

# Report

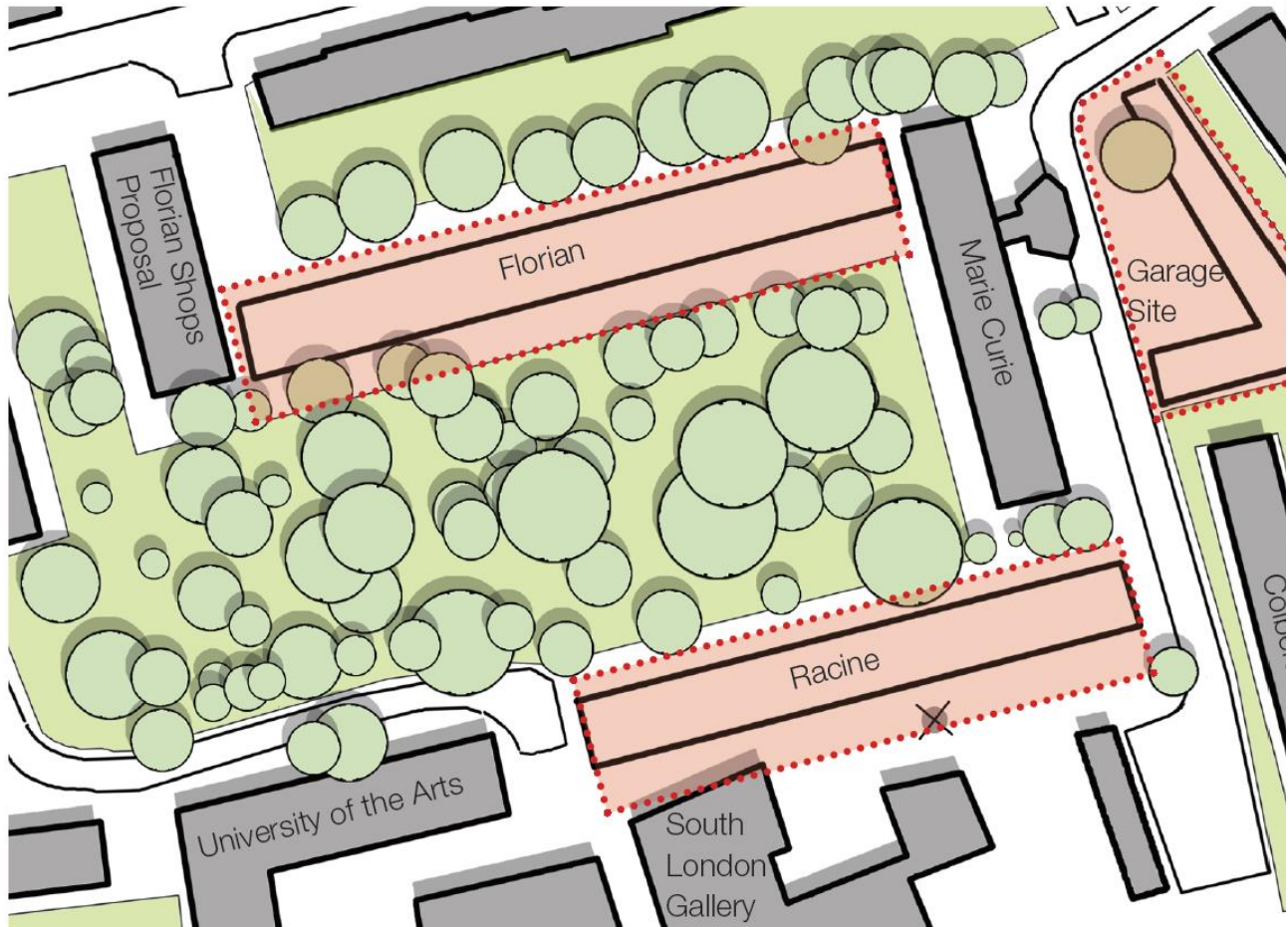
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## TEMPLE

LEADERS IN ENVIRONMENT,  
PLANNING & SUSTAINABILITY.

**Report for** – Southwark Council  
Sceaux Gardens  
Air Quality Assessment  
T3700.1  
V1.0



## Document version control

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## 1.0 Introduction

Temple Group Ltd (Temple) has undertaken an air quality assessment for a proposed residential development at the Proposed Development, known as Sceaux Gardens, on behalf of Calford Seaden. This is in support of a planning application for the demolition of three areas comprising two residential blocks known as Florian and Racine as well as the adjacent Marie Curie garage site, and the construction of 79 dwellings over three blocks, to be submitted to Southwark Council. Previously, it was planned to contain 81 dwellings, however this was reduced due to additional space being required for plant space due to communal heating system and introduction of water storage for sprinklers. The development design was altered to take into account changes in fire and building safety as well as thermal performance.

The Proposed Development sits within the London Borough of Southwark air quality management area (AQMA) and has the potential to impact upon local air quality due to three Ultra Gas 250kW Boilers associated with the proposed development as well as an increased traffic arising from the Proposed Development, however, the impact due to additional traffic generated by the proposed development would be negligible as the development is proposed to be 'car free'. In addition, the Proposed Development will be impacted upon by the existing local air quality, including road traffic emissions. The primary pollutants of interest for this assessment are nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>10</sub>), as well as dust from the construction phase. The site location plan is shown in Error! Reference source not found..

**Figure 1-1 Sceaux Gardens Site Location Plan**



This assessment details the likely receptors and potential effects of the proposed development on air quality. A baseline assessment of local air quality has been undertaken to establish existing and historical air quality conditions at the development site and in the local area. The assessment considers the potential for air quality impacts from the proposed development during construction, from both fugitive dust and construction traffic, and during operation, from operational traffic and fixed plant sources.

## 2.0 Legislation and Policy

### 2.1 National Policy

#### 2.1.1 Air Quality Strategy

The Air Quality Strategy for England, Scotland, Wales and Northern Ireland<sup>1</sup> (AQS) sets the framework for government policy on air quality in the UK. The AQS sets out air quality standards and objectives to be achieved (shown in **Table 2-1**) and introduces a policy framework for tackling fine particles. In setting air quality objectives, due account was taken of health and socio-economic cost-benefit factors, together with consideration of the practicalities of achieving such targets. Air quality objective levels are set out in legislation in the Air Quality (England) Regulations 2000<sup>2</sup>, as amended<sup>3</sup>.

Although achievement of ambient air quality objectives is not a statutory requirement, they reflect statutory limits outlined in The Air Quality Standards Regulations 2010<sup>4</sup>, which require the Secretary of State to achieve EU limit values set out in EU Ambient Air Quality Directives<sup>5 6</sup>.

**Table 2-1 Relevant UK Air Quality Objectives for the Purpose of the Assessment**

Pollutant	Air quality objective levels	Measured as	Dates to be achieved and maintained thereafter
<b>Nitrogen dioxide (NO<sub>2</sub>)</b>	200 µg/m <sup>3</sup> , not to be exceeded more than 18 times per year	1-hour mean	31 December 2005
	40 µg/m <sup>3</sup>	Annual mean	31 December 2005
<b>Particles (PM<sub>10</sub>)</b>	50 µg/m <sup>3</sup> , not to be exceeded more than 35 times per year	24-hour mean	31 December 2004
	40 µg/m <sup>3</sup>	Annual mean	31 December 2004

#### 2.1.2 The Environment Act 1995

The Environment Act 1995<sup>7</sup>, specifically Sections 82-84, requires all local authorities to carry out periodic reviews of air quality within their administrative areas. This review and assessment process now follows a phased approach, whereby local authorities only undertake a level of assessment that is commensurate with the risk of an air quality objective being exceeded. The aim of this review process is to assess whether the AQS objectives are likely to be achieved. Areas where objectives are likely to be exceeded are to be declared air quality management areas (AQMAs) by the local authorities.

<sup>1</sup> Department of the Environment, Food and Rural Affairs, et al. (2007). The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. Volume 1 s.l., s.n.

<sup>2</sup> The Air Quality (England) Regulations 2000 (2000 No. 928)

<sup>3</sup> The Air Quality (England) (Amendment) Regulations 2002 (2002 No. 3043)

<sup>4</sup> The Air Quality Standards Regulations 2010, (2010 No. 1001). London: HMSO.

<sup>5</sup> The European Parliament and the Council of the European Union. (2008). Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air and cleaner air for Europe. Official Journal of the European Union L152/2 11.6.2008.

<sup>6</sup> The European Parliament and the Council of the European Union. (2004). Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air. (Fourth Daughter Directive). Official Journal of the European Union L23/3 26.1.2005.

<sup>7</sup> Environment Act 1995, Part IV Air Quality



## 2.1.3 National Planning Policy Framework and Planning Practice Guidance

The revised National Planning Policy Framework (RNPPF)<sup>8</sup> was published in July 2018<sup>(11)</sup> and later updated in February 2019. Paragraph 170 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 instability. Development should, wherever possible, help to improve local environmental conditions....”*

Paragraph 181 states:

*“Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the 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”.*

The Planning Practice Guidance (PPG)<sup>9</sup> supports the NPPF and was first published online in 2014 and will be updated in later updated in November 2019.. The PPG provides *“guiding principles on how planning can take into account the impact of new development on air quality”*. This guidance highlights the role of the local air quality management (LAQM) regime in pursuing national air quality objectives and its implications for planning. It also includes recommendations on how detailed an air quality assessment should be or how impacts on air quality can be mitigated. Regional and Local Policy

## 2.1.4 The London Plan 2021

Policy GG3 of *‘The London Plan’*<sup>10</sup>, concerns public health and states that:

*‘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.’*

Policy D3 states that:

*‘Development Plans should... help prevent or mitigate the impacts of noise and poor air quality.’*

Policy SI1 relates specifically to air quality and states that:

1. *Development proposals should not:*

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<sup>8</sup> National Planning Policy Framework (July 2018), DCLG.

<sup>9</sup> Planning Practice Guidance (PPG) – Air Quality, (November 2019), DCLG. Online guidance available at: <https://www.gov.uk/guidance/air-quality--3>.

<sup>10</sup> Mayor of London, (2021). The London Plan, Greater London Authority, London.

- 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 should be at least Air Quality Neutral*
  - b. *Development proposals should use design solutions to prevent or minimise increased exposure to existing air pollution and make provision to address local problems of air quality in preference to post-design or retro-fitted mitigation measures*
  - c. *Major development proposals must be submitted with an air quality assessment. Air quality assessments should show how the development will meet the requirements of B1*
  - d. *Development proposals in Air Quality Focus Areas or that are likely to be used by large numbers of people particularly vulnerable to poor air quality, such as children or older people should demonstrate that design measures have been used to minimise exposure.*
3. *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:*
  - 1) *how proposals have considered ways to maximise benefits to local air quality, and*
  - 2) *what measures or design features will be put in place to reduce exposure to pollution, and how they will achieve this.*
4. *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.*
5. *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.'*

### **2.1.5 The London Air Quality Strategy**

The current version of the Mayor's Air Quality Strategy (MAQS)<sup>11</sup> was published in 2010. Its overarching objective is "to reduce air pollution in London so that the health of Londoners is improved [by achieving] the European Union (EU) air quality limit values as soon as possible. This will also

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<sup>11</sup> Mayor of London. (2010). Cleaning the Air – The Mayor's Air Quality Strategy.

*achieve compliance with nationally prescribed air quality standards and objectives, as required by the GLA Act.”*

The Strategy commits to the continuation of measures to improve air quality identified in the 2002 MAQS and sets out fifteen policy measures including:

- *“Promoting technological change and cleaner vehicles;*
- *“Reducing emissions from construction and demolition sites;*
- *“Using the planning process to improve air quality;*
- *“Energy efficient buildings;*
- *“Encouraging innovation; and*
- *“Monitoring progress and reporting”.*

### **2.1.6 London Environment Strategy**

On 31<sup>st</sup> May 2018, the Mayor published a London Environment Strategy<sup>12</sup>. It includes policies and proposals to improve air quality. The Mayor is proposing to:

- *“clean up London’s transport system and phase out fossil fuels including diesel, making the whole bus fleet zero emission by 2037 at the latest and introducing the Ultra-Low Emission Zone by 2019 to deter the most polluting vehicles from entering London;*
- *“consider introducing a new Air Quality Positive standard so new building developments contribute to cleaning London’s air;*
- *“use the planning system to help ensure that new schools and other buildings that will be used by people who are particularly vulnerable to pollutants are not located in areas of poor air quality;*
- *“fund the implementation of air quality plans that will help at least 50 schools in some of London’s most polluted areas reduce their pupils’ exposure to poor air;*
- *“provide more information to Londoners on when air pollution is bad, with guidance on monitors, and give people with fire places or wood burning stoves better information on which to use so they don’t make air pollution worse;*
- *“set even tighter long-term air quality standards based on the best health evidence to make sure Londoners can breathe the cleanest air and start addressing the problem of indoor air quality; and*
- *“seek powers so London can enforce controls on air pollution from construction machinery, the river and other sources.”*

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<sup>12</sup> The Mayor’s London Environment Strategy. (2018). Greater London Authority.



### 2.1.7 Mayors Transport Strategy

The Mayor's Transport Strategy<sup>13</sup> was adopted in March 2018 and details proposed changes in London's transport network over the coming years. The Strategy particularly emphasises the potential for active travel to improve public health through increased physical activity and reduced air pollution and recommends a London-wide strategic cycle network.

The Strategy refers directly to air quality with Policy 6 stipulating that:

*"The Mayor, through TfL and the boroughs, and working with stakeholders, will take action to reduce emissions – in particular diesel emissions – from vehicles on London's streets, to improve air quality and support London reaching compliance with UK and EU legal limits as soon as possible."*

In addition, the Strategy identifies measures to be implemented in improving air quality. These include:

- expansion of the Ultra-Low Emission Zone (ULEZ) and progressive tightening of vehicle criteria;
- retrofitting of existing vehicles, and purchase of electric and hydrogen vehicles to achieve a zero emission TfL bus fleet from 2037;
- expanding electric vehicle charging and hydrogen fuelling infrastructure
- introducing a 'Liveable Neighbourhoods' programme of local measures designed to target local air quality hotspots at borough level. Targeted measures may include road charges, vehicle and parking restrictions, and support for electric vehicle infrastructure and zero emission car clubs.

### 2.1.8 Sustainable Design and Construction supplementary planning document

Southwark Council has also produced a Sustainable Design and Construction supplementary planning document (SPD)<sup>14</sup> providing guidance on how new development should be designed and built to have a positive impact on the environment. This guidance includes detailed information about requirements for air quality assessments within the London Borough of Southwark.

### 2.1.9 New Southwark Plan

The London Borough of Southwark (LBS) is currently in the process of adopting a new Local Plan. Policy P64 of the proposed submission version<sup>15</sup> of the Local Plan concerns air quality and states: *"Development must:*

*[...]*

1. *Achieve or exceed air quality neutral standards; and*
2. *Address the impacts of poor air quality on building occupiers and public realm users by reducing exposure to and mitigating the effects of poor air quality. This must be achieved through design solutions that include:*

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<sup>13</sup> Greater London Authority (2018) Mayor's Transport Strategy, Greater London Authority, London.

<sup>14</sup> Southwark Council. (2009). Sustainable Design and Construction, Supplementary Planning Document.

<sup>15</sup> Borough of Southwark (2020) New Southwark Plan Proposed submission Version, London Borough of Southwark, London. (<https://www.southwark.gov.uk/planning-and-building-control/planning-policy-and-transport-policy/new-southwark-plan?chapter=4>)

- a) *Orientation and layout of buildings, taking into account vulnerable building occupiers, and public realm and amenity space users; and*
- b) *Ventilation systems; and*
- c) *Urban greening appropriate for providing air quality benefits proportionate to the scale of the development; and*

*Appropriate abatement technologies to bring emissions within the equivalent of 'ultralow' NO<sub>x</sub> boiler emissions levels where decentralised energy networks are implemented or utilised* The existing LBS Local Plan includes a Core Strategy document<sup>16</sup> adopted in April 2011. Strategic Policy 13 relates to environmental standards stating:

*"Development will help us live and work in a way that respects the limits of the planet's natural resources, reduces pollution and damage to the environment and helps us to adapt to climate change.*

*We will do this by: ...*

1. *Requiring all new development to be designed and built to minimise greenhouse gas emissions across its lifetime. This will be achieved by applying the energy hierarchy:*
  - a. *Designing all developments so that they require as little energy as possible to build and use.*
  - b. *Expecting all major developments to set up and/or connect to local energy generation networks where possible. We will develop local energy networks across Southwark.*
  - c. *Requiring developments to use low and zero carbon sources of energy...*
2. *Setting high standards and supporting measures for reducing air, land, water, noise and light pollution and avoiding amenity and environmental problems that affect how we enjoy the environment in which we live and work..."*

#### **2.1.10 Southwark Air Quality Action Plan**

Following the designation of the entire northern part of the borough as an AQMA (extending from Rotherhithe to Walworth and Camberwell and up to the boundary on the River Thames. The area is along the A2, A200, A215 and A202 south to the A205), the Council published its Air Quality Strategy and Improvement Action Plan (AQSIAP) in 2002 to promote better air quality conditions within the Borough. The current AQSIAP<sup>17</sup> published in 2017 details initiatives that Local Council will deliver to improve air quality.

The key principles/objectives of the AQAP include the following:

- Incorporating air quality into the planning system;
- Encouraging walking and cycling schemes;
- Reducing emissions from buses in Southwark; and
- Exploring the use of renewable energy technologies in Southwark housing.

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<sup>16</sup> London Borough of Southwark (2011) Core Strategy, London Borough of Southwark, London.

<sup>17</sup> Southwark Council (April 2017) Air Quality Strategy & Action Plan.

## 2.2 Technical Standards and Guidance

### 2.2.1 Land-Use Planning & Development Control: Planning for Air Quality

Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have developed a procedure for assessing the significance of changes in traffic volume on local air quality in their guidance document, '*Land-Use Planning & Development Control: Planning for Air Quality*'<sup>18</sup>. The procedure is designed to assess potential impacts resulting from changes in road use, including realignment, expansion and increased traffic flow. It can also be used to assess the potential air quality impacts of future CHP or boilers. An assessment of impacts from the development has been carried out in accordance with the EPUK method.

### 2.2.2 Guidance on the Assessment of Dust from Construction and Demolition

The IAQM has produced guidance on the assessment of air quality impacts from construction activities<sup>19</sup>. This guidance provides a framework for assessing the risk of dust effects that may arise and suggests appropriate dust and air emissions mitigation measures for sites according to the level of risk.

The Greater London Authority (GLA) and London Councils produced supplementary planning guidance on controlling dust and emissions during construction and demolition in 2014<sup>20</sup>. The guidance identifies mitigation measures for a range of different sites. This guidance is widely referred to in assessments of construction impacts in and outside London.

### 2.2.3 Local Air Quality Management: Technical Guidance LAQM.TG(16) / LLAQM.TG(16)

The Defra technical guidance note LAQM.TG(16)<sup>21</sup> and GLA technical guidance note LLAQM.TG(16)<sup>22</sup> are intended to provide guidance to local authorities undertaking the local review and assessment process. These documents include a requirement that local authorities submit a single Annual Status Report (ASR). The ASR needs to include a summary of air quality data monitored within the local authority's area for each calendar year from 2015 onwards.

### 2.2.4 Sustainable Design and Construction: Supplementary Planning Guidance (GLA)

The London Plan (SD&C SPG)<sup>23</sup> includes guidance on how boroughs can take forward the 'air quality neutral' approach set out in the London Plan. This is described in **Section 2.1.4**.

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<sup>18</sup> Moorcroft and Barrowcliffe. et al. (2017). Land-use Planning & Development Control: Planning for Air Quality. Environmental Protection UK and the Institute of Air Quality Management, London.

<sup>19</sup> Holman et al. (2014). IAQM Guidance on the assessment of dust from demolition and construction (Version 1.1), Institute of Air Quality Management, London.

<sup>20</sup> GLA & London Councils (2014), The Control of Dust and Emissions during Construction and Demolition - Supplementary Planning Guidance.

<sup>21</sup> Department for Environment, Food and Rural Affairs. (2016). Local Air Quality Management: Technical Guidance LAQM.TG(16).

<sup>22</sup> Department for Environment, Food and Rural Affairs. (2016). London Local Air Quality Management: Technical Guidance LLAQM.TG(16).

<sup>23</sup> Greater London Authority. (2014). Sustainable Design and Construction, The London Plan Supplementary Planning Guidance, Greater London Authority, London.

## 3.0 Methodology

### 3.1 General

The method takes into account current best practice for assessment of air quality. It takes full consideration of the requirements for air quality assessment set out in Southwark Council's Sustainable Design and Construction SPD<sup>14</sup>.

### 3.2 Air Quality Assessment Method for Roads and Point Sources

Road traffic is a primary source of emissions to air. The combustion of fuel in vehicles leads to a number of harmful by-products which can affect air quality in the vicinity of roads. Areas with high traffic volumes or near to major roads often experience elevated pollutant levels, particularly in the form of nitrogen dioxide (NO<sub>2</sub>) and fine particles (PM<sub>10</sub>). Fixed sources, such as boilers and CHP plant, can also be important emissions sources.

The preliminary scoping stage of the EPUK guidance<sup>18</sup> involves the identification of impacts of the local area on a development. This takes into account any potential exposure that future residents or users may experience as a result of emissions from the locality. Background and future baseline air quality are taken into account, and the presence and proximity of AQMAs, heavily-trafficked roads and any other sources of odour or dust are used as indicators of exceedances.

The impact of a development on the local area is also identified. This is undertaken in two stages. The first stage details simple criteria to scope out small developments. The Stage 1 criteria are:

*"A) If any of the following apply:*

- *"10 or more residential units or a site area of more than 0.5 ha;*
- *"more than 1,000 m<sup>2</sup> of floor space for all other uses or a site area greater than 1 ha;*

*"B) coupled with any of the following:*

- *"the development has more than 10 parking spaces;*
- *"the development will have a centralised energy facility or other centralised combustion process."*

*"Note: Consideration should still be given to the potential impacts of neighbouring sources on the site, even if an assessment of impacts of the development on the surrounding area is screened out".*

Criteria under both A) and B) must be met in order for the assessment to proceed to the second stage. If the criteria are not met then there is no requirement to carry out an air quality assessment for the impact of the development on the local area, and the impacts can be considered to have insignificant effects. As more than ten residential units are to be built, a Stage 1A criterion has been met. Although Stage 1B criteria have not been met as the scheme has been designed as a "zero parking" development (with the exception of 5 disabled parking spaces), second stage screening was undertaken in order to confirm that the impacts from the proposed development will be negligible.

The second stage provides more guidance on whether an air quality assessment is likely to be required in order to assess the impacts of a development on the local area. If criteria are met, this assessment may be required to be either a simple assessment or a detailed assessment, but this is not determined by the screening criteria. Screening criteria include:

- a change in road alignment of five metres or more, within an AQMA;
- light-duty-vehicle (LDV) annual average daily traffic (AADT) flows changing by 100 AADT or more, within or adjacent to an AQMA, or 500 AADT or more elsewhere;
- heavy-duty-vehicle (HDV) flows changing by 25 AADT or more, within or adjacent to an AQMA, or 100 AADT elsewhere;
- inclusion of one or more substantial combustion processes, where there is a risk of impacts at relevant receptors:
  - typically, any combustion plant where the single or combined nitrogen oxides (NO<sub>x</sub>) emission rate is more than 5 mg/s (provided pollutants are adequately dispersed) will need to be assessed;
  - in situations where:
    - the emissions are released close to buildings with relevant receptors;
    - the dispersion of the plume may be adversely affected by the size and/or height of adjacent buildings;
    - the stack height is lower than the receptor

then consideration will need to be given to potential impacts at much lower emission rates.

If none of the criteria in the second stage are triggered there is no requirement to carry out a further air quality assessment for the impact of the development on the local area, and the impacts can be considered to have insignificant effects.

For the proposed development, the traffic consultant has confirmed there will be no change larger than 100 AADT for LDVs and no change larger than 25 AADT for HDVs during either construction or operation (trips associated with the operation of the development are expected to be approximately 33 additional vehicles per day, the majority of these will be LDV movements).

Traffic flows during construction and operation are not expected to meet the trigger criteria above, so no further assessment of traffic has been undertaken. As no centralised heating system is proposed, a detailed assessment has not been undertaken.

### **3.2.1 Pollutants**

The potential for impacts from NO<sub>2</sub>, PM<sub>10</sub> and dust were considered. For construction, dust impacts (including consideration of PM<sub>10</sub> health effects) were assessed.

### **3.2.2 Study Area**

For baseline conditions, information from appropriate monitoring sites within approximately 4.5 km of the application site and modelled pollution levels in the immediate vicinity have been considered.

For construction dust, the area considered was in line with the IAQM guidance document<sup>19</sup>, which specifies human receptors within 350 m of the site boundary, or within 50 m of the route used by construction vehicles on a public highway, up to 500 m from the site entrance to be included.



### **3.3 Construction Dust Risk Assessment Method**

Potential air emissions from demolition and construction activities, particularly in the form of dust, are an issue in the UK. This is further emphasised in large conurbations such as London, where existing air pollution is already high.

Key sources of air pollution from construction sites include:

- dust created by demolition and crushing activities;
- earth-moving and remediation activities;
- general construction activities, which may include, concrete mixing, cutting, grinding etc.; and
- dust and exhaust emissions from haulage vehicles on site and on local roads.

Given the variability of construction sites and the range of activities undertaken, making an accurate assessment of the dust and air pollutants generated is not always feasible or practicable. Instead, a more qualitative assessment is undertaken to examine potential areas of concern and identify the best practicable means for eliminating, minimising and mitigating potential emissions.

The IAQM's guidance document 'Guidance on the assessment of dust from demolition and construction'<sup>19</sup> and the GLA's Supplementary Planning Guidance (SPG) document<sup>20</sup> 'The control of dust and emissions from construction and demolition' provide useful information on managing and mitigating construction dust emissions. These documents have been used as the basis for assessing potential impacts from the proposed development.

This assessment identifies potential works that may generate dust and incorporates a list of appropriate mitigation measures to control them.

### **3.4 Air Quality-Neutral Assessment**

The GLA SD&C SPG<sup>12</sup> sets out standards that major developments<sup>24</sup> must meet to be considered air quality neutral. Comparison with these standards was made in order to determine whether the proposed development will meet these requirements. Total building emissions and transport emissions for the appropriate land-use classes have been calculated and compared against the benchmarks.

In addition, the SD&C SPG<sup>12</sup> states that individual and / or communal gas boilers installed in commercial and domestic buildings should achieve a NO<sub>x</sub> rating of below 40 mg NO<sub>x</sub>/kWh. This requirement has been considered in relation to individual domestic boilers associated with the proposed development.

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<sup>24</sup> As defined in the London Plan

## 4.0 Baseline Conditions

### 4.1 Site Description

The proposed development is located in inner London, within the Southwark AQMA, and is approximately 2 km south of the Central Activities Zone (CAZ)<sup>25</sup>. It is approximately 100 m north of Peckham Road and 100 m west of Southampton Way. These roads are the main sources of air pollution in the vicinity of the proposed development. Dalwood Street runs adjacent to the northernmost facade of the proposed development, but is not heavily trafficked.

### 4.2 London Borough of Southwark Review and Assessment Information

Southwark Council completed its first statutory review and assessment of air quality in 2003. This assessment concluded the national air quality objectives for NO<sub>2</sub> and PM<sub>10</sub> would continue to be exceeded unless measures were taken to reduce them at source<sup>Error! Bookmark not defined.</sup>. The second round of review and assessment concluded that the national air quality objectives for carbon monoxide, benzene, 1,3-butadiene, lead and sulphur dioxide were not at risk of being exceeded. It was found that national air quality objectives for NO<sub>2</sub>, PM<sub>10</sub> and benzene were likely to be exceeded. Subsequent rounds of review and assessment concluded that the national air quality objective for benzene was likely to be met.

In 2003, the Council designated an AQMA for NO<sub>2</sub> and PM<sub>10</sub> within the area borough north of the South Circular Road.

The most recent Annual Status Report (ASR 2019) available at the time of this assessment confirmed that the NO<sub>2</sub> annual mean objective is still being exceeded at some locations within the AQMA and therefore the AQMA should be maintained. It also identified exceedances of the NO<sub>2</sub> annual mean objective at two locations outside the AQMA, where detailed assessment is required<sup>26</sup>. However, monitoring data suggest that the annual mean and short-term objectives for PM<sub>10</sub> and PM<sub>2.5</sub> are being met and that the short-term objective for NO<sub>2</sub> is generally being met.

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<sup>25</sup> As defined by GLA: <https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/supplementary-planning-guidance/central-activities-zone>

<sup>26</sup> London Borough of Southwark, (2020) Air Quality Annual Status Report for 2019.

## 4.3 Local Monitoring

### 4.3.1 Automatic Monitoring Sites

Southwark Council undertakes continuous monitoring at a number of locations within its area. The nearest continuous monitoring locations to the site are described below, as well as a relevant site in the neighbouring Borough of Lewisham. These are shown in Error! Reference source not found. and are as follows:

- SWK 6 – Elephant and Castle (Southwark), approximately 2.5 km northwest of the application site. This monitors O<sub>3</sub>, NO<sub>x</sub>, NO<sub>2</sub> and PM<sub>10</sub> and is an urban background site.
- SWK5 – Old Kent Road (Southwark), approximately 1.5 km east of the application site. This monitors CO<sub>2</sub>, CO, SO<sub>2</sub>, O<sub>3</sub>, NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> and is a roadside site.
- SWK8 - Tower Bridge Road (Southwark), approximately 2.9 km north of the application site. This monitors NO<sub>x</sub> and NO<sub>2</sub> and is a roadside site. During 2019, Southwark re-commissioned an air quality monitoring station on Tower Bridge Road. This site was operational from June 2019. It is premature to make comment in respect of the annual mean at this location, due to the incomplete dataset from this station and the marginal annual mean concentration measured in 6 months. The mean concentration at this site was 39 µg/m<sup>3</sup> during 2019.
- LW2 – New Cross (Lewisham), approximately 2.8 km east of the application site. This monitors NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> and is a roadside site, situated approximately 6 m away from the nearest road.

All of the above-mentioned continuous roadside monitoring sites other than SKW6 and are located in significantly busier roadside locations, where they will experience significantly higher pollutant concentrations than would be experienced at the proposed site location.

**Table 4-1 and Table 4-2** present recent NO<sub>2</sub> and PM<sub>10</sub> data for the nearest continuous monitoring sites. The locations of the nearest air quality monitoring sites are shown in **Appendix A**.

**Table 4-1** shows monitoring results from the Elephant and Castle urban background automatic monitoring site from 2015-2019. The NO<sub>2</sub> annual mean objective was met at this monitoring location in all the years from 2015-2019 except 2015. The NO<sub>2</sub> one-hour mean objective was met in all reported years. The annual and 24-hour mean PM<sub>10</sub> objectives were met at this monitoring location in all reported years.

**Table 4-1 Annual Mean Concentrations at SWK6 – Elephant and Castle Monitoring Location**

Year	Concentration NO <sub>2</sub> (µg/m <sup>3</sup> )	No of 1-hour exceedences NO <sub>2</sub>	Concentration PM <sub>10</sub> (µg/m <sup>3</sup> )	No of 24-hour exceedences PM <sub>10</sub>
2015	<b>41</b> Error! Bookmark not defined.	0 Error! Bookmark not defined.	20	1
2016	39	0	26 Error! Bookmark not defined.	21 Error! Bookmark not defined.
2017	34	0	19	1
2018	32	0	20	2
2019	30	0	17	14
<b>Objective</b>	<b>40</b>	<b>18</b>	<b>40</b>	<b>35</b>

- Note, exceedances of the air quality objectives are shown in **bold** (as are the objective levels).
- Source: londonair.org.uk and London Borough of Southwark ASR 2020.

**Table 4-2** shows monitoring results from the A2 Old Kent Road roadside automatic monitoring site. The NO<sub>2</sub> annual mean objective was exceeded at this monitoring location in recent years, with the exception of 2019. The NO<sub>2</sub> one-hour mean objective was met in all reported years. The annual and 24-hour mean PM<sub>10</sub> objectives were met at this monitoring location in all reported years.

**Table 4-2 Annual Mean Concentrations at SWK5 – A2 Old Kent Road Monitoring Location**

Year	Concentration NO <sub>2</sub> (µg/m <sup>3</sup> )	No of 1-hour exceedences NO <sub>2</sub>	Concentration PM <sub>10</sub> (µg/m <sup>3</sup> )	No of 24-hour exceedences PM <sub>10</sub>
2015	<b>42 (69%)</b> Error! Bookmark not defined.	1 (69%) Error! Bookmark not defined.	21	4
2016	<b>53</b>	1 (82%) Error! Bookmark not defined.	24	18
2017	<b>42 (97%)</b>	0 (97%)	22	19
2018	<b>41 (85%)</b>	0 (85%)	22 (80%)	8
2019	<b>35</b>	0	24	2
<b>Objective</b>	<b>40</b>	<b>18</b>	<b>40</b>	<b>35</b>

- Note, exceedances of the air quality objectives are shown in **bold** (as are the objective levels).
- Source: londonair.org.uk and the London Borough of Southwark ASR for 2019.
- Percentage in brackets is the data capture percentage

**Table 4-3** shows monitoring results from the New Cross roadside automatic monitoring site. The NO<sub>2</sub> annual mean objective was exceeded at this monitoring location in most years, except most recently 2019. Annual mean NO<sub>2</sub> exhibits a generally decreasing trend in all reported years. The NO<sub>2</sub> one-hour mean objective was met in all reported years. The annual and 24-hour mean PM<sub>10</sub> and PM<sub>2.5</sub> objectives were met at this monitoring location in all reported years.

**Table 4-3 Monitoring results for New Cross (LW2) monitoring location**

Year	Annual mean NO <sub>2</sub> (µg/m <sup>3</sup> ) Error! Bookmark not defined.	No of 1-hour exceedences NO <sub>2</sub> Error! Bookmark not defined.	Annual mean PM <sub>10</sub> (µg/m <sup>3</sup> ) Error! Bookmark not defined.	No of 24-hour exceedences PM <sub>10</sub> Error! Bookmark not defined.	Annual mean PM <sub>2.5</sub> (µg/m <sup>3</sup> )
2015	<b>47</b>	7	23	8	15.5
2016	<b>46</b>	0	24	9	18.9
2017	<b>48.9</b>	0	22.8	11	15.5

2018	42.1	0	21.2	4	15.0
2019	37.9	0	19.8	9	15.0
<b>Objective</b>	<b>40.0</b>	<b>18</b>	<b>40.0</b>	<b>35</b>	<b>25.0</b>

#### 4.3.2 Diffusion Tube Monitoring

Southwark Council and Lewisham Council also monitor NO<sub>2</sub> concentrations using diffusion tubes. The diffusion tubes are located across the boroughs at roadside, kerbside and background locations. The locations of these diffusion tube sites are shown in **Appendix A**.

The closest and most representative local monitoring site is site number SDT105 located just 0.2 km east of the proposed site and site number SDT54, located approximately 0.6 km southwest of the proposed development site, on a similar road type, and as such is expected to experience similar pollutant levels.

The results of NO<sub>2</sub> diffusion tube monitoring at locations nearest to the site are shown in **Table 4-4**. There are 13 diffusion monitoring sites within 1 km of the proposed development out of which only 2 sites have shown exceedances which are relatively on busy roads and cannot be considered as representative of the site. The results indicate that NO<sub>2</sub> concentrations met the annual mean objective (40 µg/m<sup>3</sup>) in 2019 at all locations, with the exception of the diffusion tubes located at SDT11, SDT93 and SDT94 which exceeded the annual mean objective. The diffusion tube closest to the site (SDT105) exceeded the annual mean standards in 2018 and 2018, however, the NO<sub>2</sub> concentration was marginally below the air quality objectives (AQO).



**Table 4-4 Annual Mean NO<sub>2</sub> Concentrations at Diffusion Tube Sites (µg/m<sup>3</sup>) within 1 km of the proposed site**

Site ID	Site Name	Distance from site (km)	2016	2017	2018	2019	Objective
<b>SDT 11</b>	Adjacent to 11 Camberwell Church Street	0.73	—	<b>64.5</b>	<b>58.3</b>	<b>52.8</b>	<b>40.0</b>
<b>SDT 54</b>	Camberwell Grove	0.64	39.74	30.36	29.77	28.90	<b>40.0</b>
<b>SDT 55</b>	Lamppost 11A St Georges Way South	0.72	<b>40.56</b>	39.03	37.91	32.90	<b>40.0</b>
<b>SDT 93</b>	Lamppost 9 adjacent to 14 Hanover Park	0.92	—	<b>72.24</b>	<b>64.21</b>	<b>43.41</b>	<b>40.0</b>
<b>SDT 94</b>	Post adjacent to 88A Peckham High Street	0.83	—	<b>87.51</b>	<b>72.96</b>	<b>74.64</b>	<b>40.0</b>
<b>SDT 102</b>	Lamppost 1 De Crespigny Park	0.99	—	<b>44.14</b>	37	33.38	<b>40.0</b>
<b>SDT 105</b>	Lamppost adjacent to Oliver Goldsmith School entrance Southampton Way	0.21	—	<b>46.97</b>	<b>41.95</b>	37.86	<b>40.0</b>
<b>SDT 115</b>	Lamppost 2110/04 Nairne Grove	0.87	—	—	23.20	22.82	<b>40.0</b>
<b>SDT 116</b>	Lamppost 2111/03 Woodfarrs	0.79	—	—	24.56	24.66	<b>40.0</b>
<b>SDT 118</b>	Lamppost 2655L28 Bellenden Road	0.87	—	—	<b>41.78</b>	38.40	<b>40.0</b>
<b>SDT 119</b>	Lamppost 21 Camberwell Grove	0.79	—	—	30.08	30.27	<b>40.0</b>
<b>SDT 133</b>	Lamppost opposite 65 Lyndhurst Way	0.87	—	—	<b>45.34</b>	31.04	<b>40.0</b>
<b>SDT 139</b>	Lamppost 2139 29 Grove Lane	0.93	—	—	—	33.91	<b>40.0</b>

- Note, exceedances of the air quality objectives are shown in **bold** (as are the objective levels).
- Source: London Borough of Southwark ASR (Appendix B) for 2016, 2017, 2018 and 2019.

## 4.4 London Atmospheric Emissions Inventory

The LAEI<sup>27</sup> and associated pollution maps, produced by the GLA, provide detailed estimates of pollution levels London-wide. The 2016 update provides modelled pollutant concentrations for 2016. LAEI modelled pollutant concentrations corresponding to the location of the facade of the proposed development closest to Peckham Road are shown below in **Table 4-5**. The facades are representative of the highest concentrations for future receptors within the proposed development, due to their proximity to the road.

**Table 4-5 Modelled Pollution Levels at the Proposed Development, Taken from London Atmospheric Emissions Inventory Pollution Maps ( $\mu\text{g}/\text{m}^3$ )**

Pollutant	2016	Objective
NO <sub>2</sub>	34-37	40.0
PM <sub>10</sub>	22-25	40.0

## 4.5 Pollutant Background Concentrations

Background concentrations of NO<sub>x</sub>, NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> were obtained from the UK Air Quality Archive<sup>Error! Bookmark not defined.</sup> for the 1km x 1km grid square centred on OS co-ordinates 533500, 176500, corresponding to the location of the Proposed Development. These background maps are available for each year up to 2030. Background NO<sub>x</sub>, NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> concentrations for 2020 (the first year of construction) and 2022 (the year the Proposed Development will become operational) are shown in **Error! Reference source not found.8**.

**Table 4-8 Background pollutant concentrations at the Proposed Development from the UK Air Quality Archive ( $\mu\text{g}/\text{m}^3$ )**

Pollutant	2020 ( $\mu\text{g}/\text{m}^3$ )	2022 ( $\mu\text{g}/\text{m}^3$ )	Objective
NO <sub>2</sub>	23.89	22.32	40.0
NO <sub>x</sub>	35.67	32.88	N/A
PM <sub>10</sub>	18.47	18.06	40.0
PM <sub>2.5</sub>	12.06	11.77	25.0

## 4.6 Overall Baseline

Monitoring data indicate that the annual NO<sub>2</sub> objective is currently likely to be exceeded at two monitoring locations close to major roads in the vicinity of the proposed development. Given that the development site is outside the CAZ and is some distance away from main roads, it is considered that the NO<sub>2</sub> readings from SDT54 and SDT105 diffusion tube sites are largely representative of the NO<sub>2</sub> levels at the proposed development. The one-hour mean NO<sub>2</sub>, annual mean PM<sub>10</sub> and 24-hour mean PM<sub>10</sub> objectives are all likely to be met at the proposed development, when the monitored data is considered.

The closest representative monitoring site is the diffusion tube site SDT105, which commenced in 2016, and marginally met the annual mean objective for NO<sub>2</sub> in 2019.

<sup>27</sup> GLA (2016), London Atmospheric Emissions Inventory 2013.

LAEI modelled maps indicate that the highest NO<sub>2</sub> concentration at the site is currently predicted to meet the NO<sub>2</sub> annual mean objective, including at facades closest to Peckham Road and is predicted to meet the objective at other on-site locations. According to the LAEI maps, the annual NO<sub>2</sub> and annual mean PM<sub>10</sub> objectives are likely to be met at the proposed development.

According to Defra background maps, background pollutant levels in the vicinity of the proposed development site are low, well below the relevant air quality objectives.

Given the above, annual mean NO<sub>2</sub>, one-hour mean NO<sub>2</sub>, annual mean PM<sub>10</sub> and 24-hour mean PM<sub>10</sub> objectives are all likely to be met at the proposed development once it becomes operational in 2020. However, considering the NO<sub>2</sub> annual mean concentration was just marginally below the AQO, the likelihood of NO<sub>2</sub> annual mean objective at the site cannot be completely ruled out.

Since emissions from road vehicles are decreasing, due to tighter European emissions standards, NO<sub>2</sub> concentrations at the site are likely to decrease in future years. As such, concentrations at the year of commencement of operation are considered to be the worst case concentrations for assessment.

## **5.0 Assessment**

### **5.1 Construction Phase**

#### **5.1.1 Construction Traffic Impacts**

A screening assessment of construction traffic identified that construction traffic associated with the proposed development is not predicted to meet the criteria for further assessment set out in the EPUK/IAQM guidance<sup>18</sup>. HDV traffic flows during construction are not anticipated to exceed 25 AADT. Impacts relating to construction traffic will therefore be negligible and not significant.

#### **5.1.2 Construction Dust**

##### **Screening**

An assessment of construction dust effects is normally required if there are:

- human receptors within 350 m of the site boundary, or within 50 m of the route used by construction vehicles on a public highway, up to 500 m from the site entrance; or
- ecological receptors within 50m of the site boundary; or within 50m of the route used by construction vehicles on a public highway, up to 500 m from the site entrance.

If these criteria are not met, it can be assumed that the level of risk from dust amenity will be negligible and any effects will not be significant.

As human receptors are within 350 m of the site boundary of the proposed development, a dust risk assessment has been undertaken. Ecological receptors are not present within 50 m of the site boundary and ecological impacts have therefore been screened out of this assessment.

##### **Demolition**

The dust emission class for demolition has been determined through taking into account the total building volume and type of building material to be demolished.

The total volume of the buildings to be demolished is estimated to be less than 20,000 m<sup>3</sup>; this, combined with the potentially dusty nature of the material for demolition, indicates that the dust emissions class is likely to be small.

##### **Earthworks**

The total site area of the proposed development is less than 2,500 m<sup>2</sup>. According to the British Geological Survey<sup>28</sup> the soil material found at the site is Lambeth Group, which has a potentially dusty nature when dry due to its clay content. The dust emissions class from earthworks is likely to be medium.

##### **Construction**

The total building volume to be constructed will be less than 100,000 m<sup>3</sup>. Materials with a high potential for dust release, such as concrete and brickwork, may be used on site. Based on this, the emissions category for this activity is likely to be medium.

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<sup>28</sup> British Geological Survey – Geology of Britain viewer. Available at: <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

## Track-out

Site access and egress have not been confirmed at the time of undertaking this assessment. There will be an estimated 10-50 one-way vehicle movements from the site per day (although the total annual movements would not exceed 25 AADT HDV), putting the likely emission magnitude as medium.

## Risk of Dust Impacts

The surrounding area has a high density of residential properties, which have a high sensitivity to dust soiling and health effects. Over 100 residential properties are located within 20 m of the proposed development and a primary school is located within 50 m of the proposed development.

Using the IAQM guidance, the sensitivity of the surrounding area has been determined for dust soiling effects and health effects. This is shown in **Table 5-1**. The sensitivity to dust soiling has been found to be high due to the close proximity of residential properties to the site. The sensitivity to health effects has been found to be high for demolition, earthworks and construction operations due to the proximity of residential properties, combined with the predicted 2018 LAEI PM<sub>10</sub> background concentration of 24.1 µg/m<sup>3</sup> (derived through linear interpolation of 2013 and 2020 data).

In order to determine the dust soiling and health effects from track-out 200 m of the length of the likely site exit route along the public highway has been assessed, in line with the IAQM guidance corresponding to medium sites. The number of high-sensitivity receptors within 20 m of the route is high; therefore the dust soiling and health effects are likely to be high. The risk of dust impacts derived from the different on-site activities is shown in **Table 5-2**.

**Table 5-1 Sensitivity of the Surrounding Area**

Potential impact	Sensitivity of the surrounding area			
	Demolition	Earthworks	Construction	Track-out
Dust soiling	High	High	High	High
Health effects	High	High	High	High

**Table 5-2 Summary – Dust Risk from Site Activities**

Potential impact	Risk of dust impacts			
	Demolition	Earthworks	Construction	Track-out
Dust soiling	Medium Risk	Medium Risk	Medium Risk	Medium Risk
Health effects	Medium Risk	Medium Risk	Medium Risk	Medium Risk



The overall dust risk from the site is predicted to be medium for dust soiling effects and medium for health effects, due to the scale of operations and the high density of sensitive receptors in the surrounding area, combined with the moderate ambient concentration of PM<sub>10</sub>.

All activities have an equal amount of risk, with the potential to give rise to disamenity dust and health effects. Common disamenity dust effects may include the soiling of neighbouring windows, cars and street furniture.

Mitigation measures will help to negate some of the potential negative air quality impacts resulting from the construction phase of the proposed development and will avoid significant dust effects. This is further discussed in **Section 7.1**.

## 5.2 Operational Phase

### Existing receptors in the vicinity of the proposed development

A screening assessment of operational traffic identified that operational traffic associated with the proposed development is not predicted to meet the criteria for further assessment set out in the EPUK/IAQM guidance<sup>18</sup>. Impacts relating to operational traffic will therefore be negligible and not significant.

### New receptors within the proposed development

The proposed development will not generate significant traffic volumes, as discussed above, and does not include any centralised plant or combustion sources. As such, the pollutant levels at the development itself will be representative of the baseline pollutant concentrations, for the years of operation.

Based on the nearest representative monitoring data, the LAEI modelling maps, and the Defra background maps, the NO<sub>2</sub> and PM<sub>10</sub> concentrations at receptors within the proposed development are expected to meet the relevant air quality objectives from the year of operation.

#### 5.2.1 Air-Quality-Neutral Assessments

In accordance with the Air Quality Neutral Planning Support guidance<sup>Error! Bookmark not defined.</sup> published in support of the GLA SPG<sup>Error! Bookmark not defined.</sup> in 2014, an air quality neutral assessment of the building and transport emissions has been undertaken.

### Building Emissions Benchmark

The proposed development's energy requirements will be met by individual boilers to be installed in each dwelling. It is also confirmed by Vector consultants that all apartments are to be provided with System 4 type ventilation (MVHR) systems. There will be a connection to SELCHP the district heat network provided by Veolia, programmed to arrive on site end 2023/24. Three Hoval UltraGas gas-fired boiler units (250 kW each) will be installed within the development, supplying the residential units.

Benchmarked building emissions were calculated using Building Emissions Benchmarks (BEBs) and the gross floor area of the development. The air quality neutral guidance gives BEBs for specific land-use classes. The benchmarked building emissions, including total benchmarked building emissions are shown in **Table 5-1** below.

**Table 5-1 Benchmarked Building Emissions for the Proposed Development.**

Description	Land use	Gross floor area (m <sup>2</sup> )	NO <sub>x</sub> BEB (gNO <sub>x</sub> /m <sup>2</sup> /annum)	Benchmarked NO <sub>x</sub> emissions (kgNO <sub>x</sub> /annum)
Residential	C3	7,971	26.2	209

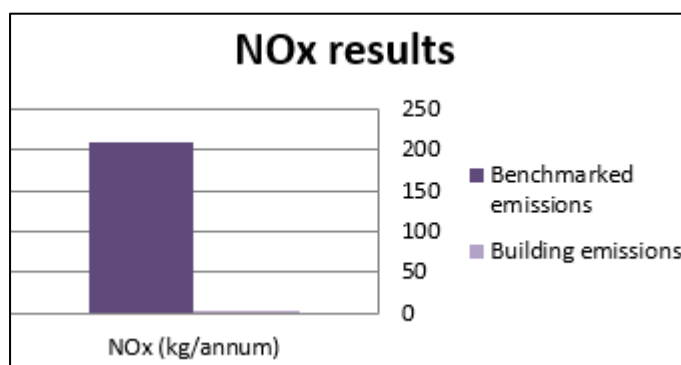
Calculated emissions from the boilers (TEC) associated with the proposed development are shown in **Table 5-2**. These are based on a boiler emission rate of 0.0017 g/s NO<sub>x</sub>, a power output of 250 kW each and expected loading of 2,152 hours.

**Table 5-2 Calculated building emissions for the proposed development.**

Plant	NO <sub>x</sub> emission rate (g/s)	Load (hours)	NO <sub>x</sub> (kg/annum)
Boiler 1	0.0017	2152	13
Boiler 2	0.0017	2152	13
Boiler 3	0.0017	2152	13
Total calculated building emissions			40

The calculated building emissions for the Proposed Development are within the benchmarked emissions (shown in **Figure 5-1**). Therefore, the building emissions meet the air quality neutral requirement.

**Figure 5-1: Calculated building emissions and benchmarked building emissions comparison**



## Transport Emissions Benchmark

Transport Emission Benchmarks (TEBs) have been derived for residential land use in inner London and are shown in **Table 5-3**. These values were used to calculate the benchmarked emissions for NO<sub>x</sub> and PM<sub>10</sub>. The total calculated transport emissions for the development were calculated using the development trip rate, provided by the transport consultants (the trip rate was taken from the Trip Rate Information Computer System [TRICS] database and was based on comparable sites to the proposed development, with minimal car parking) and the gross floor area; this is shown in **Table 5.4**.

**Table 5-3 Benchmarked Transport Emissions for the Proposed Development.**

Description	Land Use	Total Residential Properties	TEB (gNO <sub>x</sub> /dwelling/annum)	TEB (g PM <sub>10</sub> /dwelling/annum)	Benchmarked NO <sub>x</sub> Emissions for the Proposed Development (g NO <sub>x</sub> / annum)	Benchmarked PM <sub>10</sub> Emissions for the Proposed Development (g PM <sub>10</sub> / annum)
Residential	C3	79	558	100	44,082	7,900

**Table 5-4 Transport Emissions for the Proposed Development**

Land Use	Total Transport Emissions	
	NO <sub>x</sub> emissions (g/annum)	PM <sub>10</sub> emissions (g/annum)
Residential	32,979	5,927

The transport emissions for the proposed development are within the emission benchmarks; the transport emissions are therefore fully compliant with the requirement for air quality neutrality.

## Emissions Standards for Boilers and CHP Plant

The GLA SPG Error! Bookmark not defined. states that individual or communal boilers installed in commercial or domestic buildings should achieve a NO<sub>x</sub> rating of less than 40 mg NO<sub>x</sub>/kWh. The individual boilers to be installed in the proposed development must have an emission rating of less than 40 mg NO<sub>x</sub>/kWh.

## 6.0 Evaluation of Assessment Results

### 6.1 Development Constraints

This section considers air quality impacts in the vicinity of the proposed development, in order to examine the suitability of the site for the intended use.

The air quality conditions in the vicinity of the site have been assessed in the baseline assessment in **Section 4.0**. PM<sub>10</sub> concentrations and one-hour NO<sub>2</sub> levels are likely to meet the national air quality objectives at present and in future years. Annual mean NO<sub>2</sub> levels are likely to meet the national air quality objective at present and in the future, based on monitoring, LAEI modelling and Defra background maps.

### 6.2 Construction Impacts

Mitigation measures will help to negate some of the potentially negative air quality impacts resulting from the construction phase of the proposed development and will avoid significant dust effects.

As outlined in **Section 5.1**, the screening assessment found that impacts relating to construction traffic associated with the proposed development will be negligible. The effects from the construction phase can therefore be considered not significant.

### 6.3 Operational Impacts

As outlined in **Section 3**, the screening assessment found that impacts relating to construction traffic associated with the proposed development will be negligible.

New residences introduced by the proposed development are not likely to be exposed to concentrations that breach air quality objectives.

## 7.0 Mitigation

### 7.1 Mitigation of Construction Dust

Under best practice guidance, the proposed development will constitute a medium risk for construction dust and there is the potential for occasional impacts on nearby receptors.

The impacts associated with the proposed development are likely to be in the form of dust generated during demolition, earthworks, construction and track-out. The use of appropriate mitigation measures throughout the construction period will ensure that impacts to sensitive receptors are minimised or removed. The following best practice mitigation measures should be included in the construction method statement:

- Stakeholder engagement should be implemented through a stakeholder communication plan.
- The contact details for the individuals accountable for air quality and dust issues should be displayed at the site boundary.
- Complaints regarding air quality should be logged, and the log made available to the local authority on request.
- The site should be visually monitored for dust at least on a daily basis, with the frequency of monitoring increased during dry and windy conditions.
- The site should be organised so that:
  - physical barriers or screens are installed around the site to limit the dispersal of dust emissions; and
  - loose materials are covered as soon as possible.
- Haul routes should be kept free from dust as far as possible and swept regularly (water assisted). No dry sweeping of large areas will be carried out.
- Un-surfaced haul routes and working areas should be regularly damped down in dry conditions.
- All vehicles carrying loose or potentially dusty material to or from the working areas should be fully sheeted.
- Materials should not be burnt on site.
- Minimum drop heights should be used from conveyors, loading shovels and loading equipment.
- Provision of adequate water should be supplied to the working areas.
- Suitable dust suppression techniques such as water sprays or local extraction should be used when cutting, grinding or sawing materials onsite.



- Dust soiling checks at sensitive receptors should be undertaken to ensure that the mitigation measures are being effective.

These mitigation measures are intended to be a summary of the key controls specific to this site in order to minimise potential emissions. These measures are not intended to be a comprehensive list of all best practice guidance; for more complete mitigation measures and control the IAQM guidance<sup>19</sup> should be consulted.

Provided these measures are put in place, emissions from the site during construction will not present a significant problem to local receptors.

## **7.2 Mitigation of Operational Exposure**

The concentrations of NO<sub>2</sub> and PM<sub>10</sub> are expected to meet the Air Quality Strategy (AQS) objectives at the relevant on-site receptors when the proposed development is operational. Therefore, no mitigation of exposure for new receptors introduced by the proposed development is required.

## 8.0 Conclusions

The air quality assessment has determined the following:

- Baseline air quality conditions at the proposed development are likely to meet the NO<sub>2</sub> annual mean, NO<sub>2</sub> one-hour mean, PM<sub>10</sub> annual mean and PM<sub>10</sub> 24-hour mean air quality objectives in both the construction and operational years.
- The screening of traffic during the construction phase in relation to air quality has determined that construction traffic impacts will be negligible and not significant.
- The dust risk assessment has identified that construction activities may have occasional dust soiling and health impacts on local receptors and that these can be minimised or removed with appropriate mitigation measures.
- The screening of traffic resulting from the development during the operational phase in relation to air quality has determined that operational traffic impacts will be negligible and not significant.
- The assessment of air quality in relation to existing traffic sources during the operational phase has determined that pollutant levels are predicted to meet the air quality objectives in the year of construction and operation.
- The air-quality-neutral assessment has identified that:
  - the proposed development meets the BEB, therefore the emissions from traffic associated with the proposed development fully meet the Mayor of London's requirements for air quality neutrality;
  - the proposed development meets the TEB, therefore the emissions from traffic associated with the proposed development fully meet the Mayor of London's requirements for air quality neutrality; and
  - the proposed individual domestic boilers to be installed will need to meet the rating required by the GLA SD&C SPG.
- Appropriate mitigation for construction dust has been identified, which should be included in the construction method statement.
- The site is considered suitable for the development type proposed and no mitigation of exposure for new receptors introduced by the proposed development is required.

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