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AIR QUALITY ASSESSMENT

Land to the rear of 25-41 South End

Land to the rear of 25-41 South End, Croydon CR0 1EE

CLIENT	DOCUMENT REF	REVISION	DATE	AQMA	GRID REF
Private Client	FA-AQA-0108	P01	8 May 2025	Inside AQMA	TQ 32449 64807

Contents

Document control

PROJECT	Land to the rear of 25-41 South End
REPORT	Air Quality Assessment
SITE	Land to the rear of 25-41 South End, Croydon CR0 1BE
CLIENT	Private Client
DOCUMENT REF	FA-AQA-0108
REVISION	P01
DATE	8 May 2025
PLANNING STAGE	Full planning application
PREPARED BY	Fortress Associates

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Executive summary

This Air Quality Assessment accompanies a full planning application for erection of a part four, part five storey building to provide 22 self-contained flats (Use Class C3) with associated amenity space, cycle storage and waste storage, following demolition of the existing car showroom building and associated alterations including landscaping at Land to the rear of 25-41 South End, Croydon CR0 1BE. It assesses the construction phase (dust and plant emissions, using the IAQM 2024 methodology), the operational phase (traffic and building emissions, screened and assessed against the EPUK/IAQM 2017 criteria) and the suitability of the site for the proposed use (exposure of future occupants against the air quality objectives).

The site lies within the Croydon AQMA, and the assessment demonstrates consistency with the council's Air Quality Action Plan. Background and total concentrations at the site are well below the air quality objectives in the opening year (total NO2 13 µg/m³ against the 40 µg/m³ objective). Construction dust risk is medium risk before mitigation; with the measures secured through the Dust Management Plan the residual construction effect is not significant. The operational traffic impact is negligible at the worst-case receptor (a change of 0% of the assessment level), and the overall operational effect on local air quality is not significant.

The development is assessed against London Plan Policy SI 1; it is Air Quality Neutral (both the building and transport emissions benchmarks are met), and construction plant complies with the NRMM Low Emission Zone.

The site is suitable for the proposed use with regard to air quality; the development accords with the National Planning Policy Framework, the Planning Practice Guidance and the development plan, and there is no air quality reason to withhold planning permission.

Key air quality information

Item	Value
Site address	Land to the rear of 25-41 South End, Croydon CR0 1BE
OS grid reference	TQ 32449 64807
Local planning authority	Croydon
Development	Erection of a part four, part five storey building to provide 22 self-contained flats (Use Class C3) with associated amenity space, cycle storage and waste storage, following demolition of the existing car showroom building and associated alterations including landscaping
AQMA status	Inside Croydon AQMA
Smoke control area	Inside
Background NO2 / PM10 / PM2.5 (2026)	13.52 / 13.31 / 7.75 ug/m3
Total NO2 at the site, opening year	13 ug/m3 (33% of the 40 ug/m3 objective)

Item	Value
Construction dust risk (pre-mitigation, IAQM 2024)	Medium risk
Residual construction effect (with DMP)	Not significant
Operational traffic change	22 AADT - Negligible impact
Operational effect on local air quality	Not significant
Site suitability for the use (exposure)	Suitable - concentrations below the objectives
Energy strategy	Heat pumps / all-electric (no combustion)
Lifetime / assessment year	Opening year 2027 (worst case)
London Air Quality Neutral	Compliant - BEB and TEB met
Emissions damage cost (5-year, Defra 2025 prices)	GBP 6,914

Site and development description

The application site is located at Land to the rear of 25-41 South End, Croydon CR0 1BE, National Grid Reference TQ 32449 64807, within the administrative area of Croydon (Greater London - Outer London).

The site comprises an existing single-storey car showroom building with associated hardstanding, set to the rear of the commercial frontage at 25-41 South End within the Croydon town centre area.

The proposal comprises: Erection of a part four, part five storey building to provide 22 self-contained flats (Use Class C3) with associated amenity space, cycle storage and waste storage, following demolition of the existing car showroom building and associated alterations including landscaping. For the purposes of this assessment the development is classified as 'Residential' use of 5 storeys, assessed for its opening year of 2027 - the first year of use, which is the worst case because background concentrations decline over time.

Development quantum

Parameter	Value	Note
Total site area	1,300 m2	
New dwellings	22 units	
Building volume to be demolished	4,500 m3	Drives the demolition dust magnitude
New building volume	9,000 m3	
Peak construction HDV movements	8 per day	
Operational vehicle trips	22 AADT	From the transport assessment

Figure 1 - Site location plan (application site outlined red)

Legislation and planning policy context

The Environment Act 1995 (Part IV) establishes the Local Air Quality Management (LAQM) regime under which local authorities review air quality against the objectives of the Air Quality (England) Regulations 2000 (as amended) and the Air Quality Standards Regulations 2010, declaring Air Quality Management Areas (AQMAs) where objectives are not met. The Environment Act 2021 sets binding targets for fine particulate matter in England: an annual mean concentration of 12 ug/m3 by January 2028 and 10 ug/m3 by 2040.

The National Planning Policy Framework requires planning decisions to 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. The Planning Practice Guidance (Air Quality) describes when assessment is needed and what it should contain - this report follows that structure. London Plan 2021 Policy SI 1 additionally requires major developments to be submitted with an Air Quality Assessment, all development to be at least Air Quality Neutral, and construction to comply with the NRMM Low Emission Zone; the applicable regime is London Local Air Quality Management (LLAQM.TG(19)).

Local policy: the Local Plan of Croydon and its air quality planning guidance set the local requirements, together with the council's Air Quality Action Plan for the declared AQMA. This assessment meets those requirements through the measures set out in the following sections.

Local policy notes

The London Borough of Croydon declared an Air Quality Management Area on 24 April 2003 for exceedance of the annual mean nitrogen dioxide objective, and air quality across the borough is managed under the council's Air Quality Action Plan. London Plan (March 2021) Policy SI 1 requires development to be at least air quality neutral and to prevent new unacceptable exposure to poor air quality, and the Mayor's Air Quality Neutral guidance of February 2023 sets the building and transport emission benchmarks applied in this assessment. The National Planning Policy Framework requires planning decisions to sustain and contribute towards compliance with the national air quality objectives, taking into account the presence of Air Quality Management Areas and the cumulative impacts of development. The Croydon Local Plan supports development which does not worsen air quality within the borough's Air Quality Management Area, and this assessment demonstrates the proposal's compliance with that framework.

Air quality objectives applied in this assessment (AQALs)

Pollutant	Averaging period	Objective
Nitrogen dioxide (NO2)	Annual mean	40 ug/m3
Nitrogen dioxide (NO2)	1-hour mean	200 ug/m3 - not to be exceeded more than 18 times a year
Particulate matter (PM10)	Annual mean	40 ug/m3
Particulate matter (PM10)	24-hour mean	50 ug/m3 - not to be exceeded more than 35 times a year (annual-mean surrogate 32 µg/m³, LAQM.TG(22))
Fine particulate matter (PM2.5)	Annual mean	20 ug/m3 - Environment Act 2021 targets for England: 12 µg/m³ by January 2028 and 10 µg/m³ by 2040
Sulphur dioxide (SO2)	15-min / 1-hour / 24-hour	266 (max 35/yr) / 350 (max 24/yr) / 125 (max 3/yr) µg/m³

Assessment methodology and significance criteria

Methods: IAQM Guidance on the assessment of dust from demolition and construction (v2.2, January 2024) for the construction phase; EPUK & IAQM Land-Use Planning & Development Control: Planning for Air Quality (v1.2, 2017) for operational screening and impact description; LAQM.TG(22) screening relationships for the short-term objectives. Data: Defra UK-AIR datasets accessed 08/05/2025.

Two questions are always considered: the impact of the local area on the development (the exposure of future occupants) and the impact of the development on the local area (its construction and operational emissions). The operational assessment applies the two-stage EPUK/IAQM criteria; where a criterion is engaged, the change in concentration is quantified as a percentage of the air quality assessment level (AQAL) and the impact is described with the guidance's descriptor matrix. Overall significance is then a reasoned professional judgement weighing the number of receptors affected and the margin to the objectives.

EPUK/IAQM Stage 2 screening criteria vs this development

Criterion (Table 6.2)	Threshold	This development	Result
Light-duty vehicle traffic change	> 100 AADT (in/adjacent to AQMA)	22 AADT	Not engaged
Heavy-duty vehicle traffic change	> 25 AADT	0 AADT	Not engaged
Underground car park extract	Extract within 20 m of a receptor + >100 movements/day	Car-free (disabled-persons parking only)	Not engaged
Combustion plant	Single/combined NOx emission > 5 mg/s (~450 kW ultra-low-NOx boiler)	Heat pumps / all-electric (no combustion)	Not engaged

EPUK/IAQM impact descriptors (annual mean; change as % of AQAL)

Total concentration at receptor	1%	2-5%	6-10%	>10%
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76-94% of AQAL	Negligible	Slight	Moderate	Moderate
95-102% of AQAL	Slight	Moderate	Moderate	Substantial
103-109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

Changes below 0.5% of the AQAL are negligible. The descriptors apply at individual receptors; they are a starting point for the overall significance judgement, not a substitute for it.

Baseline conditions

Local air quality management context

LAQM review & AQMA status

London Borough of Croydon has declared the Croydon AQMA for exceedances of the air quality objective for nitrogen dioxide (NO2) (the whole borough), and the site lies WITHIN this Air Quality Management Area. The council's Air Quality Action Plan applies; this assessment demonstrates that the development is consistent with that plan and does not compromise or render inoperative any of its measures.

Smoke control area

The site lies within a Smoke Control Area declared by Croydon under the Clean Air Act 1993 (partial). Only authorised fuels or exempt appliances are used within the development; no open solid-fuel burning is proposed, and any secondary heating appliances are DEFRA-exempt models.

Local emission sources (roads, industry)

The dominant source of air pollutants in the study area is road traffic on the local highway network, principally the A236 approximately 175 m from the site, carrying 18,437 vehicles per day (annual average daily flow, of which 159 are HGVs; DfT count data, 2025). No significant industrial point sources with the potential to affect the site are identified in the vicinity on the national compliance datasets used for this assessment. Domestic heating makes a background contribution that is captured in the Defra mapped concentrations reported below.

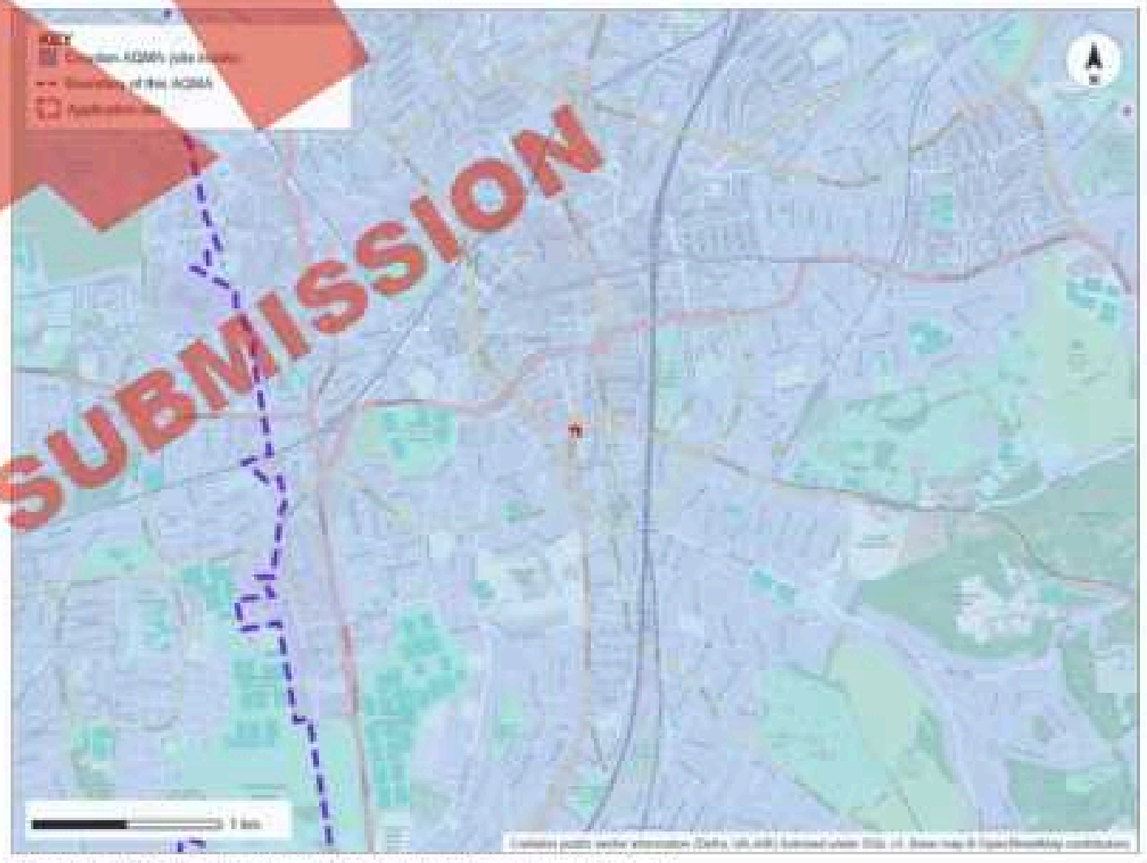

Figure 2 - Air Quality Management Areas in the vicinity of the site

Baseline concentrations

Defra mapped background concentrations

Background concentrations for the 1 km grid square containing the site were obtained from the Defra LAQM background concentration maps (2021 reference year): annual mean NO2 13.52 µg/m³ in 2026 falling to 12.98 µg/m³ in the 2027 opening year (objective 40 µg/m³); PM10 13.31 µg/m³ in 2026 falling to 13.25 µg/m³ in the 2027 opening year (objective 40 µg/m³); PM2.5 7.75 µg/m³ in 2026 falling to 7.69 µg/m³ in the 2027 opening year (objective 20 µg/m³). Background concentrations at the site are therefore well below the air quality objectives - 'well below' in the terms of the EPUK/IAQM guidance (less than 75% of the objective).

Local monitoring data

There are no national-network automatic monitoring sites within 5 km of the site; the assessment therefore relies on the Defra mapped background concentrations, which are the appropriate source for this location under LAQM.TG(22), read alongside Croydon's Annual Status Report monitoring.

Baseline against the objectives

Baseline concentrations of NO2, PM10 and PM2.5 at the site are well below the relevant air quality objectives in the opening year (total NO2 including the roadside contribution: 13 µg/m³, 33% of the 40 µg/m³ objective). Annual mean NO2 is below 60 µg/m³, so the 1-hour objective will not be exceeded, and annual mean PM10 is below 32 µg/m³, so the 24-hour objective will not be exceeded (LAQM.TG(22) screening relationships).

Figure 3 - Defra modelled annual mean NO2 (2024) - application site outlined red

Figure 4 - Defra modelled annual mean PM2.5 (2024) - application site outlined red

Ecological receptors

Designated sites in the study area

No designated ecological sites (SSSI, SAC, SPA or Ramsar) lie within 200 m of the site or of the roads affected by the development, and ecological air quality effects are screened out in accordance with the IAQM guidance on designated nature conservation sites (2020).

Defra mapped background concentrations - 1 km grid square containing the site

Pollutant	Baseline 2026	Opening year 2027	Objective	% of objective (opening)
Nitrogen dioxide (NO2)	13.52 ug/m3	12.98 ug/m3	40 ug/m3	32%
Oxides of nitrogen (NOx)	18.28 ug/m3	17.45 ug/m3	30 ug/m3	58%
Particulate matter (PM10)	13.31 ug/m3	13.25 ug/m3	40 ug/m3	33%

Pollutant	Baseline 2026	Opening year 2027	Objective	% of objective (opening)
Fine particulate matter (PM2.5)	7.75 ug/m3	7.69 ug/m3	20 ug/m3	38%

Construction phase - dust and plant emissions

IAQM (2024) five-step method: screen the need for assessment; classify the dust emission magnitude of each activity; classify the sensitivity of the surrounding area for dust soiling, human health and ecological effects; combine into the risk of dust impacts; and define the mitigation secured through the Dust Management Plan. Significance is assigned to the residual effect with mitigation in place.

Screening & scope

IAQM Step 1 screening

Applying Step 1 of the IAQM guidance (2024): there are human receptors within 250 m of the site boundary (the nearest sensitive receptors are within 20 m) and no ecological receptors within 50 m, so a construction dust assessment is required and is set out below. The assessment addresses the three separate dust impacts of the guidance - annoyance due to dust soiling, the risk of health effects from increased PM10 exposure, and harm to ecological receptors - for each activity that will occur on this site.

Activities & dust emission magnitude (Step 2A)

The dust emission magnitude of each activity is classified against the Step 2A criteria of the IAQM guidance: demolition - Small (building volume 4,500 m³); earthworks - Small (site area 1,300 m²); construction - Small (new building volume 9,000 m³); trackout - Small (up to 8 outward HDV movements on the busiest day). The classifications adopt the guidance's quantitative example thresholds (demolition/construction: 12,000 and 75,000 m³; earthworks: 18,000 and 110,000 m²; trackout: 20 and 50 HDV movements per day), and where the works sit near a class boundary the higher class is adopted as a precaution.

Sensitivity & risk

Sensitivity of the surrounding area (Step 2B)

The sensitivity of the surrounding area is derived from the Step 2B matrices: the nearest high-sensitivity receptors (dwellings and equivalent uses) are within 20 m, with 10-100 such receptors within 100 m. The annual mean background PM10 concentration of 13.31 µg/m³ places the area in the lowest band of the human-health matrix. The resulting area sensitivities are: dust soiling - High; human health - Low.

Risk of dust impacts (Step 2C)

Combining the dust emission magnitudes with the area sensitivities (Step 2C matrices, applied without mitigation) gives the following risk of dust impacts: demolition: dust soiling Medium risk, human health Negligible; earthworks: dust soiling Low risk, human health Negligible; construction: dust soiling Low risk, human health Negligible; trackout: dust soiling Low risk, human health Negligible. The highest risk category across the activities - Medium risk - defines the package of site-wide mitigation measures secured through the Dust Management Plan.

Ecological dust risk

No ecological receptor lies within 50 m of the site boundary or the construction vehicle routes, so ecological dust impacts are screened out at Step 1 of the IAQM guidance.

Mitigation & residual effect

Site-specific mitigation (Step 3)

Mitigation measures commensurate with the medium risk classification are secured for the works, drawn from the IAQM (2024) measures schedule reproduced in this report: the site-wide (general) measures are applied at the highest risk category arising across the activities, and the activity-specific measures are applied to each activity that will occur. The measures are implemented through a Dust Management Plan approved by Croydon prior to commencement, which assigns responsibility for dust management to a named individual of the principal contractor, provides for staff training, records complaints, and sets out the monitoring regime.

Construction traffic & plant (NRMM)

Construction traffic is limited to 8 HDV movements on the busiest day, which is below the EPUK/IAQM criterion for an operational assessment of HDV emissions (25 AADT for sites in or adjacent to an AQMA) - exhaust impacts from construction traffic are therefore not significant. The site is within Greater London, so non-road mobile machinery of 37-560 kW used on the site complies with the NRMM Low Emission Zone (Stage IV minimum London-wide from 1 January 2025; Stage V for constant-speed engines and 37-56 kW plant) and is registered on the GLA NRMM register before use.

Delivery routing avoids sensitive frontages where practicable, and engine idling is prohibited on site and at the site entrance.

Residual significance (Step 4)

In accordance with Step 4 of the IAQM guidance, significance is assigned to the construction phase with the mitigation package in place: with the measures secured through the Dust Management Plan and implemented for the duration of the works, the residual effect of dust soiling, PM10 and ecological impacts is NOT SIGNIFICANT. An adequate water supply for dust suppression is available at the site, so there is no site-specific constraint that would undermine this conclusion.

Figure 5 - IAQM screening distances around the application site (20 / 50 / 100 / 350 m)

Dust emission magnitude and risk of dust impacts (pre-mitigation)

Activity	Magnitude (IAQ	Dust soiling risk	Human health risk	Ecological risk
Demolition	Small	Medium risk	Negligible	Screened out
Earthworks	Small	Low risk	Negligible	Screened out
Construction	Small	Low risk	Negligible	Screened out
Trackout	Small	Low risk	Negligible	Screened out

Dust mitigation schedule (IAQM 2024 - secured through the Dust Management Plan)

Category	Measure	Status at this site's risk level
Communications	Display the name and contact details of the person accountable for air quality and dust issues on the site boundary, together with the head/regional office contact information	Highly recommended
Communications	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site	Highly recommended
Dust Management Plan	Develop and implement a Dust Management Plan (DMP), approved by the local authority, incorporating the measures in this schedule	Highly recommended
Site management	Record all dust and air quality complaints, identify causes, take appropriate measures to reduce emissions in a timely manner, and record the measures taken; make the log available to the local authority on request	Highly recommended
Site management	Record any exceptional incidents that cause dust and/or air emissions, on or off site, and the action taken	Highly recommended
Monitoring	Carry out regular site inspections to monitor compliance with the DMP, record the results and increase the inspection frequency during prolonged dry or windy conditions	Highly recommended
Monitoring	Undertake daily on-site and off-site inspection where receptors are nearby, including regular dust soiling checks of surfaces within 100 m of the site boundary, with cleaning where necessary	Desirable
Monitoring	Agree dust deposition, dust flux or real-time PM10 monitoring locations with the local authority; where possible commence baseline monitoring at least three months before works commence	Highly recommended
Preparing the site	Plan the site layout so that machinery and dust-causing activities are located away from receptors as far as possible; locate site access gates at least 10 m from receptors where possible	Highly recommended
Preparing the site	Erect solid screens or barriers around dusty activities or the site boundary, at least as high as any stockpiles; keep fencing, barriers and scaffolding clean using wet methods	Highly recommended
Preparing the site	Cover, seed or fence stockpiles to prevent wind whipping; remove dusty materials from site as soon as possible; avoid site runoff of water or mud	Highly recommended
Vehicles & plant	Ensure all vehicles switch off engines when stationary - no idling; avoid diesel/petrol generators, using mains electricity or battery-powered equipment where practicable	Highly recommended
Vehicles & plant	Impose and signpost maximum speed limits of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas	Desirable
Vehicles & plant	Ensure all on-road vehicles and non-road mobile machinery (NRMM) comply with the emission standards applying to the site, including the London NRMM Low Emission Zone where applicable	Highly recommended
Operations	Only use cutting, grinding or sawing equipment fitted or used with suitable dust suppression (water sprays or local exhaust ventilation)	Highly recommended
Operations	Ensure an adequate supply of water on site for effective dust/particulate suppression, using non-potable water where possible	Highly recommended

Category	Measure	Status at this site's risk level
Operations	Use enclosed chutes, conveyors and covered skips; minimise drop heights from conveyors, loading shovels and hoppers, using fine water sprays where appropriate; clean up spillages promptly using wet methods	Highly recommended
Waste	Avoid bonfires and the burning of waste materials	Highly recommended
Demolition	Ensure effective water suppression is used during demolition, with hand-held sprays directing water to where it is needed; soft-strip inside buildings before demolition; avoid explosive blasting; bag, remove or damp down any biological debris before demolition	Highly recommended
Earthworks	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable; use Hessian, mulches or trackifiers where re-vegetation is not possible; only remove cover in small areas during work	Desirable
Construction	Ensure sand and other aggregates are stored in bunded areas and not allowed to dry out; deliver bulk cement and fine powders in enclosed tankers and store in silos with suitable emission control; avoid scabbling where possible	Highly recommended
Trackout	Use water-assisted dust sweepers on the access and local roads; avoid dry sweeping of large areas; ensure vehicles entering and leaving the site are covered	Highly recommended
Trackout	Implement a wheel-washing system with rumble grids, with an adequate length of hard-surfaced road between the wheel wash and the site exit; install hard-surfaced haul routes, regularly damped down and cleaned; and record haul-route inspections	Highly recommended

Operational phase assessment

The development's operational emissions (traffic, energy plant, car parking) are screened against the EPUK/IAQM indicative criteria and assessed where engaged; the exposure of future occupants is assessed against the air quality objectives at the point of exposure; and the London Plan Air Quality Neutral benchmarks are applied.

Screening

EPUK/IAQM screening criteria

The development is at the scale of the EPUK/IAQM Stage 1 size criterion (22 dwellings) but provides no more than 10 parking spaces and no centralised combustion plant, so Stage 1 is not engaged and its impacts on the local area can be treated as insignificant without further assessment. Against the Stage 2 criteria of Table 6.2: the change in light-duty vehicle flows is 22 AADT against a criterion of 100 AADT (site in or adjacent to an AQMA); the change in HDV flows is 0 AADT against a criterion of 25; no underground car park extract lies within 20 m of a receptor with more than 100 movements per day; the combustion plant on the scheme is below the 5 mg/s NOx screening rate of the guidance (equivalent to a 450 kW ultra-low-NOx boiler).

No criterion is exceeded and the operational impacts of the development on the local area are insignificant.

Development traffic emissions

The change in annual mean NO2 at the nearest worst-case receptor is estimated with a transparent, conservative method: the roadside increment above background on A236 (Defra PCM compliance model, 17.3 µg/m³ roadside total in the opening year) is scaled in proportion to the development traffic as a share of the existing flow (22 AADT against 10,437 AADT, 0.2%). This gives a change of 0.01 µg/m³ - 0% of the air quality assessment level - at a total concentration of 43% of the objective. Applying the EPUK/IAQM impact descriptors (Table 6.3), the impact is NEGLIGIBLE. The development does not create any new exceedance of an objective, nor does it delay compliance in any currently exceeding area.

Energy plant & combustion emissions

The energy strategy is combustion-free at the point of use (heat pumps / all-electric (no combustion)): the development introduces no new combustion plant, no flue emissions and no building-related NOx or particulate emissions. No further assessment of building emissions is required.

Car park emissions

The development is car-free (disabled-persons parking only), so there are no car park emissions to assess.

Exposure & suitability

New exposure - site suitability for the use

The suitability of the site for flats / apartments is assessed against the air quality objectives at the point of exposure. Total concentrations at the site in the 2027 opening year are NO2 13 µg/m³ (33% of the objective), PM10 13.25 µg/m³ (33%), PM2.5 7.69 µg/m³ (38%) - well below the objectives at every façade. The 1-hour NO2 and 24-hour PM10 objectives are met by a substantial margin (LAQM.TG(22) screening relationships). The site is suitable for the proposed use with regard to air quality, and future occupants will not be exposed to concentrations above the objectives.

Air Quality Neutral (London)

London Plan Policy SI 1 requires the development to be at least Air Quality Neutral, assessed with the February 2023 LPG benchmarks for the Outer London location. Building emissions: the combustion-free energy strategy gives zero building NOx, meeting the Building Emissions Benchmark of 5.7 gNOx/m²/yr for the residential use. Transport emissions: the development generates 8,030 single trips per year against a Transport Emissions Benchmark of 9,834; the scheme is car-free and is deemed to meet the benchmark. The development is AIR QUALITY NEUTRAL: both benchmarks are met and no offsetting is required.

Emissions damage cost appraisal

An emissions damage-cost appraisal of the development traffic is provided for the council's use in securing proportionate mitigation (Defra damage cost guidance, 2025 prices): 22 daily trips x 10 km

average trip length give 80,300 vehicle-km per year, emitting 28.1 kg NOx and 2.25 kg PM2.5 per year (fleet-average factors of 0.35 and 0.028 g/vehicle-km). Over the standard five-year appraisal period the health damage cost is £6,914 (road-transport NOx at £40,048/tonne; PM2.5 at £114,411/tonne). The mitigation measures secured through this report - electric vehicle charging, travel planning and low-emission plant - meet this value.

Significance

Impact descriptors & overall significance

Overall significance is judged in accordance with Chapter 7 of the EPUK/IAQM guidance by a suitably qualified assessor, weighing the impact descriptors at individual receptors, the number of receptors affected, and the margin between total concentrations and the objectives. The operational impact descriptors are negligible at the worst-case receptor, concentrations remain well below the objectives throughout the study area, and the development does not cause or worsen any exceedance. The operational air quality effects of the development are NOT SIGNIFICANT.

Mitigation & conditions

Operational mitigation & good design

Good-practice operational measures are embedded in the development in accordance with Chapter 5 of the EPUK/IAQM guidance: a car-free layout (disabled-persons parking only, with active electric vehicle charging to any such bay); a combustion-free heating strategy; no solid-fuel appliances; secure cycle storage and a travel plan that promotes walking, cycling and public transport; and ventilation intakes located away from the road. These measures deliver betterment against the baseline in addition to controlling the development's own emissions.

Recommended planning conditions

The following planning conditions secure the mitigation in this report and are offered for the council's use: (1) no development shall commence until a Dust Management Plan reflecting the IAQM measures schedule in this report has been submitted to and approved by the local planning authority, and the approved plan shall be implemented for the duration of demolition and construction; (2) the development shall be carried out with the combustion-free energy strategy assessed in this report; (3) the cycle parking shown on the approved plans shall be installed before first occupation and retained for the life of the development; (4) all NRMM used during construction shall meet the London NRMM Low Emission Zone standard and be registered before use.

Conclusion - suitability & policy compliance

Construction dust risk is medium risk before mitigation and the residual effect with the secured Dust Management Plan is not significant. The operational effect of the development on local air quality is not significant, and concentrations at the site are well below the air quality objectives, so the site is suitable for the proposed use. The development accords with the National Planning Policy Framework, the Planning Practice Guidance on air quality, London Plan Policy SI 1 (including Air Quality Neutral) and the development plan policies of Croydon, and it is consistent with the council's Air Quality Action Plan.

There is no air quality reason to withhold planning permission for this development.

Assessment calculation summary

Parameter	Value
Assessment years (baseline / opening)	2026 / 2027
Background NO2 (baseline / opening year)	13.52 / 12.98 µg/m³ (objective 40)
Background PM10 (baseline / opening year)	13.31 / 13.25 µg/m³ (objective 40)
Background PM2.5 (baseline / opening year)	7.75 / 7.69 µg/m³ (objective 20)
Total NO2 at the site, opening year (incl. roadside contribution)	13 µg/m³ (33% of the objective)
Development vehicle trips (AADT)	22 two-way movements/day
Nearest main road (A236)	10437 AADT at ~175 m (DfT 2025)
Estimated change in annual mean NO2 at the nearest receptor	0.01 µg/m³ (0% of the AQAL)
EPUK/IAQM impact descriptor (Table 6.3)	Negligible
Dust emission magnitude (IAQM Step 2A)	demolition: Small - earthworks: Small - construction: Small - trackout: Small
Highest dust risk before mitigation (IAQM Step 2C)	Medium risk
Damage-cost appraisal of development trips (5 years)	£6,914 (NOx 28.1 kg/yr; PM2.5 2.25 kg/yr)
London Air Quality Neutral	Compliant (BEB and TEB met)

London Air Quality Neutral (Feb 2023 LPG)

Item	Position
Location band	Outer London
Land-use class (LPG tables)	Residential
Building Emissions Benchmark	5.7 gNOx/m2 GIA/yr x 1,870 m2
Building emissions position	Met - combustion-free strategy (zero NOx)
Transport Emissions Benchmark	9,834 single trips/yr
Predicted trips	8,030 single trips/yr (car-free - deemed to comply)
Air Quality Neutral conclusion	COMPLIANT - no offsetting required

Emissions damage-cost appraisal (EPUK/IAQM method)

Step	Value
Development trips	22 AADT x 365 days x 10 km average trip
Vehicle-kilometres per year	80,300 veh-km
NOx emissions	28.1 kg/yr (0.35 g/veh-km fleet average)
PM2.5 emissions	2.25 kg/yr (0.028 g/veh-km)
Damage costs applied (Defra, 2025 prices)	NOx GBP 40,048/t; PM2.5 GBP 114,411/t
Health damage value over 5 years	GBP 6,914

Summary of measures

The measures below are incorporated in the development, classified by phase so the local planning authority can secure them by condition where appropriate.

Phase	Measure
Construction	Dust Management Plan implementing the IAQM measures schedule at the medium risk level, approved before commencement and implemented for the duration of the works
Construction	NRMM Low Emission Zone compliance (Stage IV minimum; Stage V for constant-speed engines) with registration before use
Construction	Wheel washing, water-assisted road sweeping, covered loads and hard-surfaced haul routes to control trackout
Operation	Combustion-free heating (heat pumps / all-electric) - zero building NOx
Operation	Car-free layout; disabled-persons parking only, with active electric vehicle charging to any such bay
Operation	No solid-fuel appliances anywhere in the development (site is within a Smoke Control Area)
Operation	Travel plan promoting walking, cycling and public transport; secure cycle storage
Design	Ventilation intakes located away from road sources in accordance with Approved Document F

Data sources and basis of assessment

Dataset / service	Publisher	Access
Defra LAQM background concentration maps (2021 reference year)	Defra UK-AIR	uk-air.defra.gov.uk/data/laqm-background-maps
Air Quality Management Area boundaries & declared pollutants	Defra / Ricardo (UK-AIR)	uk-air.defra.gov.uk/aqma
Smoke Control Area boundaries	Defra (UK-AIR)	uk-air.defra.gov.uk (Smoke_Control_Area_Boundaries)
National monitoring network - measured annual means (AURN & affiliated)	Defra UK-AIR	uk-air.defra.gov.uk (fixed measurement layers)
Modelled background & roadside concentration maps (PCM)	Defra UK-AIR compliance modelling	uk-air.defra.gov.uk (modelled layers)
Road traffic counts (AADF by vehicle class)	Department for Transport	roadtraffic.dft.gov.uk
Designated ecological sites (SSSI)	Natural England	environment.data.gov.uk (WMS)
Postcode geocoding & local authority lookup	postcodes.io (ONS/OS open data)	api.postcodes.io
Address geocoding	OpenStreetMap Nominatim	nominatim.openstreetmap.org
Base mapping	OpenStreetMap contributors	openstreetmap.org

All datasets were accessed on 08 May 2025 under the Open Government Licence v3.0 / ODbL. Contains public sector information licensed under the Open Government Licence (Defra, UK-AIR, DfT, Natural England); base mapping (c) OpenStreetMap contributors.

Guidance applied

- EPUK & IAQM (2017) Land-Use Planning & Development Control: Planning for Air Quality, v1.2
- IAQM (2024) Guidance on the assessment of dust from demolition and construction, v2.2
- Defra (2022) Local Air Quality Management Technical Guidance LAQM.TG(22)
- National Planning Policy Framework (current edition) & Planning Practice Guidance - Air Quality
- The Air Quality Standards Regulations 2010; Air Quality (England) Regulations 2000 (as amended); Environment Act 2021 (PM2.5 targets)

Basis of assessment

- This is a professional air quality assessment prepared in accordance with the Planning Practice Guidance and the EPUK & IAQM guidance, applying the industry-standard methodologies used by air quality practitioners across the UK to the authoritative national datasets listed above, current at the date of access and specific to this site.
- Background concentrations derive from the Defra LAQM background maps (2021 reference year) for the 1 km grid square containing the site, read alongside measured data from the national monitoring networks; roadside concentrations derive from the Defra PCM compliance model on the nearest main road.
- The construction dust assessment follows IAQM v2.2 (January 2024) - including the 250 m / 50 m screening distances and the re-based magnitude thresholds of that edition - and the mitigation schedule is written for implementation through a planning condition.
- Traffic changes are assessed with a transparent proportional method against Department for Transport count data; the development quantum values stated in this report are the basis of the classifications and are carried through to the recommended conditions.

- The assessment addresses air quality; noise, odour and other environmental matters are covered by the other application documents.

Closure

This Air Quality Assessment demonstrates that the proposed development satisfies the requirements of the NPPF, the Planning Practice Guidance, London Plan Policy SI 1 and the development plan: construction dust is controlled to a residual effect that is not significant; the operational effect on local air quality is not significant; the site is suitable for the proposed use with regard to the air quality objectives; and the development is consistent with the Air Quality Action Plan for the AQMA within which it sits. There is no air quality reason to withhold planning permission.

Prepared by

Fortress Associates

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