Phoenix Place – Mount Pleasant
Air Quality and Ventilation Strategy
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Taylor Wimpey
Central London

Produced by: Taylor Wimpey Central London with support from BYUK

1.0 Introduction

This Statement seeks to discharge Condition 17 (Air Quality – Residents Exposure) for Phases 1 and 2 of planning permission ref. 2013/3807/P, which is in full as follows:

"Prior to superstructure work commencing on the relevant Section, a report detailing measures to minimise the exposure of the development's future occupiers to air pollution with details for a ventilation strategy shall be submitted to and approved in writing by the Local Planning Authority. The development shall thereafter be carried out strictly in accordance with the measures so approved, and shall be maintained as such thereafter, unless otherwise approved in writing by the Local Planning Authority."

It sets out several measures which will be implemented during construction and once completed to minimise the exposure of the development's future occupiers to air pollution. It also provides a ventilation strategy to support the measures included.

The structure of the report is as follows:

Section 2 outlines the context and background to the report and will summarise the modelling data which supports the measures included.

Section 3 diagrammatically demonstrates which units will be exposed to modelled annual mean nitrogen dioxide concentrations above 40µg/m^3 (refer to Air Quality Note for further details) and therefore need apartment-specific air quality mitigation.

Section 4 details the site-wide measures and justification for the measures associated with the design, location and operation of the development to reduce exposure to air pollution and ensure acceptable air quality conditions for future residents of the development.

Section 5 includes a ventilation strategy and Section 6 sets out the conclusion.

2.0 Context and Background

As per Camden's Planning Guidance on Air Quality (adopted March 2019), the Council's overarching aim for developments are to be 'air quality neutral' in operation, not to lead to further deterioration of existing poor air quality, and, where possible, to improve local air quality ('air quality positive') through additional measures on and off site. All of Camden is a designated Air Quality Management Area and therefore the Council require all developments in areas of poor air quality to protect future occupants from exposure to air pollution.

The air quality strategy proposed within this document takes the Planning Guidance into account as well as its recommendations on how best to mitigate against air pollution.

It also follows on from the approved Air Quality Assessment included within the Environmental Statement. It recommends for those residential units which exceed the annual mean NO_2 objective a Whole House Mechanical Ventilation System should be provided. They should also be fitted with filters for NOx to reduce the exposure of future residential occupants where required.

The measures included within this report are also supported by an Air Quality Note produced by Air Quality Consultants, who have modelled the projected air quality conditions within the development. The results of which have determined which units are required to be fitted with additional mitigation measures (through the installation of NOx filters) to minimise the exposure of the development's future occupiers to air pollution.

The modelling conducted has followed an agreed approach with Camden whereby it has assumed that there will be no future improvements in air quality, with 2018 vehicle emission factors and the 2018 background pollutant concentrations measured at the London Bloomsbury automatic monitor used in the assessment of 'future' conditions.

The results concluded that the annual mean PM_{10} and $PM_{2.5}$ concentrations are below the objectives at all receptors. Annual mean nitrogen dioxide concentrations are predicted to be below 42µg/m^3 (APEC-C value indicating that mitigation is required, as detailed in the London Councils Air Quality and Planning Guidance) at all receptor points except for receptors P41 and P42 located within Block C, at first floor level facing Phoenix Place. The Note recommends that these apartments are fitted with NOx filters to reduce annual mean nitrogen dioxide concentrations to an acceptable level for future residents. However, the development has sought to meet the European standards and will mitigate each apartment which is over 40µg/m. Therefore, this Air Quality Strategy includes provision for this.

3.0 Development's air quality levels

The table below demonstrates which units are above the thresholds (i.e. 40.0µg/m^3 for nitrogen dioxide and the national objectives for PM_{10} and $PM_{2.5}$) (once built) for air quality and therefore will be supplemented with additional measures to protect against air pollution.

NO2	PM10	PM2.5
Some units within Blocks A3 to A6 and Block C, up to the third and fourth floors respectively are **above** the required level and therefore apartment-specific mitigation required.	Phase 1 and 2 are **below** required levels, therefore no apartment-specific mitigation required.	Phase 1 and 2 are **below** required levels, therefore no apartment-specific mitigation required.

Figure 2 to Figure 10 within the Air Quality Note produced by Air Quality Consultants demonstrates which units within Blocks A3 to A6 and Block C require NOx filters to be introduced to provide additional protection against air pollution.

4.0 Measures to minimise future occupiers exposure to air pollution

The table below clearly sets out the measures which are being implemented on site during construction and will be implemented on site once operating, to ensure that the effects of construction dust on existing receptors are 'not significant' and that future occupiers are exposed to acceptable air quality.

Measure	Detail	Impact
Detailed and extensive landscaping proposals	Condition 13 (Landscaping) has been submitted for approval to the LB Camden. This report includes a number of features which will protect future occupiers from air pollution, including: • Secured pedestrian access to the internal courtyard and direct courtyard access for selected units. • The proposed scheme provides a total of 363 sqm of lawn, 112 sqm of meadow and 487 sqm of shrub area (this equates to a 69%	The secured pedestrian access to the courtyard will allow residents to be removed from vehicle emissions as well as the building themselves will act as a shield from the air pollution entering the courtyards. The increase of landscaping and green roof has a number of benefits but specifically will alter the micro climate amelioration which improves air quality.

	increase in turf, shrub and meadow). A green and roof plant schedule has also been submitted under condition 21. 82% of the species in the turf are recommended in the Camden Biodiversity Action Plan. Overall 1039sqm of the roof of Phase 1 is green.	
Planting scheme	There were no existing trees on the site. As per the proposals submitted under condition 13 (landscaping) the scheme is now providing 25 new trees.	As well as improving the air quality, the trees sought will increase the trapping of particulates which may improve the air quality of the area.
Energy efficient buildings	An Energy Efficiency Plan was prepared and approved to satisfy Schedule 5, Part 9 Paragraph 1 of the S106 Agreement attached to permission ref 2013/307/P. The approved Strategy confirms that the following passive and active design measures have been included to reduce energy consumption and CO_2 emissions: • Enhanced fabric efficiency for the building envelope; • Air tightness is better than Part L 2010 standards; • Highly efficient plant and systems with energy recovery; • Heating, ventilation and air conditioning systems to be fully controlled and integrated with a building energy management system.	The passive and active design measures lead to a 7.37% site carbon reduction. Reduction of emissions, leading to a betterment of previous land use (Royal Mail site which had high levels of vehicle emissions). Sustainable design reduces thermal heat losses and result in less gas use leading to lower NOx emissions.
Renewable technologies	Gas boilers are a large source of NOx emissions in Camden. No individual gas boilers are used within the development. As per the approved Energy Efficiency Plan under Schedule 5 of the S106, Combined Heat and Power Unit (CHP) is incorporated which will provide heating and domestic hot water to the domestic and non-domestic areas of the site. The CHP unit will be located within	The measures included lead to the development exceeding Building Regulations Part L 2010 and GLA compliance targets through energy efficiency. The installed CHP will include a NOx catalyst, to lower NOx emissions at the exhaust, which will reduce the impacts on local air quality.

	a centralised energy centre on the lower ground floor of Block A. This provides a 43.87% reduction against Part L Target Emission Rate baseline.	
Detailed Travel Plan	Residential Travel Plan submitted and approved with original planning permission (ref. 2013/3807/P). Measures are included as follows: • Marketing and awareness initiatives on the benefits of sustainable travel; • Cycle parking provision in line with London Plan standards; and • Pedestrianised routes in and out of the development.	Reduction of development-generated vehicle emissions and improving the health and wellbeing opportunities for future occupiers.
Sustainable construction methods	Construction Management Plan approved under s106 obligation Sch 5, part 3, 4.1 – 4.2 includes measures to minimise dust emissions, gases and fine particles: • Routine dust monitoring at sensitive residential locations with the results and effectiveness of controls reviewed at regular meetings. A safety method statement will outline the control measures necessary to minimise the risks to an acceptable level, and all statutory notices will be placed with the Health and Safety Executive (HSE); • Erection of appropriate hoarding and/or fencing to reduce dust dispersion and restrict public access; • Fitting all equipment (e.g. for cutting, grinding, crushing) with dust control measures such as water sprays wherever possible; • Switching off all plant when not in use; and • No fires would be allowed on the Site.	Reduces the impacts on local air quality. Measures to control dust are routinely and successfully applied to construction projects throughout the UK, and are proven to reduce significantly the potential for adverse nuisance dust effects associated with the various stages of construction work, with residual effects after mitigation expected to be 'not significant'.

Protection of outdoor space	Roof terraces are screened from the road with balustrades and orientated away from the road. As per submitted landscape proposals under condition 13, the car park fresh air intake and exhaust are integrated into the planting bed within the courtyard, away from the pedestrian access.	Minimises exposure to poor air quality when using the outdoor facilities.
Filtration systems included within the design of the ventilation system to all apartments.	Dust filters (Grade G3) will be installed as part of the MVHR system to all apartment to capture coarse particles entering that apartment via the MVHR system Where required, NO_X filters will be added to the ventilation system to capture noxious gases such as NO_2 through an activated carbon filter. This specific mitigation is for those apartments which are modelled to have levels of NO_2 concentrations above 40µg/m^3 and will reduce the exposure of future residents to nitrogen dioxide concentrations down to acceptable levels.	The combination of these filters will prevent coarse particles and gaseous contaminants entering the air supply of apartments and will provide a fresher and cleaner environment for its occupants. .

The table below includes additional measures that have been implemented since planning permission has been achieved and goes above and beyond the original permission.

Measure	**Detail**	**Impact**
Reduction of saleable car parking on site by 29.4%: - Seven car park spaces within Phase 2; and - Three car park spaces within Phase 1.	Within Phase 2 a non-material amendment (ref. 2019/3364/P) has been allowed which removes all the saleable car park spaces within Phase 2 of the development. As part of this submission for condition (C17) a further three spaces are proposed to be removed from Phase 1. This leaves 24 saleable car parking on site rather than 34. Across all private units this brings down the parking ratio to 0.09 spaces per apartment	The reduction in car parking to a ratio of 0.09 (nearly 30% reduction) brings the site very close to car-free, which is a borough-wide policy drive. Reduction of vehicle emissions and improving the health and wellbeing opportunities for future occupiers. This will limit opportunities for parking and car use in the borough and should lead to reductions in air pollutants.
Monetary contribution and air quality filters to local school	Taylor Wimpey Central has provided the Christopher Hatton Primary School with the £10,000 monetary contribution	Green wall increases the air quality of the area as well as the filters protecting the

	for a green wall in the play area and for air quality filters for the classrooms.	children against poor air quality.
Betterment to Pocket Park	The delivery of the Pocket Park within the S278 Agreement has been brought forward as it is a positive to the scheme. The latest proposals includes a 200% increase in the total area of greenspace compared to the approved S106 design.	The increase in green space will prevent the air quality in the area worsening.

5.0 Ventilation Strategy

All apartments within this development will be mechanical ventilated, through the use of individual mechanical heat recovery ventilation units (MVHR) but all will also have the facility to obtain natural ventilation through openable windows.

This Section provides further information on the principles of the MVHR system used for each apartment in Phoenix Place. MVHR unit is a whole house system that provides continuous ventilation 24 hours a day 365 days a year, working to maintain and deliver fresh air.

No external plant (on the roof or otherwise) is required for the proposed MVHR system. It comprises a centrally-mounted unit which is located in an apartment's utility cupboard and is connected to each room via a ducting network, with air supplied to or extracted from rooms via simple ceiling or wall grilles (see Appendix 2: Façade visualisation).

This method of ventilation is included within the approved Phoenix Place Energy Strategy submitted and approved, under obligation Schedule 5, p9 1-2, and is therefore in accordance with the sustainability and energy efficiency principals for the site.

MVHR units in Phoenix Place

- MVHR units will be sited in the utility cupboard of each apartment with the ventilation ductwork hidden within the ceiling void created by suspended ceilings in lobbies, kitchens and bathrooms. (Refer to Appendix 1: Typical Mechanical and ventilation layout of an apartment)
- Air intake and extract into apartments will be through ventilation grilles incorporated in the façade (see Appendix 2: Façade visualisation).
- Proposed MVHR units will be taken from the Nuaire "Eco" range. (See Appendix 3: Nuaire brochure)
- G3 Filters and will prevent coarse particles entering the apartment from the outside environment.
- Boost and purge functions for reducing internal temperature or removing unwanted smells.

The MVHR System will be supported by natural ventilation through openable windows. The natural ventilation is designed to be compliant with Part F of the Building Regulations. Natural ventilation allows free moving air in and out of the apartments.

Benefits of using Whole House ventilations systems using MVHR units and natural ventilation

- Provides fresh filtered air to dwellings as air is passed through replaceable filters in the unit.
- Continuous year-round ventilation prevents issues such as mould or condensation occurring.
- Extract and supply ventilation is balanced so always a consistent level of fresh air in apartments.
- Air-quality in apartments will provide a better environment for asthma and hay fever sufferers.
- Reduces the heating demand of a property by recovering heat from the air in bathrooms and kitchens to be recirculated to habitable rooms.
- By regulating the air condition within the apartments, residents will benefit from not only cleaner air but also fresher air than if there was only natural ventilation.

Apartments that require NOx filters

- Where required, the apartment's ventilation system will be fitted with a NO_X filter (IAQBOX-S-PM2.5) to specifically remove harmful airborne gases and particulates primarily generated from traffic combustion pollutants from being circulated within each apartment (See Appendix 1: NO_X filters brochures for details on performance/ efficiency).
- The NOx filters within the ventilation system should be maintained every 6 months.
- Occupants of units with NOx filters will be made aware of the risk of opening doors/windows and using external spaces due to air quality in the area via the Home User Guides, which are issued to the purchasers upon completion of their apartment.

6.0 Conclusion

This Strategy sets out several measures to protect future occupiers of the development from air pollution.

The Strategy builds upon the Air Quality Assessment approved as part of the original Environmental Statement, as well as taking account of the modelling undertaken by Air Quality Consultants to understand which units require additional apartment specific measures (in the form of NOx Filters) to protect against air pollution.

A ventilation strategy is also included which sets out the ventilation proposed across the development.

This Strategy provides all the necessary information required to discharge Condition 17 of planning permission 2013/3807/P.

Appendices:

Appendix 1 – NOx filter product datasheet
Appendix 2 – Example apartment schematic including NOx filter system built in
Appendix 3 – MVHR façade visualisation
Appendix 4 – MVHR product datasheet