Air Quality Statement 2

Air Quality Positive

Block 4, Union Park

July 2025

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Air Quality Positive

Introduction

In March 2025, Phlorum prepared an Environmental Statement (ES) Chapter (*Chapter 6 Air Quality*) for the development of a fourth data centre block (UP4) at the Union Park Data Centre Campus in Hayes (UB3 4QQ). The planning application (Ref: *75111/APP/2025/739*) was submitted to the London Borough of Hillingdon (LBH) on the 18th of March 2025.

GLA Comments

The Greater London Authority (GLA) has reviewed the Air Quality ES Chapter, and has provided several comments, recommendations and suggested Planning Conditions, associated with the scheme's compliance with London Plan[1] policy.

Comment #7 in the GLA's response states the following:

"An Air Quality Positive Assessment was mentioned with the report. However, within this section only a transport emission damage cost calculation has been included to fulfil LBH requirements. This does not satisfy the minimum requirements in chapter 4 of the Air Quality Positive LPG. An Air Quality Positive Statement must be submitted, identifying how air quality has been considered at the earliest stages of the design and throughout the development."

Planning Precedent

Phlorum agrees with the GLA that the Air Quality Positive Statement prepared in ES Chapter 6 and Appendix 6.4 does not align with the report layout recommended in the GLA's Air Quality Positive Guidance[2].

However, Phlorum's statement does strictly follow the Air Quality Positive approach recommended by LBH; an approach which has been agreed to in the approved planning applications for the adjacent UP1, UP2 and UP3 data centres on the Union Park Data Centre Campus (Ref: *75111/APP/2022*).

Consequently, there is a directly relevant planning precedent which can, and has, been followed for this planning application for UP4.

[1] Greater London Authority. (2021). *The London Plan.*
[2] GLA (2023). London Plan Guidance: Air Quality Positive (February 2023).

Air Quality Positive Statement

Scope of Air Quality Statement 2

Nonetheless, because air quality has been considered throughout the planning process, an Air Quality Positive statement which more closely aligns with the GLA's expectations has been prepared, for completeness.

The purpose of the GLA's Air Quality Positive approach is to enable developments to achieve the best possible outcomes across all air quality related design aspects. This has been achieved through Phlorum's continual engagement with the design team throughout the planning process to date.

This statement highlights the measures which are (or are proposed) to be implemented to contribute to the delivery of the best possible air quality outcomes with respect to the development. These measures are discussed under the following four key themes, as detailed in the GLA guidance[2]:

- Better design and reducing exposure;
- Building emissions;
- Transport emissions; and
- Innovation and futureproofing.

Air Quality Context

The dominant source of air pollution locally is from vehicle movements on the surrounding road network, primarily the A312. Heathrow Airport is also a significant contributor to regional air pollution.

A review of baseline air quality has established that air quality in the local area has generally remained below all relevant UK Air Quality Standards (AQSs) in recent years, particularly since the Covid-19 pandemic, due in part to changes in travel behaviours, but also due to London-based initiatives such as the Ultra Low Emission Zone (ULEZ) expansion.

This statement should be read in conjunction with the air quality assessment (AQA) produced by Phlorum for the proposed development (see **ES Chapter 6 – Air Quality**). The ES Chapter concludes that the proposed development will have no significant effect on local air quality and will not introduce new sensitive receptors into areas of poor air quality. As discussed in detail in Phlorum's Air Quality Statement 1[3], the development will also achieve air quality neutrality, thus complying with all relevant local, London and national policy.

[3] Phlorum (2025). *13528D_AQ Statement 1 – Air Quality Neutral*.

This section provides an overview of the air quality positive approach taken for this proposed development, as well as highlighting some of the site's constraints and opportunities, to explain how decisions surrounding certain design measures were made.

Throughout the design process, acknowledgement was given to the following documents, where relevant:

- GLA's Air Quality Positive guidance (2023)[2];
- GLA's Air Quality Neutral guidance (2023)[4];
- GLA's The London Plan (2021)[5];
- LBH's Air Quality Action Plan (2019)[6]:
- Transport for London's Delivery and Servicing Plan Guidance (2020)[7]; and
- Transport for London's Healthy Streets for London (2017)[8];

Better Design and Reducing Exposure

The main air pollutant source associated with the proposed development is the Data Centre's on-site standby generators, which are designed to operate in the event of an emergency power outage.

To minimise the risk of on-site emissions being generated frequently through regular prolonged power outages, it was important that the applicant locate the data centre facility in an area with an exceptionally high grid reliability. To this end, the applicant has proposed to link this data centre to the Union Park campus connected to the North Hyde substation, the grid reliability of which has been calculated at 99.999605%.

In terms of design, the lead design team pursued a landscape-led approach, to enable a high level of pedestrian-focussed accessibility. To connect the development to the adjacent UP1, UP2 and UP3 data centres and ensure good permeability for active travel across the whole campus, the masterplan places the proposed data centre buildings to the northeast of the site, away from the nearest existing highly sensitive receptors (i.e. residences on the former Nestle site to the southwest).

Building massing was designed to ensure that no urban canyons or courtyards would be produced in the vicinity of the standby generators operating on either this proposed development or the other data centres on campus; this reduces the risk of pollutants "pooling" in confined spaces, which can lead to elevated pollutant concentrations.

[4] GLA (2023). London Plan Guidance: Air Quality Neutral (February 2023).
[5] GLA (2021). The London Plan.
[6] LBH (2019). Air Quality Action Plan 2019 – 2024.
[7] TFL (2020). Delivery and Servicing Plan Guidance: Planning for safe, clean and efficient freight in London.
[8] TFL (2017). Healthy Streets for London: Prioritising walking, cycling and public transport to create a healthy city.

To further enhance the dispersion of pollutants once emitted from the standby generators, they have been fitted with chimney stacks which force pollutants to be emitted vertically at high velocity, and at a height of 28m above ground level. The high velocity, temperature and stack elevation allows from the rapid dispersion of pollutants as soon as they are released, thereby reducing the risks of adverse air quality impacts on nearby sensitive receptors.

Building Emissions

Although the scheme has designed its buildings and stacks to enable a high level of pollutant dispersion, the standby generators still have the potential to cause noticeable increases in local air pollutant concentrations; particularly nitrogen dioxide (NO_2) and particulate matter (PM) concentrations.

To address this, all standby generators are to be fitted with NO_X abatement, in the form of selective catalytic reduction (SCR), to reduce NO_X emissions down to 95 $mg.Nm^{-3}$ (at 5% O_2). At full engine load, this is an emissions concentration reduction of approximately 96% compared to unabated levels. For context, the Medium Combustion Plant Directive (Directive 2015/2913/EU) for Environmental Permitting states that most specified generators will need to comply with an emission limit value of 190 $mg.Nm^{-3}$ (at *15%* O_2), which equates to roughly 500 $mg.Nm^{-3}$ (at *5%* O_2). This exemplifies the exceptional capabilities of the SCR system proposed for this development. The air quality assessment in ES Chapter 6 has determined that with the proposed SCR technology, all air quality impacts at nearby sensitive receptors are predicted to be insignificant.

Appreciating that the SCR only benefits NO_X/ NO_2, the development also proposes to prioritise the use of hydrotreated vegetable oil (HVO) over diesel in all circumstances, expect if HVO is not commercially available. HVO fuel releases fewer emissions of NO_X, but it more importantly releases significantly fewer PM emissions. Recent assessment work undertaken by the proposed standby generator operator indicates that HVO fuel can result in a 29% reduction in PM emissions when compared to the use of diesel.

Lastly, whilst it is appreciated that the probability of grid failures is exceptionally low, the standby generators will still operate on occasion for testing and maintenance purposes. To reduce the risk of the testing regime leading to elevated air quality concentrations at sensitive receptor locations, the development proposes a regime which will only operate for approximately 7 hours per year. Based on Phlorum's experience with other data centre developments in the UK, this runtime is at the lower end of what is usually achieved by similar data centres, so is considered acceptable.

Transport Emissions

The transport consultants for the proposed development have encouraged active and sustainable travel measures throughout the design and have prepared a Travel Plan[9] and Delivery and Servicing Plan[10], highlighting several measures to enable sustainable travel.

Most importantly, the proposed development is only anticipated to generate 52 vehicle trips per day, so the scheme's traffic generation is not expected to have any notable influence on local air quality.

Of the 14 parking spaces located in the car park, 43% will be fitted with active electric vehicle charging infrastructure, above the GLA's minimum requirements. An additional 20% of spaces will be cable-ducted for future provision, enabling the development to further reduce its emissions in the future.

Innovation and Futureproofing

The innovative use of SCR on the standby generators to reduce emissions to well below the levels normally achieved in combustion engines is a significant step to improving local air quality, as demonstrated by the air pollutant dispersion modelling carried out as part of this application and presented in *ES Chapter 6 – Air Quality*. NO_X emissions will be reduced from approximately 1500 ppm down to less than 50 ppm, within 20 minutes of the standby generators' operations.

The improvements provided by the SCR are enhanced by the planned use of sustainably sourced HVO as the prime fuel source for the standby generators, which effectively makes them low emission standby generators, in terms of carbon, NO_X and PM emissions; compared to diesel, HVO has been assessed by the operator to reduce emissions by up to 90%, 17% and 29%, respectively.

At the time of the application there are no commercially available zero-emission standby generators able to provide the duty required for these standby sets. However, the client has committed to investigating the feasibility of deploying alternative zero-emission standby generators as the currently proposed sets reach the end of their lifespans. The same commitment was made for the approved data centres on this campus, where HDR Consulting Ltd UK prepared an *Emissions Reduction and Management Plan (EMRP)*[11] to successfully discharge Planning Condition 23 of the associated permission. The EMRP details the commitment to review alternative fuel options and provides a clear programme for doing so. An EMRP will be produced as part of this proposed development.

[9] HDR (2025). Travel Plan. Union Park – Block 4.
[10] HDR (2025). Delivery and Service Management Plan. Union Park – Block 4.
[11] HDR (2023). Technical Note: Discharge of Condition 23 (*Application Reference: 75111/APP/2023/3119*).

Additionally, the applicant has committed to offering financial contributions to the local planning authority. The first of these payments has been calculated to directly offset the emissions produced by the scheme's transport and standby generator emissions, and equates to £79,568. It is understood that the contribution will go towards enabling LBH to complete key actions listed in their Air Quality Action Plan[6]. A second payment will come in the form of a Healthy Streets S106 agreement, which will contribute towards local public transport improvement projects. Such measures should allow for an overall betterment in local air quality.

The applicant has also made provisions in the base building designs for the energy centres to be sources of continuous low-grade heat, for connection into a district heating system, should one be developed in the future. To have a positive impact on the local area, a district heating system, to which this continuous source of low-grade hear can be connected, will need to be designed, built and operated by a separate District Heating System Operator.

Air Quality Positive Matrix

A list of the Air Quality Positive measures for the proposed development are included in Table 1. As required by the Air Quality Positive Guidance, the below matrix includes the rationale for adopting each measure and how that measure will be secured and, where applicable, monitored. The Air Quality Positive Measures detailed within the below matrix will be secured as part of various planning applications/submissions for the proposed development and implemented via condition and/or Section 106 agreements.

Table 1: Air Quality Positive Matrix

Measure	Summary of the measure	Reason for undertaking the measure	Expected benefits	Assessment methods	Quantitative/ qualitative reporting	How the measure will be secured	Reporting/ monitoring method
Better Design and Reducing Exposure							
Construction phase dust mitigation	Best practice dust mitigation measures will be implemented throughout the construction programme	To reduce exposure of existing sensitive receptors to construction dust	Ensure dust effects are negligible during construction	Dust risk assessment (ES Chapter 6 – Air Quality)	Qualitative	Construction Environmental Management Plan (CEMP)	Dust monitoring to be undertaken, with monthly results provided to the local authority.
Construction phase emissions mitigation	NRMM will meet, and where possible, exceed the GLA requirements	Meet GLA requirements and reduce exhaust emissions during the construction programme	Reduced exhaust emissions from the construction programme to limit effects on nearby residents	Reported via commitments from contractors	Qualitative	CEMP	NRMM usage to be logged for local authority review, if requested

Measure	Summary of the measure	Reason for undertaking the measure	Expected benefits	Assessment methods	Quantitative/ qualitative reporting	How the measure will be secured	Reporting/ monitoring method
Location of data centre	The Site has been located in an area with 99.999605% grid reliability to limit the probability of emergency power outages	Power outages would lead to increased emissions from standby generators, so the measure reduces overall emissions	Reduced emissions to limit effects on nearby land uses	Detailed pollutant dispersion modelling (ES Chapter 6 – Air Quality)	Quantitative	Through planning approval	N/A
Location of standby generator stacks	The Site's standby generator stacks are located 28m above ground level and well distanced from sensitive land uses	To protect nearby residents from associated pollutant emissions	Improved pollutant dispersion to reduce air quality impacts on nearby land uses	Detailed pollutant dispersion modelling (ES Chapter 6 – Air Quality)	Quantitative	Through planning approval – detailed design plans	N/A
Exterior building massing and design	Buildings are designed and oriented to prevent the inhabitation of air flow in and around the Site	To reduce urban canyon and courtyard effects on air pollutant dispersion	Limit the effects of the Proposed Development on local air quality	Detailed pollutant dispersion modelling (ES Chapter 6 – Air Quality)	Quantitative	Through planning approval – detailed design plans	N/A
Building Emissions							
Selective Catalytic Reduction (SCR)	SCR fitted to standby generators to reduce NO_X emissions down to 95 $mg.Nm^{-3}$ (at 5% O_2)	To reduce standby generator emissions as much as possible	Reduced emissions to limit effects on nearby land uses	Detailed pollutant dispersion modelling (ES Chapter 6 – Air Quality)	Quantitative	Through planning approval	Written warranty submitted in Appendix 6.3 of ES Chapter 6

Measure	Summary of the measure	Reason for undertaking the measure	Expected benefits	Assessment methods	Quantitative/ qualitative reporting	How the measure will be secured	Reporting/ monitoring method
Hydrotreated Vegetable Oil (HVO)	Sustainably sourced HVO to be used instead of diesel fuel to minimise emissions of NO_X, PM and carbon dioxide	To reduce standby generator emissions as much as possible	Reduced emissions to limit effects on nearby land uses	Detailed pollutant dispersion modelling (ES Chapter 6 – Air Quality)	Quantitative	Through planning approval	Pollutant Emissions Monitoring Plan
Minimised Testing Regime	The standby generators will only operate for circa. 7 hours per year during routine testing and maintenance	To reduce standby generator emissions as much as possible	Reduced emissions to limit effects on nearby land uses	Detailed pollutant dispersion modelling (ES Chapter 6 – Air Quality)	Quantitative	Via Planning Condition	Pollutant Emissions Monitoring Plan
Transport Emissions							
Car sharing	Depending on demand, the adoption of a car sharing scheme is to be considered	To support reduced parking provision and limit vehicle generated pollutant emissions from the Development	Limit the effects of the Development on local air quality	Travel Plan	Qualitative	Via S.106 agreement	Monitoring protocol detailed in the Travel Plan
Cycle parking/ infrastructure	Cycle storage infrastructure will meet London Plan Policy T5 requirements	To encourage active travel over pollutant-emitting transport modes	Limit the effects of the Development on local air quality	Transport Assessment	Qualitative	Through planning approval – Transport assessment	N/A
Bicycle discounts for employees	Liaise with local cycle retailers to understand the potential to offer discounts to employees	To encourage active travel over pollutant-emitting transport modes	Limit the effects of the Development on local air quality	Travel Plan	Qualitative	Through planning approval – Travel plan	Monitoring protocol detailed in the Travel Plan

Measure	Summary of the measure	Reason for undertaking the measure	Expected benefits	Assessment methods	Quantitative/ qualitative reporting	How the measure will be secured	Reporting/ monitoring method
Travel information packs to new occupants	Brochures provided to employees to encourage the use of sustainable travel/ public transport	To encourage active travel over pollutant-emitting transport modes	Limit the effects of the Development on local air quality	Travel Plan	Qualitative	Through planning approval – Travel plan	Monitoring protocol detailed in the Travel Plan
Priority to pedestrians and cyclists on-site and off-site	Pedestrians and cyclists can access and travel around the site and off-site safely and conveniently	To encourage active travel over pollutant-emitting transport modes	Limit the effects of the Development on local air quality	Site design	Qualitative	Through planning approval – Transport assessment	N/A
Delivery and Servicing Plan (DSP) – vehicle trip generation	Implementation of a site-wide waste system will reduce the number of refuse trips required. As part of the, opportunities to consolidate, re-time or reduce deliveries will be identified	To limit vehicle generated pollutant emissions from the Development	Limit the effects of the Development on local air quality	Delivery and Servicing plan	Qualitative	Through planning approval – Delivery and Servicing plan	N/A
DSP – incentivising sustainable travel	The DSP will promote low-emission vehicles and non-motorised delivery and servicing vehicles	To limit vehicle generated pollutant emissions from the Development	Limit the effects of the Development on local air quality	Delivery and Servicing plan	Qualitative	Through planning approval – Delivery and Servicing plan	N/A

Measure	Summary of the measure	Reason for undertaking the measure	Expected benefits	Assessment methods	Quantitative/ qualitative reporting	How the measure will be secured	Reporting/ monitoring method
DSP – vehicle travel outside of peak hours	Delivery and Servicing movements will be encouraged to take place in hours outside of peak traffic movements, this may be managed through the implementation of a booking/scheduling system for deliveries	To limit vehicle generated pollutant emissions from the Development	Limit the effects of the Development on local air quality by preventing congestion during peak hours	Delivery and Servicing plan	Qualitative	Through planning approval – Delivery and Servicing plan	N/A
Electric Vehicle (EV) charging infrastructure provision	43% of parking spaces will include active EV charging infrastructure, which is above London Plan requirements, with an additional 20% of spaces including passive facilities (cabling) for provision of more infrastructure in the future	To align with national ambitions to phase out pollutant-emitting vehicle movements	Enables the development to achieve a low-emission transport strategy	Transport Assessment	Qualitative	Through planning approval – Transport Assessment	N/A
Innovation and Futureproofing							
Zero-/low-emission standby generators	Commitment to considering alternative (zero-emission) fuel sources to replace the carbon emission generators towards the end-of-life	To enable the development to become emission free in the future	Enables the development to achieve an emission-free energy strategy	N/A	Qualitative	Via Planning Condition	Emissions Reduction and Management Plan (EMRP)

Measure	Summary of the measure	Reason for undertaking the measure	Expected benefits	Assessment methods	Quantitative/ qualitative reporting	How the measure will be secured	Reporting/ monitoring method
Healthy Streets Contribution	Financially contribute towards LBH's local public transport improvement projects	Public transport improvements will reduce the need for reliance on private vehicle use	Enables the development to contribute to the betterment of local air quality	Transport Assessment	Qualitative	Via S.106 agreement	N/A
Air Quality Damage Cost Contribution	Financially contribute towards LBH's Air Quality Action Plan measures	To offset the impacts of emissions generated by the scheme	Enables the development to contribute to the betterment of local air quality	Damage Cost Calculation (Appendix 6.4)	Quantitative	Via S.106 agreement	N/A

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