of reducing the number of diesel generators.
- Require cumulative impact assessments (CIA) for developments in order to identify the impact on local air quality and identify methods to reduce impact on local communities.
- Control construction lorry delivery times through S106 agreements and/or planning condition to reduce impact on local communities.
- Enforcement of Non Road Mobile Machinery (NRMM) air quality policies.

2.5.6 Hatton Garden Conservation Area Appraisal and Management Strategy 2017

As can be seen in the figure below, the project site is located within the far-eastern side of the Hatton Garden Conservation Area (no. 5 in Figure 2-1). The map below was taken from the Hatton Garden Conservation Area Appraisal and Management Strategy 2017.

Conservation areas were introduced in 1967 through the Civic Amenities Act and supported through the Planning (Listed Buildings and Conservation Areas) Act of 1990. Legislation describes Conservation Areas to be areas of ‘special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance’. Conservation area designation introduces a general control over the demolition of unlisted buildings and

imposes a duty on the Council in its role as local planning authority to pay special attention to the desirability of preserving or enhancing the character or appearance of the area.

In relation to local policy, the designation of the Hatton Garden Conservation Area allows Camden to identify buildings that make a positive and negative contribution to the area. The audit of the Area Appraisal and Management Strategy has identified the existing structure on the project site (the multistorey car park) to have a negative contribution to the area, as can be seen from Figure 2-2 below. This figure was taken from the Hatton Garden Conservation Area Appraisal and Management Strategy 2017.

In relation to demolition works, the Management Strategy of the conservation area states that total or substantial demolition of a building will require planning permission. Consent for demolition will only usually be granted where it can be shown that the building detracts from the character of the area. Consent will not be granted for demolition unless a redevelopment scheme has been approved which will preserve or enhance the conservation area.

Figure 2-6 Hatton Garden Conservation Area

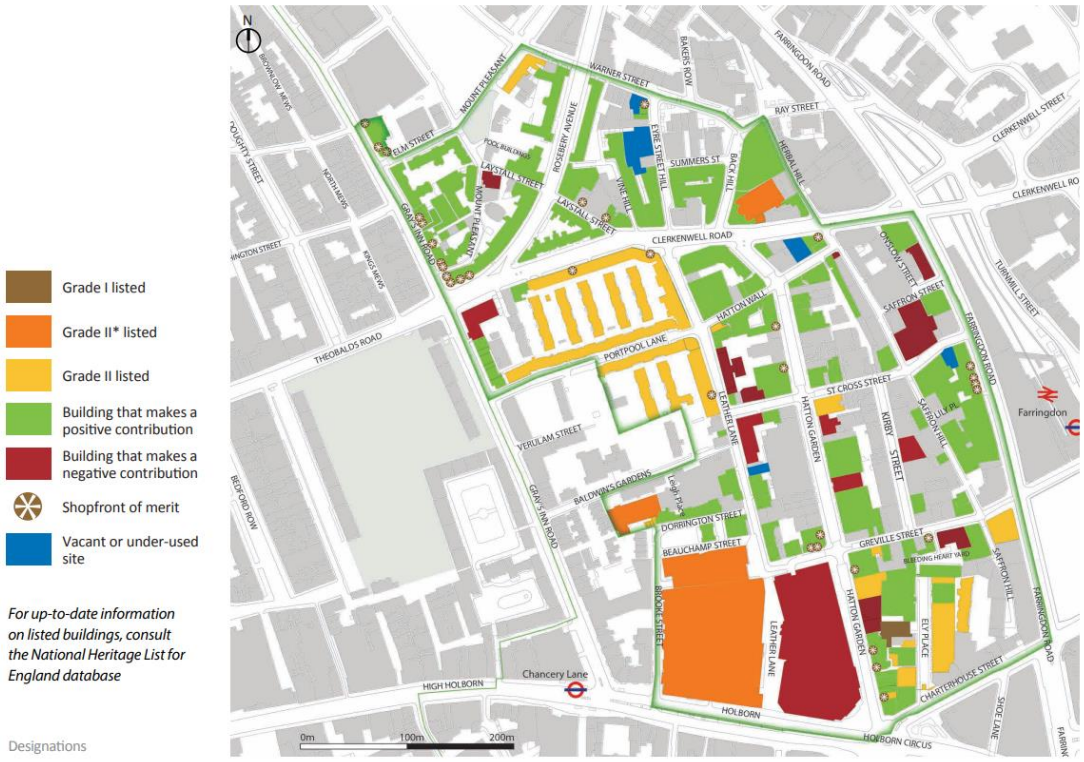


Figure 2-7 Building Contribution to Hatton Garden Conservation Area

2.6 Guidance

Publications reviewed whilst undertaking the air quality assessment is provided below.

2.6.1 National Planning Practice Guidance

The National Planning Practice Guidance outlines how the planning process can address potential air quality impacts associated with new development. It provides guidance on the level of detail required, how impacts can be mitigated and provides information on how local authorities may take air quality as a specific consideration in a planning decision.

2.6.2 Land-Use Planning and Development Control: Planning for Air Quality

Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have published the Land Use Planning & Development Control: Planning for Air Quality guidance, which offers advice as to when an air quality assessment may or may not be required. The guidance document details what should be included within an assessment, how to determine the significance of air quality impacts and the likely mitigation measures required to minimise the impacts.

2.6.3 London Councils Guidance for Air Quality Assessments

The Mayor of London has published technical guidance for use by the London boroughs in their air quality review and assessment work. The guidance is referred to as the London Local Air Quality Management, Technical Guidance 2016 (LLAQM.TG (16)) and it has been appropriately applied within this assessment.

2.6.4 London Councils Air Quality and Planning Guidance

The London Councils have published Air Quality and Planning Guidance for undertaking air quality assessments in the London boroughs, the majority of which have declared AQMAs.

The guidance sets out suggested methodologies for undertaking air quality assessments and sets out suggested methodologies for undertaking air quality assessments and sets out criteria for determining the impacts of a new development on air quality.

2.6.5 Guidance on the Assessment of Dust from Demolition and Construction

The Guidance on the Assessment of Dust from Demolition and Construction, which is published by the IAQM, provides guidance on how to assess the impact of construction activities on air quality associated with new developments. The methodology prescribed within the document allows the impacts to be categorised based on risk (with particular reference to dust and PM10 on sensitive human and ecological receptors) and, where applicable, identify mitigation measures associated to the risk classification determined.

2.6.6 Non-Road Mobile Machinery (NRMM) Practice Guidance

This document provides guidance on the London NRMM Low Emission Zone (LEZ), including the processes and procedures that must be in place on all development sites to comply with the policy. It also signposts future changes to the policy. The SPG offers further detail to address emissions from Non-Road Mobile Machinery (NRMM) through the use of a Low Emission Zone. It is intended as a guide for Contractors, Local Authorities and other regulators, suppliers, and developers in order to better understand what is expected of sites.

3. Methodology

Three primary areas of assessment were identified considering the nature of the proposed development and the guidance documents and regulations previously discussed. These were:

- The impact of the construction phase dust emissions.
- The impact of traffic emissions.
- The impact the proposed development will have upon the environment.

The methodology for assessing the above impacts is described below.

3.1 Method for Assessing Construction Phase

Construction Phase Dust Impacts were assessed in accordance with the methodology prescribed in the Institute of Air Quality Management's (IAQM) *Guidance on the assessment of dust from demolition and construction* (2014). This assessment methodology considers construction phase dust sensitivity and impacts upon human receptors and ecological receptors. The method considers four types of activity on construction sites:

- Demolition.
- Earthworks.
- Constructions
- Trackout.

The assessment methodology considers three separate dust impacts, with account being taken of the sensitivity of the area that may experience these effects:

- Annoyance due to dust soiling.
- The risk of health effects due to an increase in exposure to PM10.
- The risk of health effects due to an increase in exposure to PM2.5.
- Harm to ecological receptors.

Step 1 is to screen the requirement for a more detailed assessment.

A detailed assessment is required where there is a 'human receptor' within:

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

A detailed assessment is also required where there is an 'ecological receptor' within:

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

No further assessment is required if there are no receptors within a certain distance of the works.

Step 2 is to assess the risk of dust impacts. This is completed separately for each of the four activities (demolition, earthworks, construction, and trackout) and takes account of:

- The scale and nature of the works, which determines the potential dust emission magnitude as small, medium or large (Step 2A).
- The sensitivity of the area to dust impacts (Step 2B) which is defined as low, medium or high sensitivity.

Steps 2A and 2B are then combined in Step 2C to determine the risk of dust impacts with no mitigation applied.

Step 3 is to determine the site-specific mitigation for each of the four potential activities in Step 2. This will be based on the risk of dust impacts identified in the previous step.

Step 4 is to examine the residual effects and to determine whether these are significant.

3.1.1 Magnitude of Impact

The magnitude of dust emissions for each activity is categorized as small, medium, or large depending upon the scale of the works proposed, material involved, and level of activity required. The IAQM guidelines provide examples of how the magnitude of emission can be defined, which are identified in Table 3-1. The Development is unlikely to satisfy all criteria within the examples, therefore professional judgement and site specified information are used to identify appropriate emission magnitude.

Table 3- 1 Dust Emission Magnitude (Source: IAQM Guidance, v1.1 Updated June 2016)

Stage of Works	Small	Medium	Large
Demolition	• Total building volume <20,000m3. • Construction material with low potential for dust release (e.g., metal cladding or timber). • Demolition activites <10m above ground level. • Demolition during wetter months.	• Total building volume 20,000m3– 50,000m3. • Potentially dusty construction material. • Demolition activities 10m-20m above ground level.	• Total building volume >50,000m3. • Potentially dusty construction material (e.g., concrete). • On-site crushing and screening. • Demolition activities >20m above ground level.
Earthworks	• Total site area <2,500m2. • Soil type with large grain size (e.g., sand). • <5 heavy earth moving vehicles at any one time. • Formation of bunds <4m in height. • Total material moved <20,000 tonnes. • Earthworks during wetter months.	• Total site area 2,500m2-10,000m2. • Moderately dusty soil type (e.g., silt). • 5-10 heavy earth moving vehicles at any one time. • Formation of bunds 4m-8m in height. • Total material moved 20,000 – 100,000 tonnes.	• Total site area >10,000m2. • Potentially dusty soil type (e.g., clay). • >10 heavy earth moving vehicles at any one time. • Formation of bunds >8m in height. • Total material moved >100,000 tonnes.
Construction	• Total building volume <25,000m3. • Construction material with low potential for dust (e.g., metal cladding or timber).	• Total building volume 25,000m3 – 100,000m3. • Potentially dusty construction material (e.g., concrete). • On-site concrete batching.	• Total building volume >100,000m3. • On-site concrete batching sandblasting.

Stage of Works	Small	Medium	Large
Trackout	• <10 HDV (>3,5t) outward movements* in any one day**. • Surface material with low potential for dust release. • Unpaved road length <50m.	• 10-50 HDV (>3,5t) outward movements* in any one day**. • Moderately dusty surface material (e.g., high clay content). • Unpaved road length 50m-100m.	• >50 HDV (>3.5t) outward movements* in any one day**. • Potentially dusty surface material (e.g., high clay content). • Unpaved road length >100m.

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

3.1.2 Receptor Sensitivity

Consideration is given to the likely sensitivity of the area to the impacts of dust, establishing a sensitivity of low, medium, or high for dust soiling, human health, and ecological receptors. The sensitivity of the area considers several factors, including the specific sensitivities of receptors in the area, the proximity and number of those receptors, local baseline conditions such as background concentrations and site-specific factors.

The first step in identifying the sensitivity of the area is to establish the sensitivity of the receptor, based on the presence or level of activity associated with the area influenced by the Development. Professional judgement and site-specific information are used to assign an appropriate level of receptor sensitivity using the principles defined in Table 3-2. Following this, the sensitivity of the area can be established from Table 3-2 to Table 3-4 based on the sensitivity of the receptor, number of receptors (in the case of human health and dust soiling) and the distance from source.

Table 3- 2 Receptor Sensitivity Definitions

Activity	Low	Medium	High
Dust Soiling	• Enjoyment of amenity would not reasonably be expected. • There is property that would not reasonably be expected to be diminished in appearance, aesthetics, or value by soiling. • Transient exposure, where people or property is only expected to be present for limited periods of time as part of the normal pattern of use. • Indicative examples include playing fields, farmland, footpaths, short-term car parks and roads.	• Users would expect to enjoy a reasonable level of amenity, but not reasonably at same level as in their home. • The appearance, aesthetic or value of property could be diminished by soiling. • Indicative examples include parks and places of work.	• Users can reasonably expect enjoyment of a high level of amenity. • The appearance, aesthetics or value of property would be diminished by soiling, and continuous or regularly extended periods of presence expected during normal pattern of land use. • Indicative examples including dwellings, museums and other culturally important collections, medium and long-term car parks, and car showrooms.

Activity	Low	Medium	High
Human Health	• Locations where human exposure is transient. • Indicative examples include public footpaths, playing fields, parks, and shopping streets	• Locations where the people exposed are workers, and exposure is over a period relevant to the air quality objective for PM10. • Indicative examples include office and shop workers, but not those occupationally exposed to dust.	• Locations where members of the public are exposed over a period of time relevant to the air quality objective for PM10. • Indicative examples include residential properties, hospitals, schools, and residential care homes.
Ecological	• Locations with a local designation where the features may be affected by dust deposition, e.g., Local Nature Reserves.	• Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown. • Locations with a national designation where the features may be affected by dust deposition, e.g., Site of Special Scientific Interest.	• Locations with an international or national designation and the designated features may be affected by dust soiling, e.g., Special Area of Conservation with acid heathland. • Location where there is a community of a particular dust sensitive species such as vascular species included in the Red Data List for Great Britain.

Table 3- 3 Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from Source			
		<20m	<50m	<100m	<350m
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 3- 4 Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM10 Concentration	Number of Receptors	Distance from Source				
			<20m	<50m	<100m	<350m	<20m
High	>32µg/m3	>100	High	High	High	Medium	Low
		10 – 100	High	High	Medium	Low	Low
		1 – 10	High	Medium	Low	Low	Low
	28 – 32µg/m3	>100	High	High	Low	Low	Low
		10 – 100	High	Medium	Low	Low	Low
		1 - 10	High	Medium	Low	Low	Low
	24 – 28µg/m3	>100	High	Medium	Low	Low	Low
		10 – 100	High	Medium	Low	Low	Low
		1 - 10	Medium	Low	Low	Low	Low
	<24µg/m3	>100	Medium	Low	Low	Low	Low
		10 – 100	Low	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low	Low
Medium	>32µg/m3	>10	High	Medium	Low	Low	Low
		1 – 10	Medium	Low	Low	Low	Low
	28 – 32µg/m3	>10	Medium	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low	Low
	24 – 28µg/m3	>10	Low	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low	Low
	<24µg/m3	>10	Low	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

Table 3- 5 Sensitivity of the Area to Ecological Impacts

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

3.1.3 Establishing Significance

The risk of dust related impacts from the development is established from the sensitivity of the area and the likely dust emission magnitude. The risk should be established, on the worst-case area sensitivity and in the absence of mitigation, for each of the construction related activities (demolition, earthworks, construction and trackout) following the matrix in Table 3-6.

Table 3- 6 Risk of Dust Impacts from Each Activity

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

The IAQM guidelines identify a range of mitigation measures intended to reduce emissions and effects of dust from construction sites and identify their likely applicability to a development based on the level of impact risk attributed. Consideration is given to these in the development of mitigation measures, with the significance of the residual effect based on professional judgement.

3.2 Method for Assessing Operational Phase Traffic Emissions

A qualitative assessment will be performed to assess the impact of existing traffic, combined with anticipated traffic associated with the operational phase of the proposed development, on the future air quality. This assessment will be qualitative in nature and will involve a review of traffic data and analysis relating to the proposed development as well as current ambient air quality for the area. This assessment will be carried out having regard to the IAQM's *Guidance from Environmental Protection UK and the Institute of Air Quality Management for the consideration of air quality within the land-use planning and development control*.

3.2.1 Road Traffic Emissions

The IAQM/EPUK thresholds for the indicative screening criteria for an air quality assessment is an AADT of 100 Light Duty Vehicles (LDVs) and 25 Heavy Duty Vehicles (HDVs) within an AQMA. Road traffic emissions are typically the main emission source of NO2, PM10, and PM2.5 concentrations resulting from development proposals.

At this stage of the proposed project, a number of unknowns remain, including the quantity of certain waste types and Key Demolition Products (KDP)s to be produced, along with the total amount of material moved as part of earthworks. As these are currently unknown, the Annual Average Daily Traffic (AADT) cannot be calculated/estimated at this moment. However, as the regulations have established clear limits for the amount of LDVs and HDVs within an AQMA, the applicant will ensure to adhere to these.

3.3 Method for Assessing Climate Impacts

A qualitative assessment will be undertaken to assess the impact the proposed development will have on climate. The assessment will consider the following:

- Construction traffic levels inclusive of HGV and staff vehicle trips.
- The provision of suitable public and sustainable transport facilities.

3.3.1 Significant Criteria

For the construction phase, IAQM guidance has been used to determine the impact, mitigation recommendations and the significance of effects (refer to Section 3.2).

For the operational phase the EPUK and IAQM guidance document has been followed for establishing the significance of air quality impacts arising because of the Proposed Development. The magnitude of impact on individual receptors is dependent upon the long-term average pollutant concentrations at the receptor in the assessment year and the percentage change relative to the Air Quality Assessment Level (AQAL).

The guidelines do not provide a set method for determining the significance of impact. Whilst the establishment of the impact magnitude on individual receptors can be identified as negligible, slight, moderate, or substantial, the magnitude of the overall effect is dependent on a number of factors. Therefore, professional judgement will be applied to determine the likely significance of effects, with the following factors considered:

- The existing and future air quality in the absence of the development, notably whether the Air Quality Objectives are likely to be met or the scale of exceedances in the long-term and short-term concentrations.
- The extent of current and future population exposure to the impacts, notably the number of properties and/or people present and the scale of impact (e.g., whether much of the local population is subject to substantial or slight magnitude impacts).
- The influence and validity of any assumptions adopted when undertaking the prediction of impacts, such as establishing a worst-case scenario for sensitive receptors.

In addition, the London Councils' Air Quality and Planning Guidance assessment provides a flow chart for assessing the significance of air quality impacts. This has been displayed in Table 3-7 below.

Table 3- 7 London Councils' Significance Criteria

Effect of Development	Determination
Will it interfere with or prevent implementation of measures in the AQAP?	Air quality is an overriding consideration.
Is it likely to cause a worsening of air quality or introduce new exposure into the AQMA?	Air quality is a highly significant consideration.
Would the development contribute to air quality exceedances or lead to the designation of a new AQMA?	Air quality is a highly significant consideration.
Is it likely to increase/introduce new exposure to PM10?	Air quality is a significant consideration.

The London Councils' Air Quality and Planning Guidance has published the Air Pollution Exposure Criteria (APEC) specifically for new exposure to determine the significance of new exposure to poor air quality and level of mitigation required, displayed in Table 3-8.

Table 3- 8 APEC Criteria

APEC Level	Applicable Range Annual Average NO2	Applicable Range PM10	Recommendations
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.

3.4 Selection of Sensitive Receptors

DEFRA provides guidance on locations where the air quality objectives should apply (see Table 3-9), and professional judgement have been used to select receptors where likely significant exposure to pollutant concentrations may occur.

Table 3- 9 Examples of where the Air Quality Objectives may or may not apply

Averaging Period	Objectives Should Apply	Objectives Should Generally not Apply
Annual Mean	All locations where members of the public might be regularly exposed. Building facades of residential properties, schools, hospitals, care homes, etc.	Building facades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Kerbside sites (as opposed to locations at the building facades), or any other locations where public exposure is expected to be short-term.
24 hr mean	All locations where the annual mean objective would apply, together with hotels. Gardens of residential properties.	Kerbside sites (as opposed to locations at the building façade), or any other locations where public exposure is expected to be short-term.
1 hr mean	All locations where the annual mean and 24 hour mean objectives apply. Kerbside sites (for example pavements of busy shopping centres). Those parts of car parks, bus stations and railway stations, etc, which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more.	Kerbside sites where the public would not be expected to have regular access.
15 minute mean	All locations where members of the public might reasonably be exposed for a period of 15 minutes or longer.	

3.5 Method for Air Quality Neutral Assessment

The *London Plan Guidance for Air Quality Neutral* of February 2023 states that, under excluded developments (section 2.2), "*developments, including major developments, that do not include additional emissions sources are assumed to be Air Quality Neutral and to meet the Air*

Quality Neutral benchmarks. As such, there is no need to do an AQN Assessment". As this development would be removing all car parking spaces for the site, which currently amount to 353 spaces, that would remove a substantial level of operational NO2 and particulate matter emissions from the development.

However, in order to cover all bases of Air Quality Assessment for this development, an AQN Assessment will also be carried out. For this, a development must meet two benchmarks:

- Building Emissions Benchmark (BEB) – emissions from equipment used to supply heat and energy to the building.
- Transport Emissions Benchmark (TEB) – emissions from private vehicles travelling to and from the development.

The BEB is defined in grams of NO2 emitted per square meter of floorspace (gross internal area (GIA)) over a year (gNO2/m2/annum). The *London Plan Guidance for Air Quality Neutral* states that "*most non-combustion heat sources such as electric panel heaters and heat pumps (including air source and ground source heat pumps) are assumed to have zero heat-related NO2 emissions. However, for the avoidance of doubt, checks should be made with the manufacturer or an air quality consultant when non-standard or innovative technologies are used*" (paragraph 3.1.4). The formula for calculating the BEB is:

> *GIA (m2) * Benchmark NO2 emission rate (gNO2/m2/year) = Total benchmark emissions (gNO2/year)*.

For the predicted building emissions calculations, the typical energy use for each different combustion source proposed within the development, and an emission rate for each combustion source, must be known. Exclusions for these calculations or assumptions for sources to have zero emissions include grid electricity usage and backup plants. The formula for calculating the predicted emissions for each source are:

> *Energy use for each source * Emission rate for each source = Predicted building emissions*.

The TEB is defined as the predicted number of single trips per m2 of floorspace (GIA) over a year (trips/m2/year) for non-residential use. The formula for calculating the TEB is:

> *GIA (m2) * Trip rate benchmark = TEB for the development*.

For the predicted trip rate calculations, these are typically obtained from the Transport Assessment for the development. A breakdown of the predicted trip rates between different land uses is not required, but may be helpful to do this, if the TEB is exceeded.

If the calculations for both predicted trip rates and building emissions are less than or equal to the TEB and BEB, then the development is Air Quality Neutral.

4. Baseline Environment

4.1 Site Context

Currently, the site is comprised of a 6-storey car park, with an office extension located on the 7th and 8th floor. The site is situated in an area of London that is distinctly urban in nature. The River Thames is located approximately 0.71 miles (as the crow flies) away from the project site.

The development proposes the change of use of the current building to commercial office spaces across all floors, with café/restaurant spaces at the ground floor. This will be a car-free development, with no on-site parking provided. 195 cycling parking spaces will be provided within the proposed basement of the development. The total area of the site is 11,815m^2.

4.2 Baseline Air Quality

The site is located within the Camden Borough AQMA. According to the Camden Clean Air Action Plan 2023-2026, the main sources of NO_X, PM10 and PM2.5, that are also within the vicinity of the site area, are as follows:

- **NO_X:** Commercial Buildings (46.8%), Road Transport (30.9), Railways (8.2%).
- **PM10:** Commercial Buildings (22.3%), Road Transport (16.4%), Railways (2.3%).
- **PM2.**5: Commercial Buildings (50.9%), Road Transport (19.6%), Railways (3.9%).

The baseline ambient air quality data for the area was obtained from the nearest monitoring stations to the development situated in Camden. Within the immediate vicinity of the site, there is no air quality monitoring station monitoring all three parameters required (NO_2, PM10 and PM2.5). Therefore, the two closest monitoring stations were selected – City of London - Beech Street (PM 10 and NO_2), and City of London - Farringdon Street (PM2.5). The annual mean concentrations of all three parameters are displayed in the table below.

Table 4- 1 Annual Mean Concentration of NO2, PM10 and PM2.5

Pollutant	Annual Mean Concentration (µg/m3) (2022)	Limit Value (µg/m3)	Basis of Application of the Limit Value
Nitrogen Dioxide (NO_2)	41	40	Annual mean
PM10	17	40	Annual mean
PM2.5	12	25	Annual mean

4.3 Meteorological Conditions

The proposed activity will exist within the context of a temperate, maritime English climate, characterized by mild temperatures and wet weather. The weather in the region is influenced by the Celtic Sea and English Channel, resulting in mild, moist weather dominated by cool air masses.

The nearest weather station to the site is the Heathrow Airport Weather Station which lies ca. 15.5 miles to the west of the site. Averages for relevant meteorological parameters recorded at this station over 5 years are shown in the Table 4-2 below.

The most important climate parameters which influence dust emissions are wind direction, wind speed and rainfall. Wind direction determines the broad transport of the emission and the sector of the compass into which the emission is dispersed. Wind speed will affect ground level emissions by increasing the initial content of particles in the emission. It will also affect the potential for dust entrainment.

A wind rose for average wind conditions recorded at Heathrow Airport Weather Station in the previous year is shown in Figure 4-1. The predominant wind direction is from the southwestern quadrant. The average wind speed for the year 2022 was 14 km/h.

Table 4- 2 2018 - 2022 Meteorological Data from Heathrow Airport Weather Station

Year	Temperature Average (°C)	Wind Speed (km/h)	Precipitation (mm)
2022	12.6	14	541.2
2021	11.4	12.6	650.8
2020	12.2	14.9	666.1
2019	11.9	14.2	654.9
2018	12.2	14.4	580.6

Figure 4-1 Wind Rose for Heathrow Weather Station (2022)

4.3.1 Human Receptors

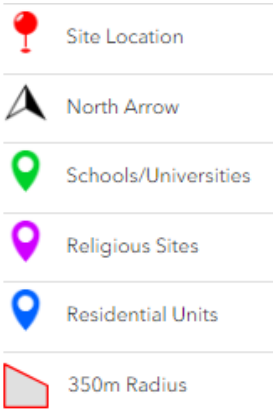
A 'human receptor' refers to any location where a person or property may experience the adverse effects of airborne dust or dust soiling, or exposure to PM10 or PM2.5 and other pollutants. Existing sensitive receptors within 350 metres of the site are presented in Figure 4-2 below. In total, there are three schools/universities, five churches, and 25 residential units

(including apartment buildings, hotels, and student accommodations) located within a 350m radius of the site.

Notable human receptors to the site include two apartment buildings, one that is connected to the site boundary to the North-Western (55-59 Saffron Hill) and another that is across the road from the site's current entrance to the South (Da Vinci House), Choice Hotels International (70.4m North), the Bryson Hotel (153.3m North-West), St Alban's Church of England Primary School (287.5m West), Southern Housing Group (150.1m North-East), Institute of Biomedical Science (337.8m North-West).

Figure 4-2 350m Radius of Site

Figure 4-3 350m Radius of Site Map Legend



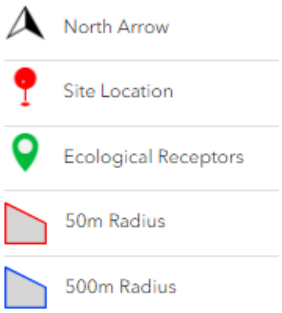
4.3.2 Ecological Receptors

An 'ecological receptor' refers to any sensitive habitat affected by dust soiling. This includes the direct impacts on vegetation or aquatic ecosystems of dust deposition, and the indirect impacts on fauna (e.g., on foraging habitats).

There are no ecological receptors within the 50m radius of the site's boundary. Within the 500m radius, a total of seven small ecological receptors have been identified. These consist of public gardens and parks: Spa Fields (435.7m North), Charterhouse Square (481.5m East), St John's Garden (170m East), Verulam Gardens (335m West), Gary's Inn Square (430m West) Gary's Inn Gardens (447m West), and St. James Church Garden (286m Northeast).

Figure 4-4 Ecological Receptors within 500m Radius

Figure 4-5 Ecological Receptors within 500m Radius Map Legend



5. Impact Assessment

5.1 Construction Phase Impacts

5.1.1 Construction Dust

Emissions of dust to air can arise during the preparation of the land (e.g., demolition, earthworks, and during construction. Emissions can fluctuate substantially from day to day,

subject to the level of activity, the specific operations, and the weather conditions. The scale of these impacts depends on the dust suppression and other mitigation measures applied.

The main air quality impacts that may arise during demolition and construction activities are:

- Dust deposition, resulting in the soiling of surfaces.
- Visible dust plumes, which are evidence of dust emissions.
- Elevated PM10 concentrations, as a result of dust generating activities on site.
- An increase in concentrations of airborne particles PM2.5 and nitrogen dioxide due to exhaust emissions from diesel powered vehicles and equipment used on site (non-road mobile machinery (NRMM)) and vehicles accessing the site.

The impacts depend on the mitigation measures implemented. Therefore, the importance in this assessment is on classifying the risk of dust impacts on site, which will then allow mitigation measures to correspond with that risk to be identified.

The most common impacts are dust soiling and increased ambient PM10 concentrations due to dust arising from activities on the site. Dust soiling will arise from the deposition of dust in all size fractions.

The risk of dust emissions from a demolition/construction site causing loss of amenity and/or health or ecological impacts is related to:

- The activities being undertaken (demolition, number of vehicles and plant etc.).
    - The duration of these activities.
    - The size of the site.
    - The meteorological conditions (wind speed, direction, and rainfall).
    - The proximity of receptors to the activities.
    - The adequacy of the mitigation measures applied to reduce or eliminate dust.
    - The sensitivity of the receptors to dust.

The quantity of dust emitted from construction operations will be related to the area of land being worked, and the level of construction activity (nature and magnitude). Emissions from construction vehicles passing over unpaved ground can be particularly important.

The wind direction, wind speed, and rainfall, at the time when a construction activity is taking place, will also influence whether there is likely to be a dust impact. Local wind speed and direction influences the dispersion of dust. This will depend on the frequency that the receptor is downwind and the distance of the receptors from the construction activities. Higher wind speeds will result in the highest potential for release of dust from a site. Buildings, structures, and trees can also influence dispersion.

Generally, how close a receptor is to a construction site and the prevailing wind direction for a region are important considerations when assessing dust impacts.

Dust impacts are more likely to occur during drier periods, as rainfall acts as a natural dust suppressant.

The IAQM Guidance provides a four-step approach for assessing construction dust impacts. The assessment in accordance with the prescribed methodology is presented below.

5.1.2 Step 1 – Screening

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 used by construction vehicles on the public highway, up to 500m from the site entrance.

The nearest human receptors are two apartment buildings connected to the North-Western and South-Eastern corner of the building. Therefore, further assessment is required.

5.1.3 Step 2 A & B – Assessing the Risk of Dust Impacts

The criteria for assessing the risk of dust impacts are provided below. As discussed, the method considers four types of activity on construction sites; Demolition, Earthworks, Construction; and Trackout.

Based on the information regarding development which has been provided to the assessor at this stage the magnitude of dust emissions during the 4 phases are as follows.

Table 5- 1 Magnitude of Dust Emissions

Activity	Dust Emission Magnitude	Basis of Magnitude
Demolition	Large	• Potentially dusty construction material – concrete. • Demolition activities >20m above ground level.
Earthworks	This is currently unknown. However, due to the nature of the proposed development, the materials moved in relation to earthworks are likely to be Medium – Small.	• If the site area of 11,815m2 is the only factor used for this evaluation then the dust emission magnitude would be quantified as Large, • However, if the materials moved are within the following ranges, then the determination may be reduced to medium/small: • **Medium** = 20,000 tonnes – 100,000 tonnes. • **Small** = >20,000 tonnes. • Frequency of earth moving vehicles at any one time would also be a defining factor.

Construction	Medium	• Potentially dusty construction material – PPC.
Trackout	(unknown)	(unknown)

The closest existing human receptors are the two apartment buildings, one connected to the site (55-59 Saffron Hill) and the other opposite to the site's current southern entrance (Da Vinci House), meaning they are within >20m of the site boundary. Four further apartment buildings exist across the street to the north and south of the site, within this 20m range. A small number of further human receptors are located within 100m of the site, which include the Choice Hotels International. Due to the proximity of these human receptors to the site, the sensitivity of the area to dust soiling effects has been determined to be medium.

The annual mean concentration of PM10 at the City of London – Beech Street monitoring station in 2022 was 17ug/m3, which is significantly below the 40ug/m3 threshold outlined within the Camden Clean Air Action Plan 2023 – 2026. Due to this low background annual mean and based on the number of human receptors within <20m of the site boundary, the sensitivity of people to the health effects of PM10 is deemed to be low for all dust generating activities, having regard to the IAQM Sensitivity of the Area to Human Health Impacts table.

The table below outlines the sensitivity of ecological receptors in the vicinity of the application area to dust impacts.

Table 5- 2 Sensitivity Receptor Description

Sensitivity of Receptor	Comment
High	• Locations with an international or national designation and the designated features may be affected by dust soiling; or • Locations where there is a community of a particular dust sensitive species such as vascular species included in the Red Data List for the UK. • Indicative examples included a Special Area of Conservation (SAC) designated for acid heathlands or a local site designated for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings.
Medium	• Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown; or • Locations with a national designation where the features may be affected by dust deposition.

	• Indicative example is a Site of Special Scientific Interest (SSSI) with dust sensitive features.
Low	• Locations with a local designation where the features may be affected by dust deposition. • Indicative example is a local Nature Reserve with dust sensitive features.

The nearest ecological receptor is St. John's Garden, which is 170m to the east of the site boundary. The nearest major ecological receptor to the site is the river Thames, which is 1.2km South. This means that there are no ecological receptors within the 20m and 50m range specified by the IAQM Guidance. Therefore, the sensitivity of ecological receptors has been deemed to be low.

The table below provides a summary of the conclusions of the dust assessment. For the purposes of this assessment, it has been assumed that Earthworks, Construction and Trackout activities will be carried out right at the application boundary at the closest point to the relevant apartments. The assessment is therefore representative of a worst-case scenario.

Table 5- 3 Outcome of Defining the Sensitivity of the Area

Sensitivity of Area	Dust Emission Magnitude			
	Demolition	**Earthworks**	**Construction**	**Trackout**
Dust Soiling	Medium	Medium	Medium	Medium
Human Health	Medium	(Currently unknown, however likely to be medium-low)	Low	(unknown)
Ecological	Low	Low	Low	Low

5.1.4 Step 2 C – Defining the Risk of Dust Impacts

The IAQM Guidance requires that following the determination of the sensitivity of the surrounding area, the risk of impacts in the absence of mitigation measures be defined for each stage of the construction works phase. The tables below are taken from the guidance.

Table 5- 4 Risk of Dust Impacts with No Mitigation – Demolition, Earthworks, Construction, Trackout

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

The dust emission magnitude determined at Step 2A should be combined with the sensitivity of the area determined at Step 2B to determine the risk of impacts with no mitigation measures applied. The risk of dust impacts with no mitigation measures has been determined and is shown in the table below.

Table 5- 5 Summary of Dust Risk to Define Site Specific Mitigation

Sensitivity of Area	Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium Risk	(unknown)	Medium Risk	(unknown)
Human Health	Medium Risk	(unknown)	Low Risk	(unknown)
Ecological	Low Risk	(unknown)	Low Risk	(unknown)

5.1.5 Climate Impacts during the Construction Phase

HGV and staff vehicle movements associated with the construction phase of the proposed development will result in the release of greenhouse gases such as CO2 and NO2.

Due to the nature and location of the development, being situated within London's Ultra Low Emission Zone and Low Emission Zone, as well as no onsite parking being available due to the demolition and construction activities taking place throughout the entire site area, it is anticipated that the different development phases will have negligible impacts on the environment.

Public transport is also provided within the local area, which will be able to facilitate site operatives accessing the site during the construction phase without having to use their personal vehicles where feasible. The site lies within an area rated 5 on the Public Transport Accessibility Level (PTAL) scale. This rating is one of the highest achievable, with 6b being the highest. The nearest underground station is Farringdon, which is approximately 138.5m away. Further underground stations include Barbican Station (552.8m), and Chancery Lane (503.3m). Along with that, Kings Cross is also located within ca. 1.5km to the North of the site. The are also numerous bus stops located near the site (Clerkenwell Road Bus Stop – 75.1m, Farringdon Road – 126.4m, Hatton Garden – 160m).

5.2 Operational Phase Impacts

5.2.1 Traffic Emissions

The impact traffic emissions associated with existing and anticipated traffic will have on existing and proposed development is detailed below having regard to the IAQM's Guidance from Environmental Protection UK and the Institute of Air Quality Management for the consideration of air quality within the land-use planning and development control.

The emission of pollutants in particular the release of particulate matter and NO2, has the potential to create adverse human health impacts. The presence of a heavily trafficked road, with emissions that could give rise to sufficiently high concentrations of pollutants (in particular NO2) could cause unacceptably high exposure for human receptors of the new development (e.g., the presence of the A201 Farringdon Road to the East of the proposed development).

The suggested framework for describing the impact of traffic emissions is set out in Table 6.3 of the EPUK & IAQM guidance document. This is presented in the table below.

Table 5- 6 AQAL Impact Description

Long-term Average Concentration at Receptor in Assessment Year	Percentage Change in Concentration to AQAL*			
	1	2 – 5	6 – 10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76 – 94% of AQAL	Negligible	Slight	Moderate	Moderate
95 – 102% of AQAL	Slight	Moderate	Moderate	Substantial
103 – 109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

*** Where the % change is <0.5%, the change is described as 'Negligible' regardless of concentration**

AQAL Table 5-6 Explanation:

- AQAL is the Air Quality Assessment Level. This may be an air quality objective, EU limit or target value, or an Environmental Agency 'Environmental Assessment Level (AEL)'
- The table is intended to be used by rounding the change in percentage pollutant concentration to whole numbers, which then makes it clearer which cell the impact falls within. The user is encouraged to treat the numbers with recognition of their likely accuracy and not assume a false level of precision. Changes of 0%, i.e., less than 0.5% will be described as negligible.
- The table is only designed to be used with annual mean concentrations.
- Descriptors for individual receptors only; the overall significance is determined by using professional judgement. For example, a 'moderate' adverse impact at one receptor may not mean that the overall impact has a significant effect. Other factors need to be considered.
- When defining the concentration as a percentage of the AQAL, use the 'without scheme' concentration where there is a decrease in pollutant concentration and the 'with scheme', concentration for an increase.
- The total concentration categories reflect the degree of potential harm by reference to the AQAL value. At exposure less than 75% of this value, i.e., well below the degree of harm is likely to be small. As the exposure approaches and exceeds the AQAL, the degree of harm increases. This change naturally becomes more important when the result is an exposure that is approximately equal to, or greater than the AQAL.
- It is unwise to ascribe too much accuracy to incremental changes or background concentrations, and this is especially important when total concentrations are close to the AQAL. For a given year in the future, it is impossible to define the new total concentration without recognising the inherent uncertainty, which is why there is a category that has a range around the AQAL, rather than being exactly equal to it.

The annual mean concentrations of PM10 and PM2.5 observed at the City of London – Beech Street monitoring station, were well below the prescribed limits. The NO2 levels were exceeded in 2022 by 1ug/m3.

Table 5- 7 Annual Mean Concentration of NO2, PM10 and PM2.5 at Beech Street and Farringdon Road Monitoring Stations (2022)

Pollutant	Annaul Mean Concentration (µg/m3) (2022)	Limit Value (µg/m3)	Basis of Application of the Limit Value	Percentage of AQAL (%)
Nitrogen Dioxide (NO_2)	41	40	Annual mean	102
PM10	17	40	Annual mean	19
PM2.5	12	25	Annual mean	30

The Institution of Highways and Transportation document 'Guidelines for Traffic Impact Assessments' states that the impact of a proposed development upon the local road network is considered material when the level of traffic it generates surpasses 10% and 5% on normal and congested networks respectively.

Having regard to the AQAL Impact Descriptors Table, given that PM10 and PM2.5 annual mean concentrations are substantially below 75% of their relevant AQAL, along with the area's previously discussed PTAL score of 5 and the proximity of numerous modes of public transport available within a 1.2km radius of the site, it is anticipated that the site will have a negligible impact on the traffic of the area. This is further supported by the development, upon completion, not offering any on-site parking and adding 195 cycle parking spaces within the proposed basement.

Due to the minor exceedance in NO_2 levels of the area and the proximity of the apartment buildings to the site, NO_2 emissions may have a slight impact on the surrounding area. For this reason, and for the purposes of being prudent, mitigation measures for the protection of air quality have been recommended.

5.2.2 Climate Impacts during the Operational Phase

The increase in traffic levels associated with the demolition and construction phase of the proposed development will result in an increase in CO_2 and NO_2 emissions.

"Demolition of existing car park and offices, and erection of a new building providing Class E Commercial floorspace and flexible Class E café/restaurant space, along with associated landscaping and works."

Given the nature of the proposed development, replacing the existing car park, and not offering any on-site parking, along with the high level of public transport available throughout the area, it is anticipated that there will be no significant impact upon the climate as a result of the proposed development in full operation.

5.2.3 Air Quality Neutral Assessment

5.2.3.1 Building Emissions

The GIA of the entire development is 11,871m2. The GIA for the ground floor, the location of the café/restaurant, is 1,167m2, meaning the GIA of the office space is 10,704m2.

The emission rates to used for the BEB calculations are 2.62gNO2/m2/annum for offices and 3.23gNO2/m2/annum for the café/restaurant. Therefore, the total benchmark emissions (gNO2/year) are as follows.

Office Space:

10,704m2 * 2.62gNO2/m2/annum = 28,044.48gNO2/m2/annum

Café/Restaurant:

1,167m2 * 3.23gNO2/m2/annum = 3,769.41gNO2/m2/annum

BEB:

28,044.48 + 3,769.41 = 31,813.89gNO2/m2/annum

According to paragraph 3.2.3 of the *London Plan Guidance for Air Quality Neutral Assessment*, the "*NO2 emissions rate for grid electricity use* […] *should be assumed to be zero. This is because any NO2 emissions associated with electricity generation at power stations will be dealt with in local permissions for those facilities*". There is no gas proposed for this development. The heating is to be provided via roof mounted air source heat pumps, which the *London Plan Guidance for Air Quality Neutral Assessments* states are assumed to have zero heat-related NO2 emissions. There are also proposed to be no combustion sources. The appliances to be used in the kitchen of the café/restaurant will be electric.

Therefore, the building-related emissions are negligible and significantly below the calculated BEBs for both the office space and the café/restaurant. As the predicted building emissions do not exceed the calculated BEB, the backup plants of the site will be excluded from the calculations.

5.2.3.2 Transport Emissions

In order to calculate the TEB, the GIA (10,704m2 for Office Space, 1,167m2 for café/restaurant) of the development will be multiplied by the relevant trip rate benchmark. The trip rate benchmarks, under the *London Plan Guidance for Air Quality Neutral Assessment*, are determined by the location of the development. The site is located in the Central Activities Zone (CAZ).

Table 5- 8 Trip Rate Benchmarks

Land Use	Trip Rate Benchmark (trips/m2/year)
Offices	2
Cafés/Restaurant	64

Offices:

10,704 * 2 = 21,408 trips/m2/year

Cafés/Restaurant:

1,167 * 64 = 74,688 trips/m2/year

TEB:

21,408 + 74,688 = 96,096 trips/m2/year

As the development will be changing the current land use of the site from a car park, and will not be offering on-site parking, the predicted trip rate during the building's operational phase will be drastically decreased. According to the Transport Assessment, the development will generate 8 LDV AADT: 2 motorcycle AADT and 6 car AADT. Therefore, the development will be significantly below the TEB calculated.

6. Cumulative Impacts

Finally, the Camden Borough Council's Planning Database was reviewed for the purposes of ascertaining whether there was any additional development permitted or currently under consideration in the vicinity of the application site. A number of planning applications have been granted within the area and/or are currently seeking planning permission.

However, upon further review it has been determined that these developments will have a negligible impact on the air quality of the area, as the majority of these are: not recent applications and have been completed by now; are non-material alterations to already completed applications; or are minor alterations to existing buildings that will have little to no impact on the area's air quality. Table 6 – 1 outlines the details of the relevant planning applications in the area.

Table 6 - 1 Relevant Applications in the Area

Application Reference	Status	Description
2023/4049/P	New Application	Proposed works include like-for-like roof replacements, rooflights replacements, plant equipment replacements at roof level, installation of louvre panels to rear elevation, vent cover installation to side elevation or external light fittings to front elevation, associated exterior works.
2023/4100/P	Granted	Non-material amendment to planning permission 2017/6455/P to retrospectively change windows on the south elevation, from two unequal casements with one opening light to two equal casements with two opening lights.

Application Reference	Status	Description
2023/4449/P	Granted	Partial redischarge of condition 3 (detailed drawings, or samples of materials) of planning permission 2017/6455/P, for refurbishment of existing B1(a) (Office) building including external façade alterations, and erection of a single storey set back seventh floor extension with associated terrace and rooftop plant.
2023/0676/P	Granted	Replacement plant at fourth floor level within replacement louvred plant enclosure.
2023/3368/P	New Application	Details pursuant to condition (brickwork sample) for planning permission ref. 2018/3220/P (dated 25/08/2020) for erection of two storey roof extension following demolition of existing mansard level, four storey rear infill extension and elevation alterations in association with reconfiguration of existing office (Class B1a/B1c) and provision of 3-bed residential unit (Class C3).
2023/2304/P	Granted	Replacement of existing shop front and shutter.
2023/3908/P	New Application	Installation of 2x condenser units to roof building.

7. Mitigation Measures

7.1 Construction Phase Mitigation Measures

In accordance with guidelines in the IAQM's *Guidance on the assessment of dust from demolition and construction* it is recommended to implement the following mitigation measures during the construction phase of the proposed development.

Table 7 - 1 Construction Phase Dust Mitigation Measures

Mitigation Measure	Description
Communication	• Develop and implement a stakeholder communications plan that includes community engagement before work commences on site. • Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. • Display the head or regional office contact information.
Dust Management	**Site Management:** • Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. The DMP may include monitoring of dust deposition, dust flux, real-time PM10 continuous monitoring and/or visual inspections. • Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. • Make the complaints log available to the local authority when requested. • Record any exceptional incidents that may cause dust and/or air emissions, either on/offsite, and the action taken to resolve the situation in the logbook. **Monitoring:** • Undertake daily-on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust,

	record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surface such as street furniture, cars, and windowsills within 100m of site boundary. • Carry out regular site inspections to monitor compliance with the DMP, record inspection results. • Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions. • Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it is a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction. **Preparing and Maintaining the Site:** • Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. • Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site. • Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period. • Avoid site runoff of water or mud. • Keep site fencing, barriers and scaffolding clean using wet methods. • Remove materials that have potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below. • Cover, seed or fence stockpiles to prevent wind whipping.

	Operations: • Only use cutting, grinding or sawing equipment fitted or in conjunction with sustainable dust suppression techniques such as water sprays or local extraction, e.g., suitable local exhaust ventilation systems. • Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate. • Use enclosed chutes and conveyors and covered skips. • Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fire sprays on such equipment wherever appropriate. • Ensure equipment is readily available on site to clean any dry spillage, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods. **Waste Management:** • Avoid bonfires and burning of waste materials.
Demolition	• 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 needed. In addition, high volume water suppression systems, manually controlled, can produce fire water droplets that effectively bring the dust particles to the ground. • Avoid using explosive blasting, using appropriate manual or mechanical alternatives.
Earthworks	• Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable. • Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or

	cover with topsoil, as soon as practicable. • Only remove the cover in small areas during work and not all at once.
Construction	• Avoid scabbing (roughening of concrete surfaces) if possible. • Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place. • 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. For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust **Operating Vehicle/Machinery and Sustainable Travel:** • Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable. • Ensure all vehicles switch off engines when stationary – no idling vehicles. • Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable. • Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the Local Authority, where appropriate). • Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials. • Implement a Travel Plan that supports and encourages sustainable travel

	(public transport, cycling, walking and car-sharing). • Assess all potential contractors and review vehicle fleet/machinery to be used to choose the least NO2 emitting option that is also cost-beneficial.
Trackout	• Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use. • Avoid dry sweeping of large areas. • Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport. • Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. • Record all inspections of haul routes and any subsequent action in a site logbook. • Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned. • Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable). • Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever the site size and layout permit.

7.2 Operational Phase Mitigation Measures

It is not anticipated traffic emissions associated with the proposed development will have a significant impact on existing proposed receptors. It is not anticipated that PM2.5, PM10 and NO2 limit values will be exceeded at existing and proposed receptors.

Notwithstanding this determination and having regard to the framework defined in Table 5-8 *Summary of Dust Risk to Define Site Specific Mitigation* and considering the location of the apartment blocks in close proximity to the site, it is anticipated that the existing and future traffic emissions arising on the Farringdon Road may have a slight impact on air quality at surrounding receptors. Mitigation measures for reducing traffic emissions resulting from daily commutes to/from the development include: no car parking will be provided on-site; 195 bicycle spaces will be put in place. These measures will promote a sustainable commute to the development, through cycling, as well as one of the numerous modes of transport available within the area.

7.3 Monitoring

Prior to the construction phase for one month, the following parameters will be monitored in order to determine a baseline and the necessary filtration requirements throughout remaining stages of the development. This will be done in order to achieve the relevant WELL Building Performance Standards.

- Carbon Monoxide (CO).
- Nitrogen Dioxide (NO2).
- PM2.5.
- PM10.

It is also recommended to carry out bergerhoff dust monitoring at several suitable boundary locations for the duration of the construction phase.

8. Conclusion

As the concentration of all pollutants of concern, with the exception of NO2, fall within the relevant AQS objectives, and the only dust generating activity that has been determined to have a large dust emission magnitude being demolition, the overall construction phase poses a medium risk. Through site best practices and the implementation of suitable mitigation measures, the impact of pollutant releases will be minimised. As a result, the residual effect of the construction phase on air quality will not be significant.

Once Implemented, the applicant would ensure compliance with legislation and policy.

An AQN also has been carried out for the development. It has been determined that the project is Air Quality Neutral. Both the calculated BEB and TEB are not exceeded by the development during its operational phase.

9. Appendix

A. References

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About Environmental Efficiency

Environmental Efficiency was founded in 1996 by two experienced consulting engineers, both with extensive backgrounds in manufacturing, quarrying, IT and construction in the UK, Ireland and overseas.

Our mission is to help improve our clients' environmental and H&S performance in cost effective and practical ways and as a result build long term relationships.

Engineers are natural problem solvers and this, coupled with the expertise of our staff of environmental consultants, enables us to offer solutions to environmental problems that are cost effective and practical.

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