

BEAM PARK STATION

AIR QUALITY ASSESSMENT

October 2024



SUPPORTED BY

MAYOR OF LONDON



Beam Park Station, Havering

Air Quality Assessment

On behalf of

Beam Park Deemed Partnership

Project Ref: 332611521/100 | Rev: Finalv1 | Date: June 2024

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1 Introduction

1.1 Proposed Development

- 1.1.1 Beam Park Deemed Partnership (the 'Applicant') has commissioned Stantec to undertake an air quality assessment to support an application for detailed planning permission for the development of Beam Park Station, Havering, located to the south of Halewood Way (the 'Site'). The Site is located within the administrative boundary of the London Borough of Havering (LBH).
- 1.1.2 The planning application for detailed planning permission for the development a new Railway Station as part of the Beam Park development (the 'Proposed Development').
- 1.1.3 The provision of a new railway station at Beam Park has been a long-standing planning policy aspiration and already has the benefit of Planning Permission through approval GLA/2933a/03, which consented the wider redevelopment of the Beam Park site for a development of 3,000 new homes and supporting community infrastructure. There have been a number of subsequent approvals relative to the detail of the Beam Park development, most recently in the form of Planning Permission 22/01048/OUTSRM issued by the London Borough of Barking and Dagenham, uplifting the level of development to take place.
- 1.1.4 With this latest approval there was concern from planning officers at the London Borough of Havering that as a result of recent planning case law, and in particular the Hillside case, that the developer could suggest that as there was a new Planning Permission which remaster planned part of the wider Beam Park development site, the original Planning Permission could no longer be implemented.
- 1.1.5 Thus, the earlier obligation to deliver the station could not be enforced. In response to such concerns the legal agreement linked to the new approval contained an obligation on the applicant to submit a new stand-alone application for the station building based purely on the detail previously considered and approved through application GLA/2933a/03. LBH officers believed that such an approval would safeguard against possible arguments that the station no longer benefitted from an implementable Planning Permission. It is in this context that the current application is being made.

1.2 Scope of Assessment

- 1.2.1 This report describes existing air quality within the study area and assesses the impact of the construction and operation of the Proposed Development on air quality in the study area. The Site itself is not considered sensitive to poor air quality due to the nature of the proposed end-use (i.e. non-residential).
- 1.2.2 The main air pollutants of concern related to construction are dust and fine particulate matter (PM₁₀) associated with on-site construction activities and off-site trackout.
- 1.2.3 The main air pollutants of concern during the operational period are NO₂, PM₁₀ and PM_{2.5} emissions associated with road traffic.
- 1.2.4 There is no energy centre associated with the Proposed Development, therefore, emissions from energy sources are scoped out the assessment. Therefore, in accordance with the air quality neutral guidance, the development is considered to be air quality neutral with respect to building emissions and no further assessment has been undertaken within this report.
- 1.2.5 The development is considered to be 'car-free' as it includes no parking spaces. Therefore, in accordance with the air quality neutral guidance, the development is considered to be air quality

neutral with respect to transport emissions and no further assessment has been undertaken within this report.

- 1.2.6 The assessment has been prepared taking into account relevant local and national guidance, policy and legislation.
- 1.2.7 A glossary of terms used in this assessment is provided in **Appendix A**

1.3 Consultation

- 1.3.1 Consultation has been carried out between Stantec and LBH in the form of email correspondence with the Environmental Health Department in May 2024. The scope and methodology of the assessment was discussed and agreed with the Environmental Health Department at LBH.

2 Legislation, Policy and Guidance

2.1 Air Quality Regulations

- 2.1.1 The Air Quality (England) Regulations 2000 (AQR) defined National Air Quality Objectives (NAQOs, a combination of concentration-based thresholds, averaging periods and compliance dates) for a limited range of pollutants. Subsequent amendments were made to the AQR in 2001 and 2002 to incorporate 'limit values' and 'target values' for a wider range of pollutants as defined in European Union (EU) Directives.
- 2.1.2 These amendments were consolidated by the Air Quality Standards Regulations 2010 (AQSR) (with subsequent amendments most notably in 2016 and for the devolved administrations), which transposed the EU's Directive on ambient air quality and cleaner air for Europe (2008/50/EC).
- 2.1.3 Following the Transition Period after the UK's departure from the EU in January 2020, the Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019 (and subsequent amendments for the devolved administrations) have amended the AQ Standards Regulations 2010 to reflect the fact that the UK has left the EU. The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020 amended the PM_{2.5} limit value in the AQSR to 20 µg/m³.
- 2.1.4 The relevant NAQOs for this assessment are shown in **Table 2-1**.

Table 2-1 Relevant Air Quality Objectives

Pollutant	Time Period	NAQOs	Source
NO ₂	1-hour mean	200 µg/m ³ not to be exceeded more than 18 times a year	NAQO and AQSR limit value
	Annual mean	40 µg/m ³	NAQO and AQSR limit value
PM ₁₀	24-hour mean	50 µg/m ³ not to be exceeded more than 35 times a year	NAQO and AQSR limit value
	Annual mean	40 µg/m ³	NAQO and AQSR limit value
PM _{2.5}	Annual mean	20 µg/m ³	NAQO and AQSR limit value

- 2.1.5 The NAQO's for NO₂ and PM₁₀ were to have been achieved by 2005 and 2004 respectively, but also continue to apply in all future years thereafter.
- 2.1.6 The 2019 Clean Air Strategy includes a commitment to set a "*new, ambitious, long-term target to reduce people's exposure to PM_{2.5}*" which the Environment Act 2021 commits the Secretary of State to setting. Additionally, the Mayor of London has committed to meeting the World Health Organisation (WHO) guideline of 10 µg/m³ by 2030. Two PM_{2.5} targets were published via The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 and are set out below:
- an annual mean concentration target for PM_{2.5} levels in England to be 10 µg/m³ or below by 2040; and

- a population exposure reduction target for a reduction in PM_{2.5} population exposure of 35% compared to 2018 to be achieved by 2040.

2.1.7 The Government has published an Environmental Improvement Plan 2023 (Department for Environment and Rural Affairs (DEFRA), 2023a) which sets out the following interim PM_{2.5} targets to be met by the end of January 2028:

- the highest annual mean concentration in the most recent full calendar year must not exceed 12 µg/m³ of PM_{2.5}; and
- compared to 2018, the reduction in population exposure to PM_{2.5} in the most recent full calendar year must be 22% or greater.

National Air Quality Plan for NO₂ in the UK

2.1.8 The national Air Quality Plan for NO₂ (DEFRA, 2018) sets out how the Government plans to deliver reductions in NO₂ throughout the UK, with a focus on reducing concentrations to below the EU Limit Values throughout the UK within the 'shortest possible time'.

2.1.9 The plan requires all local authorities in England which DEFRA identified as having exceedances of the limit values in their areas past 2020 to develop local plans to improve air quality and identify measures to deliver reduced emissions, with the aim of meeting the limit values within their area within "*the shortest possible time*". Potential measures include changing road layouts, encouraging public and private ultra-low emission vehicle (ULEV) uptake, the use of retrofitting technologies and new fuels and encouraging public transport. In cases where these measures are not sufficient to bring about the required change within 'the shortest possible time' then local authorities may consider implementing access restrictions on more polluting vehicles (e.g. Clean Air Zones (CAZs)). A CAZ is defined within the plan as being "*an area where targeted action is taken to improve air quality and resources are prioritised and coordinated in a way that delivers improved health benefits and supports economic growth*" and may be charging or non-charging.

2.2 Air Quality Management

The Air Quality Strategy

2.2.1 Part IV of the Environment Act 1995 required the Secretary of State to prepare and publish and 'strategy' regarding air quality.

2.2.2 The Air Quality Strategy (2007) establishes the policy framework for ambient air quality management and assessment in the UK (DEFRA, 2007). The primary objective of the Air Quality Strategy is to ensure that everyone can enjoy a level of ambient air quality which poses no significant risk to health or quality of life. The Air Quality Strategy sets out the NAQOs and Government policy on achieving these.

2.2.3 The Environment Act required an updated Air Quality Strategy and the Air Quality Strategy (DEFRA, 2023b) sets out six priorities including boosting active travel and public transport. The Air Quality Strategy sets out the Government policy on achieving the NAQOs, including the new targets for PM_{2.5}.

2.2.4 The Clean Air Strategy (2019) aims to lower national emissions of pollutants, thereby reducing background pollution and minimising human exposure to harmful concentrations of pollution. The Strategy aims to create a stronger and more coherent framework for action to tackle air pollution (DEFRA, 2019).

Local Air Quality Management

- 2.2.5 Part IV of the Environment Act 1995 (Environment Act, 1995) introduced a system of Local Air Quality Management (LAQM) which requires local authorities to regularly and systematically review and assess air quality within their boundary and appraise development and transport plans against these assessments.
- 2.2.6 Where a NAQO is unlikely to be met, the local authority must designate an Air Quality Management Area (AQMA) and draw up an Air Quality Action Plan (AQAP) setting out the measures it intends to introduce in pursuit of the NAQO's within its AQMA.
- 2.2.7 The Local Air Quality Management Technical Guidance 2022 (LAQM.TG(22); DEFRA, 2022), issued by DEFRA for local authorities provides advice as to where the NAQOs apply. These include outdoor locations where members of the public are likely to be regularly present for the averaging period of the objective (which vary from 15 minutes to a year) as summarised in **Table 2-2**.

Table 2-2 Relevant Public Exposure

Averaging Period	NAQOs should apply at:	NAQOs don't apply at:
Annual mean	All locations where members of the public might be regularly exposed For example: Building façades of residential properties, schools, hospitals, care homes etc	Façades of offices or other places of work where members of the public do not have regular access Hotels, unless people live there as their permanent residence Gardens of residences Kerbside sites Any other location where public exposure is expected to be short term
24-hour mean and 8-hour mean	All locations where the annual mean NAQO would apply, together with hotels and gardens of residences	Kerbside sites Any other location where public exposure is expected to be short term
1-hour mean	All locations where the annual mean and 24 and 8-hour mean NAQOs apply as well as: Kerbside sites Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more. Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer.	Kerbside locations where the public would not be expected to have regular access
15-minute mean	All locations where members of the public might reasonably be regularly exposed for a period of 15 minutes or longer.	

2.3 Planning Policy

National Planning Policy

- 2.3.1 The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how they are expected to be applied (Department for Levelling Up, Housing and Communities (DLUHC), 2023). The following paragraphs are considered relevant from an air quality perspective.
- 2.3.2 Paragraph 108 on promoting sustainable transport states:
- "Transport issues should be considered from the earliest stages of plan-making and development proposals, so that: ...*
- d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; ..."*
- 2.3.3 Paragraph 109 goes on to state:
- "Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health."*
- 2.3.4 Paragraph 180 on conserving and enhancing the natural environment states:
- "Planning policies and decisions should contribute to and enhance the natural and local environment by: ...*
- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land stability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans, and..."*
- 2.3.5 Paragraph 191 within ground conditions and pollution states:
- "Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development."*
- 2.3.6 Paragraph 192 states that:
- "Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."*
- 2.3.7 Paragraph 193 states that:

"Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed".

National Planning Practice Guidance

- 2.3.8 Paragraph 005, Reference 32-005-20191101 (revision date 01.11.2019), of the Planning Practice Guidance (PPG) provides guidance on how considerations regarding air quality can be relevant to the development management process as follows:

"Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and/or breach legal obligations (including those relating to the conservation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity.

- *Where air quality is a relevant consideration the local planning authority may need to establish:*
- *The 'baseline' local air quality, including what would happen to air quality in the absence of the development;*
- *Whether the proposed development could significantly change air quality during the construction and operational phases (and the consequences of this for public health and biodiversity); and*
- *Whether occupiers or users of the development could experience poor living conditions or health due to poor air quality."*

- 2.3.9 Paragraph 006, Reference 32-006-20191101 (revision date 01.11.2019), of the PPG identifies what specific air quality issues need to be considered in determining a planning application:

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

- *Lead to changes (including any potential reductions) in vehicle-related emissions in the immediate vicinity of the proposed development or further afield. This could be through the provision of electric vehicle charging infrastructure; altering the level of traffic congestion; significantly changing traffic volumes, vehicle speeds or both; and significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal involves the development of a bus station, coach or lorry park; could add to turnover in a large car park; or involve construction sites that would generate large Heavy Goods Vehicle flows over a period of a year or more;*
- *Introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; biomass boilers or biomass-fuelled Combined Heat and Power plant; centralised boilers or plant burning other fuels within or close to an air quality management area or introduce relevant combustion within a Smoke Control Area; or extraction systems (including chimneys) which require approval or permits under pollution control legislation;*

- *Expose people to harmful concentrations of air pollutants, including dust. This could be by building new homes, schools, workplaces or other development in places with poor air quality;*
- *Give rise to potentially unacceptable impacts (such as dust) during construction for nearby sensitive locations; and*
- *Have a potential adverse effect on biodiversity, especially where it would affect sites designated for their biodiversity value."*

2.3.10 Paragraph 007, Reference 32-007-20191101 (revision date 01.11.2019), of the PPG provides guidance on how detailed an assessment needs to be:

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

and

"The following could form part of assessments:

A description of baseline conditions and any air quality concerns affecting the area, and how these could change both with and without the proposed development;

- *Sensitive habitats (including designated sites of importance for biodiversity);*
- *The assessment methods to be adopted and any requirements for the verification of modelling air quality;*
- *The basis for assessing impacts and determining the significance of an impact;*
- *Where relevant, the cumulative or in-combination effects arising from several developments;*
- *Construction phase impacts;*
- *Acceptable mitigation measures to reduce or remove adverse effects; and*
- *Measures that could deliver improved air quality even when legally binding limits for concentrations of major air pollutants are not being breached."*

2.3.11 Paragraph 008, Reference 32-008-20140306 (revision date 01.11.2019), of the PPG provides guidance on how an impact on air quality can be mitigated:

"Mitigation options will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact. It is important that local planning authorities work with applicants to consider appropriate mitigation so as to ensure new development is appropriate for its location and unacceptable risks are prevented. Planning conditions and obligations can be used to secure mitigation where the relevant tests are met.

Examples of mitigation include:

- *Maintaining adequate separation distances between sources of air pollution and receptors;*
- *Using green infrastructure, trees, where this can create a barrier or maintain separation between sources of pollution and receptors;*

- *Appropriate means of filtration and ventilation;*
- *Including infrastructure to promote modes of transport with a low impact on air quality (such as electric vehicle charging points);*
- *Controlling dust and emissions from construction, operation and demolition; and*
- *Contributing funding to measures, including those identified in air quality action plans and low emission strategies, designed to offset the impact on air quality arising from new development."*

Local Planning Policy

Havering Local Plan 2016-2031

- 2.3.12 The Havering Local Plan (LBH, 2021) was adopted in November 2021 and sets out the Councils' vision and strategy for future growth and development up to 2031. Air Quality is a recognised issue in the Borough and consequently an objective has been put in place to improve it ("xvii. *Improve and manage air quality, noise, land and light pollution throughout the borough, protecting and enhancing the levels of amenity that Havering residents currently experience*"). The policies relating to air quality can be seen below:

2.3.13 Policy 12: Healthy Communities

"The Council will support development in Havering that provides opportunities for healthy lifestyles, contribute to the creation of healthier communities and helps reduce health inequalities.

[...]

The Local Plan will promote health and wellbeing by:

[...]

viii. Seeking environmental improvements, minimising exposure to pollutants and improving air quality (refer to Policies 33 and 34); and

[...]"

2.3.14 Policy 29: Green Infrastructure

"The Council will seek to maintain and expand the network of green spaces and natural features in Havering and optimise the benefits of green infrastructure to the environment, economy and community.

The Council will support development which includes green infrastructure on-site which is multifunctional and integrates into the wider green infrastructure network.

[...]"

2.3.15 Policy 33: Air Quality

"The Council is committed to improve air quality in Havering to improve the health and wellbeing of Havering's residents. The Council will support development which:

i. Is at least air quality neutral;

- ii. Optimises the use of green infrastructure to reduce pollution concentrations and exposure (see Policy 29);*
- iii. Delivers measures to support active travel to reduce emissions (see Policy 23)*
- iv. Meets the targets for carbon dioxide reduction in the London Plan (see Policy 36); and*
- v. Minimises emissions from construction (see Policy 34)."*

2.3.16 Policy 34: Managing Pollution

"The Council will support development proposals that:

- i. Do not unduly impact upon amenity, human health and safety and the natural environment by noise, dust, odour and light pollution, vibration and land contamination;*
- ii. Do not pose an unacceptable risk to the quality of the water catchment, groundwater or surface water; and*
- iii. Optimise the design, layout and orientation of buildings and the use of green infrastructure to minimise exposure to the above pollutants."*

2.3.17 Policy 36: Low carbon design and renewable energy

"The Council will seek to optimise the energy efficiency of buildings and support low carbon and renewable energy developments including energy efficiency improvements to existing buildings.

[...]

All stand-alone renewable energy developments should be located and designed to minimise any adverse impacts. Applicants are required to address the following issues in their proposals: impacts on landscape, biodiversity, historic environment, residential amenity, aviation activities, air quality, highway safety and fuel/energy security, including their cumulative and visual impacts.

[...]"

London Borough of Havering Local Implementation Plan

- 2.3.18 The London Borough of Havering Local Implementation Plan (LBH, 2018a) was adopted in 2018 and sets out Havering's strategy for implementing the Mayors Transport Strategy. The plan has been developed to take into account the objectives of the Local Plan, one of those being to minimise air pollution. It also takes into account the Councils Air Quality Action Plan which expired in 2023.

London Borough of Havering Air Quality Action Plan 2018- 2023

London Borough of Havering Air Quality Action Plan (LBH, 2018b) was adopted in 2018 and outlines the actions the Council will take to improve the Boroughs air quality. The action plan ran until 2023 but an updated version is yet to be published.

London Planning Policy

The London Plan: The Spatial Development Strategy for Greater London

2.3.19 The London Plan (GLA, 2021) sets out the Mayor of London's overall strategic plan for London. It runs from 2019 to 2041 and provides a longer-term view of London's development to inform decision making.

2.3.20 Policy SI1 'Improving air quality' states that:

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

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

1. Development proposals should not:

a) lead to further deterioration of existing poor air quality

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

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

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

a) Development proposals must be at least air quality neutral

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

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

d) Development proposals in Air Quality Focus Areas or that are likely to be used by large numbers of people particularly vulnerable to poor air quality, such as children or older people, which do not demonstrate that design measures have been used to minimise exposure should be refused.

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

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

b) What measures or design features will be put in place to reduce exposure to pollution, and how they will achieve this.

D. In order to reduce the impact on air quality during the construction and demolition phase development proposals must demonstrate how they plan to comply with the Non-Road Mobile Machinery Low Emission Zone and reduce emissions from the demolition and construction of buildings following best practice guidance.

E. Development proposals should ensure that where emissions need to be reduced to meet the requirements of Air Quality Neutral or to make the impact of development on local air quality acceptable, this is done on-site. Where it can be demonstrated that emissions cannot be further

reduced by on-site measures, off-site measures to improve local air quality may be acceptable, provided that equivalent air quality benefits can be demonstrated within the area affected by the development.”

2.3.21 Paragraph 9.1.21 states:

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

2.3.22 Policy GG3 on ‘Creating a health city’ states:

“To improve Londoners’ health and reduce health inequalities, those involved in planning and development must... seek to improve London’s air quality, reduce public exposure to poor air quality and minimise inequalities in levels of exposure to air pollution.”

The London Environmental Strategy

2.3.23 The London Environmental Strategy, published in May 2018, evaluates the current condition of London’s environment at a city-wide level (GLA, 2018). This is the first strategy to bring together approaches to every aspect of London’s environment, including air quality as well as green infrastructure, climate change mitigation and energy, waste, adapting to climate change, ambient noise and low carbon circular economy.

2.3.24 The Strategy aims, among other objectives *“for London to have the best air quality of any major world city by 2050, going beyond the legal requirements to protect human health and minimise inequalities”.*

2.3.25 Chapter 4 on Air Quality includes a series of objectives, policies and proposals to improve air quality. The following key issues have been highlighted to be addressed within the Strategy:

- achieving legal compliance as quickly as possible;
- diesel vehicles, especially cars and vans;
- tackling all sources of pollution;
- government action;
- maximising co-benefits between air quality and climate change policies; and
- further reductions are needed in PM₁₀ and PM_{2.5}, particularly from transboundary pollution, tyre and brake wear, and wood burning.

2.3.26 The London Environment Strategy also includes a commitment to meet the World Health Organization’s (WHO) recommended guideline for PM_{2.5} by 2030. The WHO acknowledges that current evidence suggests no safe level for PM_{2.5}. However, the WHO set a guideline (which has since been amended), which is 10 µg/m³ as an annual mean.

2.4 Assessment Guidance

2.4.1 The primary guidance documents used in undertaking this assessment are detailed below.

DEFRA 'Local Air Quality Management Technical Guidance (LAQM.TG (22))'

- 2.4.2 DEFRA LAQM.TG(22) was published for use by local authorities in their LAQM review and assessment work (DEFRA, 2022). The document provides key guidance on aspects of air quality assessment, including screening, use of monitoring data, and use of background data that are applicable to all air quality assessments.

EPUK-IAQM 'Land-Use Planning & Development Control: Planning for Air Quality'

- 2.4.3 Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have together published guidance to help ensure that air quality is properly accounted for in the development control process (EPUK / IAQM 2017). It clarifies when an air quality assessment should be undertaken, what it should contain, and how impacts should be described and assessed including guidelines for assessing the significance of impacts.

IAQM 'Guidance on the Assessment of Dust from Demolition and Construction'

- 2.4.4 Guidance on the assessment of dust from demolition and construction has been published by the IAQM (IAQM, 2024). The guidance provides a series of matrices to determine the risk magnitude of potential dust sources associated with construction activities in order to identify appropriate mitigation measures that are defined within further IAQM guidance.
- 2.4.5 Within the IAQM guidance, an 'impact' is described as a change in pollutant concentrations or dust deposition and an 'effect' is described as the consequence of an impact.

2.5 London Guidance

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

- 2.5.1 Guidance on the assessment of dust from demolition and construction with the GLA boundary (GLA, 2014). The GLA guidance is largely based on the IAQM's guidance, and it states that "*the latest version of the IAQM Guidance should be used*".

The Greater London Authority's 'London Local Air Quality Management Technical Guidance (LLAQM.TG (19))'

- 2.5.2 LLAQM.TG (19) was published for use by London local authorities (the Greater London Authority) in their LAQM review and assessment work (GLA, 2019a). The document provides key guidance in aspects of air quality assessment, including screening, use of monitoring data, and use of background data that are applicable to all air quality assessments.

The Greater London Authority's 'London Local Air Quality Management Policy Guidance (LLAQM.TG (19))'

- 2.5.3 The Local Air Quality Management Policy Guidance LLAQM.PG(19) (GLA, 2019b) provides additional guidance on the links between transport and air quality. LLAQM.PG(19) describes how road transport contributes to local air pollution and how transport measures may bring improvements in air quality. Key transport-related Government initiatives are set out, including regulatory measures and standards to reduce vehicle emissions and improve fuels, tax-based measures and the development of an integrated transport strategy.

- 2.5.4 LLAQM.PG (19) also provides guidance on the links between air quality and the land use planning system. The guidance advises that air quality considerations should be integrated within the planning process at the earliest stage, and is intended to aid local authorities in developing action plans to deal with specific air quality issues and create strategies to improve air quality. LLAQM.PG (19) summarises the means in which the land use planning system can help deliver compliance with the air quality objectives.

Mayor of London 'London Plan Guidance: Air Quality Neutral'

- 2.5.5 The London Plan Guidance on Air Quality Neutral (GLA, 2023) has been prepared to assist developers, boroughs and others involved in designing and planning new development to ensure compliance with Policy SI 1 of the London Plan. The guidance provides an update to the Air Quality Neutral Benchmarks considering the most up-to-date evidence and provides clarification on how to apply the benchmarks to support planning applications to ensure that their transport and building emissions do not worsen air quality in London.

3 Methodology

3.1 Introduction

- 3.1.1 The assessment methodology detailed in the following sections has been applied to ascertain the potential impacts of emissions to air in order to identify their significance and compliance with policy and regulatory requirements (outlined in **Section 2** of this report), and whether or not additional mitigation is required.
- 3.1.2 This assessment first outlines the existing air quality within the study area, then considers the suitability of the Site for the proposed end-use. It also assesses the impact of construction and operational activities on air quality and sensitive receptors in the study area.

3.2 Baseline Air Quality

- 3.2.1 Any exceedances of the limit values along roads within the study area have been identified using the 2020 NO₂ Projections Data published by DEFRA (DEFRA, 2020a). Information on baseline air quality in the study area has been obtained by collating the results of monitoring carried out by LBH and their LAQM reports to identify potential AQMAs. The proximity of the Site to Air Quality Focus Areas (AQFAs) has been identified based on the latest LAEI update (GLA, 2019c). Background concentrations for the study area have been defined using the national pollution maps published by DEFRA which cover the whole country on a 1x1 km grid (DEFRA, 2020b).

3.3 Construction Dust Impacts

- 3.3.1 During demolition and construction, dust from on-site activities and off-site trackout by construction vehicles has the potential to impact on sensitive human receptors within the study area. The main potential impacts are loss of amenity (as a result of dust soiling) and deterioration of human health (as a result of concentrations of PM₁₀).
- 3.3.2 The suspension of particles in the air is dependent on surface characteristics, weather conditions and on-site activities. Impacts have the potential to occur when dust generating activities coincide with dry, windy conditions, and where sensitive receptors are located downwind of the dust source(s).
- 3.3.3 Separation distance is also an important factor. Large dust particles (greater than 30 µm), can be potentially responsible for most dust annoyance, will largely deposit within 100 m of sources. Intermediate particles (10-30 µm) can travel 200-500 m. Consequently, significant dust annoyance is usually limited to within a few hundred metres of its source. Smaller particles (less than 10 µm), which are the predominant fraction that can be potentially responsible for human health impacts largely remain airborne. However, the impact on the short-term concentrations of PM₁₀ occurs over a shorter distance due to the rapid decrease in concentrations with distance from the source due to dispersion.
- 3.3.4 The assessment of the risk of potential construction dust impacts has been undertaken with reference to relevant guidance (GLA, 2014). The assessment methodology considers three separate potential dust impacts:
- loss of amenity due to dust soiling;
 - human health effects due to increases in concentrations of PM₁₀; and
 - harm to ecological receptors due to increased dust deposition.

- 3.3.5 The first stage of the assessment involves a screening to determine if there are sensitive receptors within threshold distances of the activities associated with the construction phase of the scheme; defined as the study area. No further assessment is required if there are no receptors within the study area.
- 3.3.6 Section 4.6 of the GLA guidance states “The approach outlined below is based on the site *evaluation process set out in the Institute of Air Quality Management’s (IAQM) 2014 Guidance on the Assessment of dust from demolition and construction. This guidance is periodically updated and, therefore, the latest version of the IAQM Guidance should be used.*” As such, the methodology outlined in the IAQM guidance published in 2024 has been used in this assessment.
- 3.3.7 The IAQM guidance outlines that an assessment is only required where:
- A ‘human receptor’ is located within:
 - 250 m of the boundary of the Site; or
 - 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the Site entrance(s).
- 3.3.8 The assessment of potential risk is determined by considering the risk of dust impacts arising from four activities in the absence of mitigation:
- demolition;
 - earthworks;
 - construction; and
 - trackout.
- 3.3.9 The dust emission class (or magnitude) for each activity, receptor sensitivity and the overall sensitivity of the area are determined using the criteria outlined in **Table B-1** to **Table B-4** in **Appendix B** (based on the IAQM guidance), indicative thresholds and professional judgement. The risk of dust impacts arising is a product of the relationship between the dust emission magnitude and the area sensitivity and is based on the criteria outlined in **Table B-6** (based on the IAQM guidance). The risk of impact is then used to determine the mitigation requirements.
- 3.3.10 The IAQM guidance recommends that no assessment of the significance of effects is made without mitigation in place, as mitigation is assumed to be secured by planning conditions, legal requirements or required by regulations.
- 3.3.11 With appropriate mitigation in place, the IAQM guidance indicates that the residual effect dust emissions associated with the demolition and construction can be classified as being 'not significant'.

3.4 Construction Road Traffic Emission Impacts

- 3.4.1 The potential for a significant overall effect on existing sensitive receptors within the study area as a result of emissions from demolition and construction traffic generated by the Proposed Development has been determined qualitatively, taking into consideration the screening criteria outlined in the EPUK / IAQM guidance (EPUK / IAQM, 2017) (see **Appendix C**) the anticipated routing of the generated traffic and the anticipated duration of impacts associated with the generated traffic.

3.5 Demolition and Construction Non-Road Mobile Machinery Emission Impacts

3.5.1 The impacts of emissions associated with NRMM during the construction phase of Proposed Development has been undertaken qualitatively, taking into account the following:

- Duration of works;
- Type and number of NRMM to be used on-site;
- Operating hours of NRMM;
- Emissions standard to which NRMM comply;
- Proximity of receptors to NRMM working areas; and
- Existing background pollutant concentrations.

3.5.2 In accordance with DEFRA's LAQM TG.22 (DEFRA, 2022), with suitable controls and site management in place, emissions associated with NRMM and site traffic are unlikely to have significant impact on local air quality.

3.6 Operational Road Traffic Emission Impacts

3.6.1 The potential for significant impacts on existing sensitive receptors within the study area as a result of emissions from traffic generated by the Proposed Development is determined based on the screening criteria outlined in the EPUK / IAQM Guidance (see **Appendix C**) which includes consideration of the volume and composition of traffic generated by the Proposed Development and existing local air quality conditions (i.e. the presence of any declared AQMAs). It should be noted that if traffic from a development exceeds these levels, then it does not necessarily mean that a modelling assessment is necessary, only that the air quality impacts of traffic require more detailed consideration.

4 Baseline Environment

4.1 Site Context

- 4.1.1 The Site lies to the east of Marsh Way, to the south of Halewood Way, to the north of the railway line and to the west of existing residential properties. The local area is made up of a mixture of residential properties, commercial areas and railway lines.

4.2 Study Area

- 4.2.1 The study area adopted for this assessment is as follows:
- for the construction phase assessment, the study area (based on IAQM, 2024 guidance) is defined as up to 250 m from the Site or 50 m from the route of construction vehicles (up to 250m from the Site entrance).
 - For the construction and operational phase road traffic emissions assessment, the study area (based on EPUK / IAQM, 2017 guidance) is defined as all roads within 250 m of the Site and any other roads which could potentially exceed the screening criteria outlined in **Appendix C**.

4.3 Ambient Air Quality

Limit Values

- 4.3.1 The study area contains predicted and measured exceedances of limit values in the existing year. The closest exceedance of limit values is on the A13 to the south of the Site.

LAQM

- 4.3.2 LBH and the London Borough of Barking and Dagenham (LBBD) have investigated air quality within their areas as part of its responsibilities under the LAQM regime. Borough-wide Air Quality Management Areas (AQMA) have been declared however there has been a decline in measured NO₂ levels over the past five years.

Local Monitoring Data

NO₂

- 4.3.3 LBH undertakes automatic monitoring of NO₂ concentrations at two locations in the Borough, the closest of which to the Site is the Rainham monitoring station. LBH also undertakes monitoring using NO₂ diffusion tubes at a number of locations (HAV). The closest diffusion tube monitoring location to the Site, HAV63, is located approximately 250 m northeast on the New Road Junction with Spencer Road. Monitoring sites located within 2 km of the Site and HV1 (as the closest automatic monitor) are described in **Table 4-1** to **Table 4-5** and their locations are shown in **Figure 4-1**.
- 4.3.4 Diffusion tube monitoring locations from the neighbouring borough, the London Borough of Barking and Dagenham (LBBD), have also been included in **Table 4-1** as some are within 1 km of the Site (DT).

- 4.3.5 Whilst 2020 and 2021 monitoring results have been included below, it should be noted that these are not considered to be representative of longer term trends due to COVID-19 travel restrictions in place during these years.

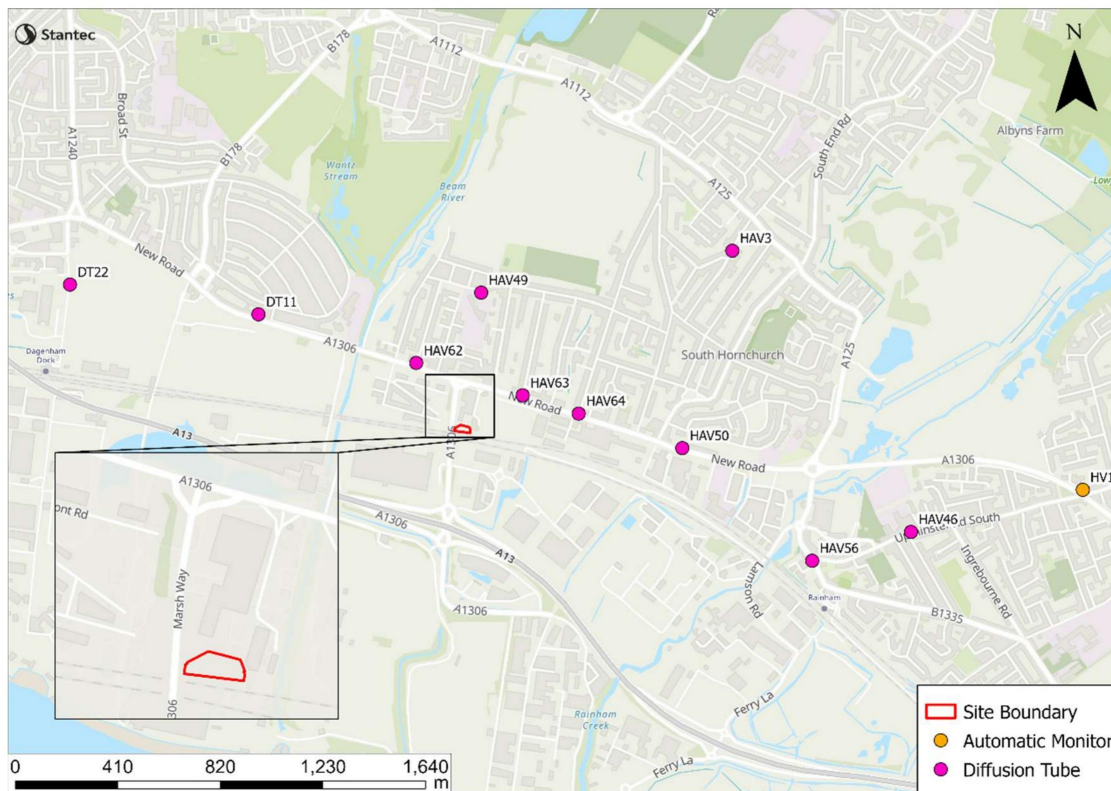


Figure 4-1 Monitoring Locations in the vicinity of the Site.

Contains OS Data © Crown Copyright and Database rights 2023. Contains data from OS Zoomstack.

Table 4-1 Measured Annual Mean NO₂ Concentrations 2017-2022

Site ID	Site Type	Within AQMA	Annual Mean NO ₂ (µg/m ³)					
			2017	2018	2019	2020	2021	2022
Automatic Monitors								
HV1 - Rainham	Roadside	Y	34.3	30.0	29.1	23.0	23.0	23.0
Diffusion Tubes								
HAV3	Urban Background	Y	31.7	26.5	26.0	25.1	19.8	NA
HAV46	Kerbside	Y	33.0	32.2	30.0	27.8	24.4	NA
HAV49	Roadside	Y	28.0	34.3	26.6	23.6	22.0	NA
HAV50	Kerbside	Y	46.1	39.8	36.6	32.5	30.5	NA
HAV56	Kerbside		-	-	-	35.7	32.7	NA
HAV62	Kerbside	Y	-	-	-	34.1	28.8	NA
HAV63	Kerbside	Y	-	-	-	30.5	31.0	NA
HAV64	Kerbside	Y	-	-	-	30.9	29.3	NA
DT11*	Roadside	Y	-	-	-	-	31.3	28.1
DT22*	Roadside	Y	-	-	-	-	26.5	23.4
NAQO		40						

2017 - 2021 data taken from the LBH 2022 Air Quality Annual Status Report as it is most the recently published report from LBH (LBH, 2022); 2022 data taken from www.londonair.org.uk and 2018 – 2022 data taken from the London Borough of Barking and Dagenham 2023 Air Quality Annual Status Report* (London Borough of Barking and Dagenham, 2023)

- 4.3.6 There have been no measured exceedances of the annual mean NO₂ NAQO between 2018-2022 at any of the monitoring locations within 2 km of the Site. At the majority of monitoring locations described in **Table 4-1**, there is a generally decreasing trend in measured concentrations over time which reflects the national trend (Air Quality Consultants, 2022).

Table 4-2 Measured Exceedances of the Hourly Mean NO₂ NAQO 2017-2022

Site ID	Number of Hours >200µg/m ³					
	2017	2018	2019	2020	2021	2022
HV1 - Rainham	0	0	0	0	0	0
NAQO	18 (hours >200µg/m³)					

2017-2021 data taken from the LBH 2022 Air Quality Annual Status Reports (LBH, 2022); 2022 data taken from www.londonair.org.uk

- 4.3.7 **Table 4-2** shows that there have been no exceedances of the hourly mean NO₂ NAQO between 2017-2022.

PM₁₀

- 4.3.8 The results of the PM₁₀ monitoring at LBH automatic monitoring locations within in 2.5 km of the Site are shown in **Table 4-3** and **Table 4-4**.

Table 4-3 Measured Annual Mean PM₁₀ Concentrations 2017-2022.

Site ID	Annual Mean PM ₁₀ (µg/m ³)					
	2017	2018	2019	2020	2021	2022
HV1 - Rainham	18.0	17.0	17.4	15.0	13.6	17.0
NAQO	40					

2017 - 2021 data taken from the LBH 2022 Air Quality Annual Status Reports (LBH, 2022); 2022 data taken from www.londonair.org.uk

Table 4-4 Measured Exceedances of the 24-hour Mean PM₁₀ NAQO 2017-2022.

Site ID	PM ₁₀ Number of Days >50µg/m ³					
	2017	2018	2019	2020	2021	2022
HV1 - Rainham	4	1	4	1	0 (23.8)	3
NAQO	35 (days >50 µg/m³)					

2017 - 2021 data taken from the LBH 2022 Air Quality Annual Status Reports (LBH, 2022); 2022 data taken from www.londonair.org.uk

- 4.3.9 Measured PM₁₀ concentrations have been below the relevant NAQOs for the duration of the 2017-2021 monitoring period.

PM_{2.5}

- 4.3.10 The results of the PM_{2.5} monitoring at LBH automatic monitoring locations within in 2 km of the Site are shown in **Table 4-5**.

Table 4-5 Measured Annual Mean PM₁₀ Concentrations 2017-2022.

Site ID	Annual Mean PM _{2.5} (µg/m ³)					
	2017	2018	2019	2020	2021	2022
HV1 - Rainham	12.0	11.0	11.1	9.0	8.8	10.0
NAQO	20					

2017 - 2021 data taken from the LBH 2022 Air Quality Annual Status Reports (LBH, 2022); 2022 data taken from www.londonair.org.uk

- 4.3.11 Measured PM_{2.5} concentrations have been below the relevant NAQOs for the duration of the 2017-2022 monitoring period.

Predicted Background Concentrations

- 4.3.12 Estimated background concentrations for the Site have been obtained from the latest 2018-based national maps provided by DEFRA (DEFRA, 2020b) and are provided in **Table 4-6**.
- 4.3.13 The background concentrations are all well below the relevant NAQOs.

Table 4-6 Estimated Annual Mean Background Concentrations

Year	Location	Annual Mean (µg/m ³)		
		NO ₂	PM ₁₀	PM _{2.5}
2022	550_182	22.0	17.3	11.5
NAQOs		40	40	20

Note: Projections in the 2018 reference year background maps and associated tools are based on assumptions which were current before the Covid-19 outbreak in the UK. In consequence these tools do not reflect short- or longer-term impacts on emissions in 2020 and beyond resulting from behavioural change during the national or local lockdowns.

5 Predicted Impacts

5.1 Construction Dust Impacts

- 5.1.1 There are a number of existing sensitive human receptors (including residential properties and a school) within 350 m of the Site boundary and within 50 m of the routes that will be used by demolition and construction vehicles. As such, further assessment of the risk of dust soiling and PM₁₀ emissions is required.
- 5.1.2 There are no sensitive ecological receptors located within 50 m of the Site boundary or within 50 m of the routes used by demolition and construction vehicles on the public highway. The closest designated ecological site to the Site is located approximately 640 m from the Site boundary. As such, the potential for ecological impacts as a result of dust soiling can be screened out as being 'not significant'.

Dust Emission Magnitude

- 5.1.3 The dust emissions magnitude of demolition, earthworks and construction activities and as a result of trackout have been determined in **Table 5-1** below based the criteria shown in **Table B-1, Appendix B**.

Table 5-1: Dust Emissions Magnitudes

Activity	Magnitude	Justification
Demolition	NA	There are no demolition activities expected at the Site.
Earthworks	Small	Proposed earthworks activities comprise clearance of vegetation, soil preparation and landscaping across an area less than 1,000 m ² . The soil at the Site is largely classified as loamy and clayey soils of coastal flats with naturally high groundwater (Cranfield University, 2024) which are considered to be moderately dusty, particularly during periods of dry weather. Based on this, the dust emission magnitude of earthworks activities is judged to be 'small'.
Construction	Small	The total building volume to be constructed is expected to be below 25,000 m ³ . Construction materials will comprise a mixture of masonry material including those with a high potential for dust release, such as concrete and bricks, as well as those with a lower dust potential such as metals and timber. Based on this, the dust emission magnitude of construction activities is judged to be 'small'.
Trackout	Small	The number of HDVs that will exit the Site will vary depending upon the processes occurring at any one time. There are unlikely to be more than 10 outward HDV movements in any one day. Due to the nature of the Site, there could be an unpaved road length up to 50 m in length comprising moderately dusty surface material. Based on this, the dust emission magnitude of trackout is judged to be 'small'.

Area Sensitivity

- 5.1.4 The area sensitivity to dust soiling and human health impacts has been determined based on the criteria shown in **Appendix B**. The IAQM demolition and construction band criteria used to determine the sensitivity of the local area is shown in below.
- 5.1.5 The area sensitivity to dust soiling and human health impacts has been determined based on the criteria shown in **Table B-3** and **Table B-4**. The IAQM demolition and construction band criteria used to determine the sensitivity of the local area is shown in **Figure 5-1** below.

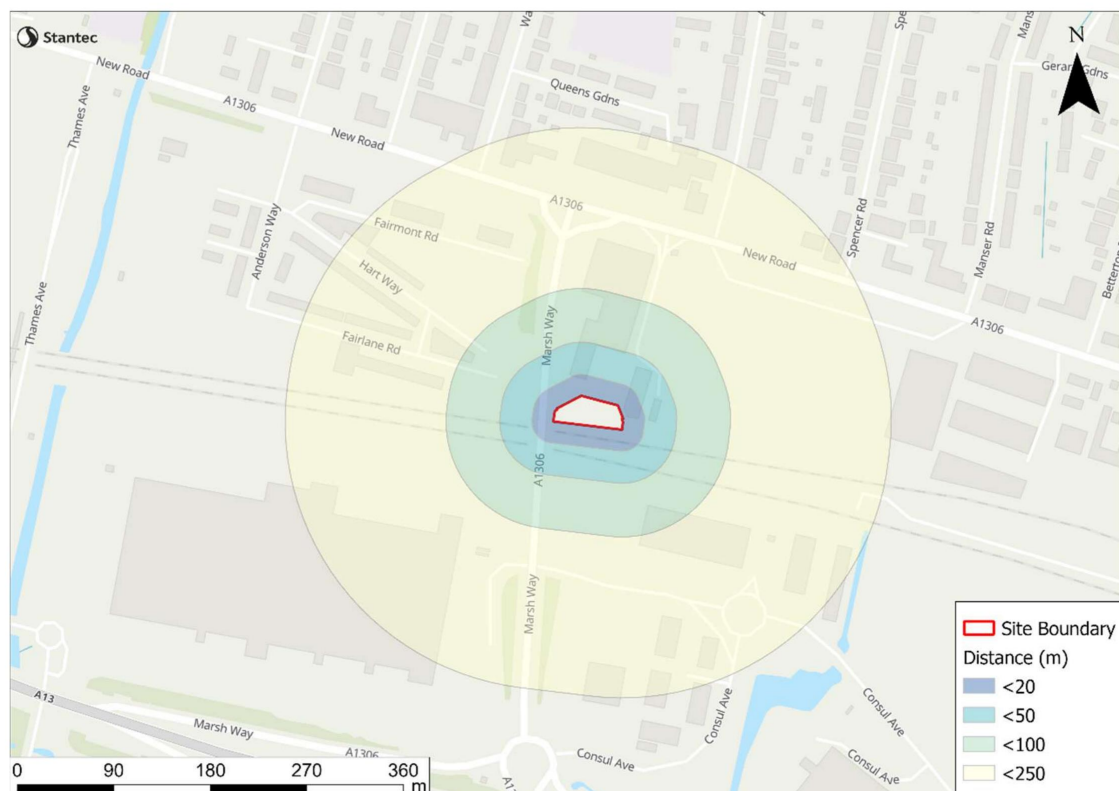


Figure 5-1: IAQM Demolition and Construction Dust band Criteria from the Site boundary. Contains OS Data © Crown Copyright and Database rights 2024. Contains data from OS Zoomstack.

- 5.1.6 Residential properties and schools are classed as being 'high sensitivity' receptors to dust soiling, based on the IAQM guidance (IAQM, 2024) (see **Table B-3, Appendix B**). there are over 10 residential properties within 20 m of the Site boundary; as such, the sensitivity of the area surrounding the Site to dust soiling is judged to be 'high'.
- 5.1.7 The IAQM guidance indicates that potential impacts of trackout should be considered for sensitive receptors within 50m of the route used by construction vehicles within a distance of up to 250 m from the site entrance.
- 5.1.8 As the demolition and construction traffic routing is currently unknown, the worst-case assumption has been made that all main roads may potentially be used by HDVs leaving the Site entrance(s). There are over ten residential properties and a nursery located within 20 m of roads extending up to 250 m of the Site; as such, the sensitivity to dust soiling of the area surrounding roads along which material may be tracked is judged to be 'high'.
- 5.1.9 The IAQM also defines residential properties and schools as being 'high sensitivity' receptors to human health impacts (see **Table B-4, Appendix B**). PM₁₀ concentrations at existing residential properties within the study area are anticipated to be similar to the DEFRA estimated

2022 PM₁₀ concentrations at the Site (17.3 µg/m³). Based on the DEFRA PM₁₀ concentrations and the number of sensitive receptors within 20 m of the Site boundary and roads along which material may be tracked, the sensitivity to human health impacts are judged to be 'low'.

Risk of Impacts

- 5.1.10 The risk of construction dust impacts, without mitigation, have been defined based on the criterion shown in **Table B-6, Appendix B** and are presented in **Table 5-2**.

Table 5-2 Risk of Construction Dust Impacts without Mitigation

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

5.2 Construction Road Traffic Emission Impacts

- 5.2.1 At present, detailed information regarding the construction methodology for the development, specific activities and traffic movements is not available. However, an Air Quality and Dust Management Plan (AQDMP) was submitted in the planning application for Phase 1 (Planning Application Reference: P1242.17) and outlines measures to control and minimise the risk of adverse effects from construction activities. The AQDMP considers Heavy Goods Vehicles (HGV) and other construction traffic movements, including details of routing and times of day of movements. HGV access will be prevented or minimised, where possible, on traffic sensitive roads, residential streets, congested roads or unsuitable junctions.
- 5.2.2 Vehicle movements associated with access and construction will vary through the construction programme, with short periods of peak HGV movements associated with demolition and the delivery of materials during the construction phase. However, when the HGV movements are averaged over a full year period (Annual Average Daily Traffic - AADT), these will be significantly lower than peak movements. Together with the implementation of the AQDMP, the impacts of emissions associated with construction road traffic on local air quality are considered to be temporary and 'not significant'.

5.3 Operational Road Traffic Emission Impacts

- 5.3.1 The Proposed Development will generate approximately <100 AADT during the operational phase. As such, traffic generated by the Proposed Development falls below the EPUK / IAQM screening criteria (see **Appendix C**) and, therefore, the impacts of operational traffic generated by the development on existing sensitive receptors within the study area can be screened and considered to be 'not significant' and no additional assessment is therefore required.

6 Mitigation

6.1 Construction

- 6.1.1 The following standard mitigation measures from the GLA guidance (GLA, 2014) are recommended, taking into account the outcomes of the construction dust risk assessment (presented in **Table 5-2**).

Table 6-1 Construction Phase Mitigation Measures

Category	Mitigation Measure
Communications	Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
	Display the head or regional office contact information.
Management	Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The DMP may include monitoring of dust deposition, dust flux, real time PM ₁₀ continuous monitoring and/or visual inspections.
	Record all dust and air quality complaints, identify cause(s) and take measures to reduce emissions in a timely manner, and record the measures taken.
	Make the complaints log available to the local authority when asked.
	Record any exceptional incidents that cause dust and/or air emissions, either on- of off-site, and the action taken to resolve the situation in the log book.
Monitoring	Undertake daily on-site and off-site inspections, 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 surfaces such as street furniture, cars and window sills within 100 m of the site boundary, with cleaning to be provided if necessary.
	Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.
	Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
Preparing and maintaining the site	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
	Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
	Fully enclose site or specific operations where there is a high potential for dust productions 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.

Category	Mitigation Measure
	Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site, cover as described below.
	Cover, seed or fence stockpiles to prevent wind whipping.
Operating vehicle/machinery and sustainable travel	Ensure all vehicles switch off engines when stationary – no idling vehicles.
	Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable
	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 10 mph on surfaced haul routes 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).
	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking and car sharing).
Operations	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
	Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
	Use enclosed chutes and conveyors and covered skips.
	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
	Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Waste management	Avoid bonfires and burning of waste materials.
	Reuse and recycle waste to reduce dust from waste materials
Construction	Avoid scabbling (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.
Trackout	Use water assisted dust sweeper(0 on the site 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 the site are covered to prevent escape of materials during transport.

Category	Mitigation Measure
	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

6.2 Operation

- 6.2.1 The operational impacts of the Proposed Development are considered to be 'not significant' and 'air quality neutral'. No additional mitigation is therefore required.

7 Summary and Conclusions

- 7.1.1 The air quality impacts associated with the Proposed Development on the land south of Halewood Way have been assessed. The Site is located within the administrative boundary of the London Borough of Havering.
- 7.1.2 A borough-wide Air Quality Management Area has been declared by the London Brough of Havering however there has been a decline in measured NO₂ levels over the past five years.
- 7.1.3 The construction works have the potential to create dust. During construction it is recommended that, in accordance with the Greater London Authority guidance, a package of mitigation measures is put in place to minimise the risk of elevated PM₁₀ concentrations and dust nuisance in the surrounding area. With mitigation in place, the construction impacts are judged as 'not significant'.
- 7.1.4 This assessment has shown that the development can be considered as 'air quality neutral' in terms of both building and transport emissions and no further site-specific mitigation is required.
- 7.1.5 The Proposed Development is therefore considered to be in accordance with the requirements of the NPPF, and relevant local and national guidance regarding air quality.

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Appendix A Glossary

Abbreviations	Meaning
AADT	Annual Average Daily Traffic
AQAP	Air Quality Action Plan
AQFA	Air Quality Focus Areas
AQMA	Air Quality Management Area
AURN	Automatic Urban and Rural Network
CAZ	Clean Air Zone
CAZ	Central Activities Zone
CEMP	Construction Environmental Management Plan
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
Diffusion Tube	A passive sampler used for collecting NO ₂ in the air
EFT	Emission Factor Toolkit
EPUK	Environmental Protection UK
GLA	Greater London Authority
HDV	Heavy Duty Vehicle; a vehicle with a gross vehicle weight greater than 3.5 tonnes. Includes Heavy Goods Vehicles and buses
HE	Highways England
IAQM	Institute of Air Quality Management
LA	Local Authority
LAEI	London Atmospheric Emission Inventory
LAQM	Local Air Quality Management
LBBD	London Borough of Barking and Dagenham
LBH	London Borough of Havering
LEZ	Low Emission Zone
LLAQM.PG	London Local Air Quality Management Policy Guidance
LLAQM.TG	London Local Air Quality Management Technical Guidance
NAEI	National Atmospheric Emission Inventory
NAQO	National Air Quality Objective as set out in the Air Quality Strategy and the Air Quality Regulations
NO ₂	Nitrogen Dioxide
NO _x	Oxides of nitrogen generally considered to be nitric oxide and NO ₂ . Its main source is from combustion of fossil fuels, including petrol and diesel used in road vehicles
NPPF	National Planning Policy Framework
PM ₁₀ /PM _{2.5}	Small airborne particles less than 10/2.5 µm in diameter
PPG	Planning Practice Guidance
Receptor	A location where the effects of pollution may occur
SPG	Supplementary Planning Guidance

UNECE	United Nations Economic Commission for Europe
ULEZ	Ultra-Low Emission Zone
WHO	World Health Organisation
ZEC	Zero Emission Capable

Appendix B IAQM Dust Guidance (2024) Approach

Table B-1 Dust Emission Magnitude Classification

Activity	Dust Emission Magnitude		
	Large	Medium	Small
Demolition	Total building volume of >75,000 m ³ , potentially dusty construction material, on-site crushing and screening, demolition activities >12 m above ground	Total building volume of 12,000 – 75,000 m ³ , potentially dusty construction material, demolition activities 6 – 12 m above ground level	Total building volume of <12,000 m ³ , construction material with low potential for dust release, demolition activities <6 m above ground, demolition during wetter months
Earthworks	Total site area of >110,000 m ² , potentially dusty soil type, >10 heavy earth moving vehicles active at any one time, formation of bunds >6 m in height	Total site area of 18,000 – 110,000 m ² , moderately dusty soil type, 5 - 10 heavy earth moving vehicles active at any one time, formation of bunds 3 - 6 m in height	Total site area of <18,000 m ² , soil type with large grain size, <5 heavy earth moving vehicles active at any one time, formation of bunds <3 m in height
Construction	Total building volume >75,000 m ³ , on-site concrete batching, sandblasting	Total building volume 12,000 - 75,000 m ³ , potentially dusty construction material, on-site concrete batching	Total building volume <12,000 m ³ , construction material with low potential for dust release
Trackout	>50 HDV outwards movements in any one day, potentially dusty surface material, unpaved road length >100 m	20 - 50 HDV outwards movements in any one day, moderately dusty surface material, unpaved road length 50 - 100 m	<20 HDV outwards movements in any one day, surface material with low potential for dust release, unpaved road length <50 m

Table B-2 Receptor Sensitivity

Receptor Sensitivity	Impact		
	Dust Soiling	Health Effects of PM ₁₀	Ecological Impacts
High	An area where: - Users can reasonably expect enjoyment of a high level of amenity; - The appearance, aesthetics of value of their property would be diminished by soiling; - The people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land. Examples include dwellings, museums and other culturally important collections, medium and long-term car parks and car showrooms.	Locations where members of the public are exposed over a time period relevant to the air quality objective for PM₁₀ (in the case of the 24-hour objective, a relevant location would be one where individuals may be exposed for eight hours or more per day). Examples include residential properties. Hospitals, schools and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.	Locations with an international or national designation <i>and</i> the designated features may be affected by dust soiling; OR Locations where there is a community of particularly dust sensitive species such as vascular species included in the Red Data List for Great Britain. Indicative examples include a 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	An area where: - Users would expect to enjoy of a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; - The appearance, aesthetics of value of their property could be diminished by soiling; - The people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods, as part of the normal pattern of use of the land. Examples include parks and places of work.	Locations where people exposed are workers, and exposure is over a time period relevant to the air quality objective for PM₁₀ (in the case of the 24-hour objective, a relevant location would be one where individuals may be exposed for eight hours or more per day). Examples include office and shop workers, but will generally not include workers occupationally exposed to for PM₁₀, as protection is covered by Health and Safety at Work legislation.	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 SSSI with dust sensitive features.

Low	An area where: - The enjoyment of amenity would not reasonably be expected; - Property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; - There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land. Examples include playing fields, farmland (unless commercially sensitive horticultural), footpaths, short-term car parks and roads.	Locations where human exposure is transient. Examples include public footpaths, playing fields, parks and shopping streets.	Locations with a local designation where the features may be affected by dust deposition. Indicative example is a LNR with dust sensitive features.
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Table B-3 Sensitivity of an Area to Dust Soiling Effects

Receptor Sensitivity	Number of Receptors	Distance from Source (m)			
		<20	<50	<100	<250
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 B-4 Sensitivity of an Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
High	>32 µg/m ³	>100	High	High	High	Medium
		10 – 100	High	High	Medium	Low
		1 - 10	High	Medium	Low	Low
	28 - 32 µg/m ³	>100	High	High	Medium	Low
		10 – 100	High	Medium	Low	Low
		1 - 10	High	Medium	Low	Low
	24 - 28 µg/m ³	>100	High	Medium	Low	Low
		10 – 100	High	Medium	Low	Low
		1 - 10	Medium	Low	Low	Low

	<24 µg/m ³	>100	Medium	Low	Low	Low
		10 – 100	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Medium	>32 µg/m ³	>10	High	Medium	Low	Low
		1 - 10	Medium	Low	Low	Low
	28 - 32 µg/m ³	>10	Medium	Low	Low	Low
		1 - 10	Low	Low	Low	Low
	24 - 28 µg/m ³	>10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
	<24 µg/m ³	>10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Low	-	≥1	Low	Low	Low	Low

Table B-5 Sensitivity of an Area to Ecological Impacts

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

Table B-6 Risk of Dust Impacts Calculation Matrix

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

Appendix C EPUK & IAQM Guidance (2017) Screening Criteria

The Development Will:	Indicative Criteria to Proceed to an Air Quality Assessment
Cause a significant change in LDV traffic flows on local roads with relevant receptors.	A change of LDV flow of: • >100 AADT within or adjacent to an AQMA; and • >500 AADT elsewhere.
Cause a significant change in HDV flows on local roads with relevant receptors.	A change of HDV flow of: • >25 AADT within or adjacent to an AQMA; and • >100 AADT elsewhere.
Realign roads i.e. changing the proximity of receptors to traffic lanes.	Where the change is 5 m or more and the road is within an AQMA.
Introduce a new junction or remove an existing junction near to relevant receptors.	Applies to junctions that cause traffic to significantly change vehicle acceleration / deceleration, e.g. traffic lights, or roundabouts.
Introduce or change a bus station.	A change of bus flows of: • >25 AADT within or adjacent to an AQMA; and • >100 AADT elsewhere.
Have an underground car park with extraction system.	The ventilation extract for the car park will be located within 20 m of a relevant receptor; and The car park will have >100 movements per day (total in and out).

The screening criteria presented is amended from Table 6.2 of the EPUK / IAQM guidance (EPUK / IAQM, 2017). Only the screening criteria relevant to changes in transport (including both traffic and the transport network) are outline