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ENVIRONMENT

Alphin Property

Pitt Street
Wombell
Air Quality Assessment

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Air Quality Assessment

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EXECUTIVE SUMMARY

BWB Consulting Limited was appointed by Alphin Property to undertake an Air Quality Assessment for a residential development at Pitt Street, Wombell.

The Site is located within the administrative area of Barnsley Metropolitan Borough Council. The Site is not located within an existing Air Quality Management Area.

A qualitative construction phase dust assessment was undertaken in accordance with Institute of Air Quality Management guidance and measures were recommended to minimise emissions during construction activities. With the implementation of these mitigation measures the impact of construction phase dust emissions was considered to be 'not significant' in accordance with Institute of Air Quality Management guidance.

The proposed development trip generation was screened using the Institute of Air Quality Management and Environmental Policy Implementation Community (previously Environmental Protection UK) guidance two stage screening process, to determine whether a detailed road traffic emissions impact assessment was required. Consideration was also given to the BMBC Air Quality and Emissions Good Practice Planning Guidance.

Consideration was given to the suitability of the Site for the proposed end use with regard to air quality through a review of local air quality monitoring and emission sources.

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1. INTRODUCTION

1.1 BWB Consulting Limited (BWB) was instructed by Alphin Property the Client) to undertake an air quality assessment for a proposed residential development at Pitt Street, Wombell ('the Site').

1.2 The assessment considers construction phase dust impacts and operational phase road traffic emissions. A qualitative construction phase dust assessment was undertaken in accordance with relevant guidance. An operational phase road traffic emissions screening assessment was undertaken to consider the requirement for a detailed assessment of additional vehicles generated by the proposed development. In addition a qualitative Site suitability assessment was undertaken.

1.3 This report is necessarily technical in nature so to assist the reader a glossary of air quality terminology can be found in **Appendix A**.

Site Setting

1.4 The Site is located north of Pitt Street and lies within the administrative area of Barnsley Metropolitan Borough Council (BMBC). The Site is not located within an existing Air Quality Management Area (AQMA).

1.5 The Site currently comprises agricultural land with Hobson Low Valley Farm and associated buildings located in the centre of the Site. Existing woodland which is to be retained is also located in the western section of the Site.

1.6 The Site forms Phase 2 of a wider devleopment and Phase 1 is located directly east of the Site and is currently being built out.

1.7 Principal air pollution sources in the vicinity of the Site are likely to comprise road traffic emissions from Pitt Street.

Proposed Development

1.8 The proposed development comprises the construction of a residential development comprising 107 dwellings.

2. LEGISLATION, PLANNING POLICY & GUIDANCE

Legislation and Planning Policy

National Legislation and Planning Policy

2.1 European Union (EU) legislation forms the basis of air quality policy and legislation in the UK. The EU 2008 ambient Air Quality Directive[1] sets limits for ambient concentrations of air pollutants including nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$). The air quality standards and objectives are prescribed through the Air Quality (England) Regulations 2000[2], as amended, for the purpose of the Local Air Quality Management Framework. The Air Quality (England) Regulations were amended in 2002[3] and again in 2010[4], with miscellaneous amendments added in 2020[5] following the UK exit from the EU. Additionally, an updated $PM_{2.5}$ objective was published in 2023[6] with an interim target to be achieved by 2028[7].

2.2 **Table 2.1** presents the air quality objectives for pollutants considered within this assessment.

Table 2.1: Air Quality Standards and Objectives (England)

Pollutant	Averaging Period	Air Quality Objective ($\mu g.m^{-3}$)	Date to Achieve by
NO_2	Annual Mean	40	31 December 2005
	1-hour mean not to be exceeded more than 18 times per year	200	31 December 2005
PM_{10}	Annual Mean	40	31 December 2004
	24-hour mean not to be exceeded more than 35 times per year	50	31 December 2004
$PM_{2.5}$	Annual Mean	20	1 January 2020
	Annual mean interim target as detailed within the Environmental Improvement Plan[7]	*12*	*31 January 2028*
	Annual mean	*10*	*31 December 2040*

Italics notes future objective

[1] European Parliament (2008) Council Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe
[2] HMSO (2000) Statutory Instrument 2000 No. 928, The Air Quality (England) Regulations 2000 (as amended), London: HMSO
[3] HMSO (2002) Statutory Instruments 2002 No. 3043, The Air Quality (England) (Amendment) Regulations 2002, London: HMSO
[4] HMSO (2010) Statutory Instruments 2010 No. 1001 Air Quality Standards Regulations 2010. London: HMSO
[5] Department of the Environment, Food and Rural Affairs (Defra) (2020) The Environment (Miscellaneous Amendments) (EU Exit) Regulations, London: HMSO
[6] Department for the Environment, Food and Rural Affairs (Defra) (2023) Air Quality Strategy: Framework for Local Authority
[7] Defra (2023) Environmental Improvement Plan 2023, First revision of the 25 Year Environment Plan

2.3 **Table 2.2** summarises on where the air quality objectives for pollutants considered within this report apply.

Table 2.2: Examples of Where the Air Quality Objectives Apply

Averaging Period	Objective Should Apply At	Objective Should Not Apply At
Annual mean	All locations where members of the public might be regularly exposed Building façades of residential properties, schools (including all of playgrounds), hospitals (and their grounds), care homes (and their grounds) etc.	Building façades of offices or other places of work where members of the public do not have regular access Hotels, unless people live there as their permanent residence Gardens of residential properties Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term
24-hour mean	All locations where the annual mean objective would apply, together with hotels Gardens of residential properties	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term
1-hour mean	All locations where the annual mean and 24 and 8-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets) Those parts of car parks, bus stations and railway stations etc which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer	Kerbside sites where the public would not be expected to have regular access

Local Planning Policy

2.4 The following local planning policy was considered in the undertaking of the assessment and a summary is provided in **Appendix B**:

- Barnsley Metropolitan Borough Council, Barnsley Local Plan (2019)[8].

2.5 A summary of the relevant national legislation and planning policy is provided in **Appendix B**.

Defra $PM_{2.5}$ targets: Interim Planning Guidance

2.6 Defra is developing guidance in relation to the new targets for $PM_{2.5}$ to be considered in planning. The new guidance will require planning applications to consider how the development will reduce population exposure to $PM_{2.5}$ from design stage. At the time of writing, the planning guidance has not been published (expected to be published in

[8] Barnsley Metropolitan Borough Council (2019) Barnsley Local Plan

2025). An interim guidance[9] has been published by Defra, which advises planning applications to consider the following:

- *How has exposure to $PM_{2.5}$ been considered when selecting the development site?*
- *What actions and/or mitigations have been considered to reduce $PM_{2.5}$ exposure for development users and nearby receptors (houses, hospitals, schools etc.) and to reduce emissions of $PM_{2.5}$ and its precursors?*

2.7 Consideration to the interim guidance[9] has therefore been included within the assessment.

Air Quality Assessment Guidance

2.8 The following guidance was utilised in the air quality assessment:

- Defra, Local Air Quality Management Technical Guidance (LAQM.TG(22)) (2022)[10];
- Institute of Air Quality Management, Guidance on the Assessment of Dust from Demolition and Construction (2024)[11];
- Institute of Air Quality Management and Environmental Policy Implementation Community (previously Environmental Protection UK), Land-Use Planning and Development Control: Planning for Air Quality (2017)[12]; and
- BMBC Air Quality and Emissions Good Practice Planning Guidance[13].

[9] Defra (2024) $PM_{2.5}$ Targets: Interim Planning Guidance
[10] Defra (2022) Local Air Quality Management Technical Guidance LAQM.TG(22)
[11] Institute of Air Quality Management (2024) Guidance on the Assessment of Dust from Demolition and Construction, Institute of Air Quality Management, London
[12] Institute of Air Quality Management and Environmental Policy Implementation Community (previously Environmental Protection UK) (2017) Land-Use Planning and Development Control: Planning for Air Quality
[13] BMBW Air Quality and Emissions Good Practice Planning Guidance

3. METHODOLOGY

Construction Phase Dust Assessment

3.1 An assessment of the potential impacts arising from the construction of the proposed development was undertaken in accordance with IAQM guidance[11].

3.2 The full assessment methodology is not reproduced within this report but a summary of the assessment steps as detailed within the IAQM guidance[11] are provided below:

- Step 1 – screen the requirement for a more detailed assessment No assessment is required if there are no receptors within a certain distance of the works.
- Step 2 – assess the risk of dust impacts separately for each of the four activities considered (demolition, earthworks, construction and trackout).
    - Step 2A – determine the potential dust emission magnitude for each of the four activities;
    - Step 2B – determine the sensitivity of the area;
    - Step 2C – determine the risk of dust impacts by combining the findings of steps 2A and 2B.
- Step 3 – determine the site-specific mitigation for each of the four activities; and
- Step 4 – examine the residual effects and determine significance.

BMBC Air Quality and Emissions Good Practice Planning Guidance

3.3 BMBC has adopted the BMBC Air Quality and Emissions Good Practice Planning Guidance[13] and therefore the development classification process detailed in the guidance[13] was undertaken and mitigation measures recommended accordingly.

3.4 The BMBC Air Quality and Emissions Good Practice Planning Guidance[13] provides a three step assessment process as follows:

- Stage 1: Development Type Classification;
- Stage 2: Air Quality Impact Assessment;
- Stage 3: Mitigation and Compensation.

3.5 This three step process was undertaken.

Operational Phase Road Traffic Emissions – Screening Assessment

<u>IAQM/EPIC (previously EPUK) Guidance</u>

3.6 Guidance published by the IAQM and EPIC (previously EPUK) in 2017[12] provides a two-stage approach to determine the level of assessment required in the consideration of the impact of development-generated road traffic emissions on local air quality.

Stage 1

3.7 The Stage 1 criteria requires that the assessment progress to Stage 2 if any of the following apply:

- The development comprises:
  - 10 or more residential units or a site area of more than 0.5ha; or
  - More than 1,000m^2 of floor space for all other uses or a site area greater than 1ha;
- Coupled with any of the following:
  - The development has more than 10 parking spaces; or
  - The development will have a centralised energy facility or other centralised combustion process.

Note: Consideration should 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.

Stage 2

3.8 The IAQM and EPIC (previously EPUK) guidance[12] provides the following indicative criteria to determine whether a detailed road traffic emissions assessment is required for a proposed development.

3.9 The Stage 2 criteria relevant to the proposed development are:

- A change in Light Duty Vehicles (LDV) flow of more than 500 vehicles as a 24 hour Annual Average Daily Traffic (AADT) flow outside an AQMA; and
- A change in Heavy Duty Vehicle (HDV) flow of more than 100 vehicles as a 24 hour AADT flow outside an AQMA.

Qualitative Site Suitability Assessment

3.10 Monitored concentrations undertaken by BMBC were compared to the relevant air quality objectives. The current relevant air quality standards and objectives are detailed in **Table 2.1.**

4. CONSTRUCTION PHASE DUST ASSESSMENT

4.1 TBC

5. OPERATIONAL PHASE ROAD TRAFFIC EMISSIONS SCREENING ASSESSMENT

5.1 TBC

6. CONCLUSION

6.1 An air quality impact assessment was undertaken for the proposed for a residential development at Pitt Street, Wombell.

6.2 The Site is located within the administrative area of Barnsley Metropolitan Borough Council. The Site is not located within an existing Air Quality Management Area.

6.3 A qualitative construction phase dust assessment was undertaken in accordance with Institute of Air Quality Management guidance and measures were recommended to minimise emissions during construction activities. With the implementation of these mitigation measures the impact of construction phase dust emissions was considered to be 'not significant' in accordance with Institute of Air Quality Management guidance.

6.4 The proposed development trip generation was screened using the Institute of Air Quality Management and Environmental Policy Implementation Community (previously Environmental Protection UK) guidance two stage screening process, to determine whether a detailed road traffic emissions impact assessment was required. Consideration was also given to the BMBC Air Quality and Emissions Good Practice Planning Guidance.

6.5 Consideration was given to the suitability of the Site for the proposed end use with regard to air quality through a review of local air quality monitoring and emission sources.

APPENDICES

APPENDIX A: GLOSSARY OF TERMS

	Definition
AADT	Annual Average Daily Traffic flow.
Air quality objective	Policy target generally expressed as a maximum ambient concentration to be achieved, either without exception or with a permitted number of exceedances within a specific timescale (see also air quality standard).
Air quality standard	The concentrations of pollutants in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. The standards are based on the assessment of the effects of each pollutant on human health including the effects on sensitive sub groups (see also air quality objective).
Annual mean	The average (mean) of the concentrations measured for each pollutant for one year. Usually this is for a calendar year, but some species are reported for the period April to March, known as a pollution year. This period avoids splitting winter season between two years, which is useful for pollutants that have higher concentrations during the winter months.
AQAP	Air Quality Action Plan.
AQMA	Air Quality Management Area.
AQS	Air Quality Strategy.
Defra	Department for Environment, Food and Rural Affairs.
EPIC	Environmental Policy Implementation Community (formerly EPUK)
EPUK	Environmental Protection UK.
Exceedance	A period of time where the concentrations of a pollutant is greater than, or equal to, the appropriate air quality standard.
HDV	Heavy Duty Vehicles (HGVs + buses and coaches)
HGV	Heavy Goods Vehicles.
IAQM	Institute of Air Quality Management.
LAQM	Local Air Quality Management.
LDV	Light Duty Vehicles (motorbikes, cars, vans and small trucks)
NO	Nitrogen monoxide, a.k.a. nitric oxide.
NO_2	Nitrogen dioxide.
NOx	Nitrogen oxides.
Percentile	The percentage of results below a given value.
PM_{10}	Particulate matter with an aerodynamic diameter of less than 10 micrometres.
$PM_{2.5}$	Particulate matter with an aerodynamic diameter of less than 2.5 micrometres.
micrograms per cubic metre ($\mu g.m^{-3}$)	A measure of concentration in terms of mass per unit volume. A concentration of $1\mu g.m^{-3}$ means that one cubic metre of air contains one microgram (millionth of a gram) of pollutant.

APPENDIX B: PLANNING POLICY AND LEGISLATION

National Legislation and Planning Policy

The UK Air Quality Strategy

B.1 European Union (EU) legislation forms the basis of air quality policy and legislation in the UK. The EU 2008 ambient Air Quality Directive[1] sets limits for ambient concentrations of air pollutants including nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$). The air quality standards and objectives are prescribed through the Air Quality (England) Regulations 2000[2], as amended, for the purpose of the Local Air Quality Management Framework. The Air Quality (England) Regulations were amended in 2002[3] and again in 2010[4], with miscellaneous amendments added in 2020[5] following the UK exit from the EU. Additionally, an updated $PM_{2.5}$ objective was published in 2023[6] with an interim target to be achieved by 2028[7].

B.2 The UK Government are required under the Environment Act 1995[14] to produce a national Air Quality Strategy (AQS). The AQS was first published in 1997[15], updated in 2007[16] and most recently reviewed and updated in 2023[6]. The AQS provides an overview of the Government's ambient air quality policy and sets out the air quality standards and objectives to be achieved and measures to improve air quality.

B.3 The Environment Act 2021[17] was granted Royal Assent in November 2021 and contains amendments to Part IV of the Environment Act 1995[14] with regard to the Local Air Quality Management regime. Under the Environment Act 2021[17], the Secretary of State must lay a statement before Parliament setting out progress made in meeting air quality objectives and standard in England and steps taken towards achieving the standards. The Environment Act 2021[17] also places responsibility on local authorities to co-operate with air quality partners in the preparation of Air Quality Action Plans and identification of measures which should be monitored within the Plan and dates by which they should be implemented.

B.4 Part IV of the Environment Act[17] requires local authorities in the UK to review local air quality within their administrative area and, if relevant air quality standards and objectives are likely to be exceeded, designate Air Quality Management Areas (AQMAs). Following the designation of an AQMA, local authorities are required to publish an Air Quality Action Plan (AQAP) detailing measures to be taken to improve local air quality and work towards meeting the relevant air quality standards and objectives.

National Planning Policy Framework

B.5 The National Planning Policy Framework (NPPF)[18] was amended in December 2024 and sets out the Government's planning policies for England and how these are expected to be applied.

[14] HMSO (1995) The Environment Act 1995, London: TSO
[15] Department of the Environment (DoE) (1997) The UK National Air Quality Strategy, London: HMSO
[16] Department of the Environment, Food and Rural Affairs (Defra) (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, London: HMSO
[17] HMSO (2021) The Environment Act 2021, London: TSO
[18] Ministry of Housing, Communities & Local Government (2024) National Planning Policy Framework, HMSO London

B.6 The NPPF[18] recognises air quality within Section 15: Conserving and enhancing the natural environment, and states that:

> *"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 such as air and water quality, taking into account relevant information such as river basin management plans;*
>
> *[…]*
>
> *Ground conditions and pollution*
>
> *[…]*
>
> *Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development.*
>
> *[…]*
>
> *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."*

B.7 With regard to assessing cumulative effects the NPPF[18] states:

> *"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development.*
>
> *[...]"*

Planning Practice Guidance

B.8 The Planning Practice Guidance (PPG) for air quality[19] was updated in November 2019 and provides guiding principles on how the planning process can take account of the impacts of new development on air quality.

B.9 The PPG[19] sets out the following with regard to air quality and planning:

- *"What air quality considerations does planning need to address;*
- *What is the role of plan-making with regard to air quality;*
- *Air quality concerns relevant to neighbourhood planning;*
- *What information is available about air quality;*
- *When could air quality considerations be relevant to the development management process;*
- *What specific issues may need to be considered when assessing air quality impacts;*
- *How detailed does an air quality assessment need to be; and*
- *How can an impact on air quality be mitigated".*

B.10 The PPG[19] sets out the pollutants for which there are legally binding limits for concentrations and those which the UK also has national emissions reduction commitments.

B.11 The PPG[19] states that development plans may need to consider:

- *"what are the observed trends shown by recent air quality monitoring data and what would happen to these trends in light of proposed development and / or allocations;*
- *the impact of point sources of air pollution (pollution that originates from one place);*
- *the potential cumulative impact of a number of smaller developments on air quality as well as the effect of more substantial developments, including their implications for vehicle emissions;*
- *ways in which new development could be made appropriate in locations where air quality is or is likely to be a concern, and not give rise to unacceptable risks from pollution. This could, for example, entail identifying measures for offsetting the impact on air quality arising from new development including supporting measures in an air quality action plan or low emissions strategy where applicable; and*
- *opportunities to improve air quality or mitigate impacts, such as through traffic and travel management and green infrastructure provision and enhancement".*

[19] Ministry for Housing, Communities and Local Government (2019) Planning Practice Guidance Air Quality

B.12 The PPG[19] also states what may be considered relevant to determining a planning application and these include whether a development would:

- *"Lead to changes (including any potential reductions) in vehicle-related emissions in the immediate vicinity of the proposed development or further afield. This could be through the provision of electric vehicle charging infrastructure; altering the level of traffic congestion; significantly changing traffic volumes, vehicle speeds or both; or significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal involves the development of a bus station, coach or lorry park; could add to turnover in a large car park; or involve construction sites that would generate large Heavy Goods Vehicle flows over a period of a year or more;*
- *Introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; biomass boilers or biomass-fuelled Combined Heat and Power plant; centralised boilers or plant burning other fuels within or close to an air quality management area or introduce relevant combustion within a Smoke Control Area; or extraction systems (including chimneys) which require approval or permits under pollution control legislation;*
- *Expose people to harmful concentrations of air pollutants, including dust. This could be by building new homes, schools, workplaces or other development in places with poor air quality;*
- *Give rise to potentially unacceptable impacts (such as dust) during construction for nearby sensitive locations;*
- *Have a potential adverse effect on biodiversity, especially where it would affect sites designated for their biodiversity value".*

B.13 The PPG[19] provides guidance regarding what should be included within an air quality assessment. Examples of potential air quality mitigation measures are also provided.

Local Planning Policy

B.14 BMBC adopted the BMBC Local Plan in 2019. Policy Poll1 Pollution Control and Protection is relevant to air quality and the devleopment Site and was considered within the assessment.

Policy Poll1 Pollution Control and Protection

Development will be expected to demonstrate that it is not likely to result, directly or indirectly, in an increase in air, surface water and groundwater, noise, smell, dust, vibration, light or other pollution which would unacceptably affect or cause a nuisance to the natural and built environment or to people.

We will not allow development of new housing or other environmentally sensitive development where existing air pollution, noise, smell, dust, vibration, light or other pollution levels are unacceptable and there is no reasonable prospect that these can be mitigated against.

Developers will be expected to minimise the effects of any possible pollution and provide mitigation measures where appropriate.

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