Wakefield Road, Mapplewell AQA

Air Quality Assessment

Countryside Properties (UK) Limited

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Basis of Report

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1.0 Introduction

SLR Consulting Ltd (SLR) has been commissioned by Countryside Properties (UK) Limited ('Countryside') to undertake an Air Quality Assessment (AQA) to support the discharge of a pre-commencement condition for a Reserved Matters approved 91-dwelling residential development (the 'Development') on land known as the Former William Freeman Site, Wakefield Road, Mapplewell, Barnsley (the 'Site').

1.1 Planning Context

The Development was granted outline planning permission by Barnsley Metropolitan Borough Council (BMBC) under planning reference 2017/1718, with subsequent Reserved Matters approval granted under reference 2021/1405[1].

This assessment has been prepared specifically to discharge pre-commencement Condition 4 of the outline planning permission, which states:

> "*Prior to commencement of works onsite, the developer shall submit details of actions for mitigation of air quality impact, for agreement with the Local Planning Authority. Thereafter the development shall be constructed in accordance with the approved details.*"

It is acknowledged that an initial AQA was previously submitted[2] alongside the outline application. However, in the interim period since that assessment was undertaken, there have been material updates to UK legislation, national and local planning policies, professional guidance and the local air quality baseline.

Consequently, the previous assessment is no longer considered representative of the current baseline or regulatory environment in respect of identifying contemporary mitigation requirements. This updated AQA has been produced to determine commensurate mitigation measures associated with the Development based upon current guidance to address Condition 4.

1.2 Site Context

The Site currently comprises vacant land and is located at the approximate National Grid Reference (NGR): x434000, y410000. The surrounding area comprises:

- Existing residential dwellings to the immediate northwest with agricultural land extending further afield;
- Agricultural land and a public bridleway sit to the immediate east with existing residential dwellings located beyond;
- Commercial properties to the immediate south, with A61 Wakefield Road lying beyond; and
- A61 Wakefield Road running adjacent to the western boundary, with existing residential dwellings located opposite.

Primary vehicular access to the Site is anticipated to be via a newly created entrance off Wakefield Road to the west.

[1] It is noted a Section 73 amendment application is to be submitted which seeks to vary the approved layout from that required by Condition 2 to application reference 2021/1405. The revised layout remains to be for 91 residential dwellings.

[2] RSK Environment Ltd. Air Quality Assessment. Residential Development at the former William Freeman Site, Wakefield Road, Mapplewell. February 2018.

1.3 Scope of Assessment

Consultation with the Environmental Health Officer (EHO) at BMBC was attempted to agree upon the extent and methodology of the AQA[3]. At the time of writing, no response had been received. Nonetheless, the following scope of works has been undertaken as part of this Air Quality Assessment in line with published guidance and best practice:

- Baseline Evaluation – Assessment of existing air quality in the local area;
- Construction Phase – Identification and assessment of potential air quality impacts associated with the construction phase of the Development;
- Operational Phase – Identification and assessment of potential air quality impacts associated with the operational phase of the Development; and
- Mitigation Measures – Identification of mitigation measures, as appropriate.

[3] Email sent from SLR Consulting Ltd to BMBC (pollutioncontrol@barnsley.gov.uk), dated 15th May 2026.

2.0 Background Context

2.1 Legislation

A dual set of regulations, applicable to National and Local Government separately are currently operable within the UK.

2.1.1 National Obligations

2.1.1.1 Air Quality Standards

The Air Quality Standards Regulations 2010[4] (AQSR) transpose both the EU Ambient Air Quality Directive (2008/50/EC), and the Fourth Daughter Directive (2004/107/EC) within UK legislation, in order to align and mirror European obligations. The AQSR includes Limit Values which are legally binding ambient concentration thresholds, however, must be assessed at specific locations (micro and macroscale sampling points). Carriageways or central reservations of roads and any location where the public do not have access (e.g. industrial sites) are exempt. If the sampling point does not comply with the siting locations (Schedule 1: AQSR), then strict comparison cannot be made.

Following the UK's withdrawal from the EU, the Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020[5] was introduced to mirror revisions to supporting EU legislation. The fine particulate matter ($PM_{2.5}$) Limit Value is 20µg/m^3 (to be met by 2020).

The responsibility of achieving the AQSR (and European equivalent Directives) is a national obligation for Central Government and Devolved Administrations who undertake assessments on an annual basis. Local Authorities have no responsibility to achieve the AQSR or the European equivalent Directives, unless otherwise instructed to assist Central Government under Ministerial Direction.

In response to persistent exceedances, the Government published its 2017 plan[6] for reducing roadside nitrogen dioxide (NO_2) concentrations in order to achieve compliance in the shortest time possible. This has resulted in the introduction of Clean Air Zones across England. However, BMBC were not identified as required to conduct a feasibility study to achieve compliance.

2.1.1.2 Environment Targets (Fine Particulate Matter) Regulations

The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023[7] introduced an annual mean concentration target of 10µg/m^3 to be met across England by 2040. Central Government and Devolved Administrations is responsible for meeting this target, however not until 2040. Local Authorities have no responsibility to achieve this target.

2.1.2 Local Obligations

Part IV of the Environment Act 1995 (as amended) requires the Secretary of State to review the national Air Quality Strategy (AQS) every five years and modify if required. It also

[4] The Air Quality Standards Regulations (England) 2010, Statutory Instrument No 1001, The Stationary Office Limited.

[5] The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020, Statutory Instrument No. 1313, The Stationary Office Limited.

[6] UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations, 2017.

[7] The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023. UK Statutory Instruments 2023 No. 96.

established the system of Local Air Quality Management (LAQM) for Local Authorities to regularly review and assess air quality within its area.

The Air Quality (England) Regulations 2000 (as amended) ('the Regulations') provide the statutory basis for the Air Quality Objectives Local Authorities must adhere to under LAQM in England. $PM_{2.5}$ is not currently cited within the Regulations, however in line with the AQS and the *'$PM_{2.5}$ Targets: Interim Planning Guidance'* issued by the Department for Environment, Food & Rural Affairs (Defra) in November 2024[8], Local Authorities are required to work towards reducing $PM_{2.5}$.

The Air Quality Objectives apply at locations where members of the public are regularly present and might reasonably be expected to be exposed to pollutant concentrations over the relevant averaging period (relevant exposure). Table B provides an indication of those locations. Where any of the prescribed Air Quality Objectives are not likely to be achieved, the authority must designate an Air Quality Management Area (AQMA). For each AQMA, the local authority is required to prepare an Air Quality Action Plan (AQAP), which details measures the authority intends to introduce to deliver improvements in local air quality in pursuit of the objective.

The latest AQS for England was published in 2023[9]. The AQS provides the delivery framework for air quality management across England for local authorities and summarises the air quality standards and objectives operable within England for the protection of public health and the environment.

The ambient air quality standards of relevance this assessment (collectively termed Air Quality Assessment Levels (AQALs) throughout this report) are provided in Table A. These are primarily based upon the Air Quality Objectives Local Authorities are responsible for achieving – reflective of the Local Planning Authority's duties. The $PM_{2.5}$ AQSR AQAL has also been included for completeness, to provide an indicative assessment (as the sampling point may not comply with the siting locations prescribed under Schedule 1: AQSR).

Table A: Relevant Ambient AQALs

Pollutant	AQAL (µg/m^3)	Averaging Period
NO_2	40	Annual mean
	200	1-hour mean (not to be exceeded on more than 18 occasions per annum)
Particles (as PM_{10})	40	Annual mean
	50	24-hour mean (not to be exceeded on more than 35 occasions per annum)
Particles (as $PM_{2.5}$)	20	Annual mean
Table Notes: The $PM_{2.5}$ AQAL is not prescribed within the Air Quality (England) Regulations 2000 / 2002 and there is no requirement for local authorities to meet it. Exceedances are only valid at specific siting locations (Schedule 1: AQSR).		

[8] Defra, $PM_{2.5}$ Targets: Interim Planning Guidance, (2024).

[9] Air Quality Strategy: Framework for Local Authority Delivery, Department for Environment Food and Rural Affairs, April 2023.

Table B: Human Health Relevant Exposure

AQAL Averaging Period	AQALs should apply at	AQALs should not apply at
Annual Mean	Building facades of residential properties, schools, hospitals etc.	Facades of offices Hotels Gardens of residences Kerbside sites
24-hour mean	As above together with hotels and gardens of residential properties	Kerbside sites where public exposure is expected to be short term
1-hour mean	As above together with kerbside sites of regular access, car parks, bus stations etc.	Kerbside sites where public would not be expected to have regular access

2.1.3 Environmental Protection Act 1990

The Environmental Protection Act 1990[10] sets out provisions for the regulation of statutory nuisances. Section 79 sets out this statutory nuisance as, '*any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance*'.

Section 79 requires that, where a complaint of a statutory nuisance is made to it by a person living within its area, a Local Authority must take steps as are reasonably practicable to investigate the complaint and decide whether the associated emission (i.e. dust, for example) is prejudicial to health or a nuisance.

Fractions of dust greater than 10µm (i.e. greater than PM_{10}) in diameter typically relate to nuisance effects as opposed to potential health effects and therefore are not covered within the UK AQS. In legislation there are currently no numerical limits in terms of what level of dust deposition constitutes a nuisance.

2.1.4 Ecological Habitats

Ecological habitats vary in terms of their sensitivity, perceived ecological value, geographic importance, and level of protection. Within the UK, there are three types of nature conservation designations: international, national and local designations, which are all provided environmental protection from developments, including from atmospheric emissions, with a greater level of protection afforded to the former, relative to the latter.

The Conservation of Habitats and Species Regulations 2017 (the 'Habitats Regulations')[11] introduces the precautionary principle for protected European sites, i.e. that projects can only be permitted to proceed; having ascertained that there will be no adverse effect on the integrity of the designated site. European sites include Special Areas of Conservation (SAC) and Special Protection Areas (SPA). These regulations were subsequently amended in 2019 to make them operable from 1st January 2021 despite the UK's withdrawal from the EU[12].

Other sites of international significance are Ramsar sites, which are wetlands protected under the 1971 Ramsar Convention[13]. Many of these sites in the UK were initially selected on the basis of their importance to waterbirds and are therefore also classified as SPAs.

[10] The Environmental Protection Act 1990. Available at http://www.legislation.gov.uk/ukpga/1990/43/contents.

[11] UK Government, Statutory Instrument No. 490, The Conservation of Habitats and Species Regulations, (2017).

[12] UK Government, The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations, (2019).

[13] Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat, (1971).

The Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way (CRoW) Act 2000)[14] provides protection to Sites of Special Scientific Interest (SSSI) to ensure that developments are not likely to cause damage. The Act also provides a protection to local nature conservation sites, which can be particularly important in providing 'buffers' to SSSIs and European sites.

The Environment Act 1995 and the Natural Environment and Rural Communities Act (NERC) 2006[15] provides an extension to the biodiversity duty set out in the CRoW Act to public bodies and statutory undertakers to ensure due regard to the conservation of biodiversity (i.e. ecological designations of local status).

Sites of ecological importance are provided environmental protection with respect to air quality, through the application of standards known as Critical Levels (CLe) and Critical Loads (CLo). The level of protection afforded to an internationally designated site is greater than that afforded to a locally designated site (e.g. Local Nature Reserves (LNR)); reflecting the relative sensitivity of the sites as well as their perceived ecological value.

2.2 Policy

2.2.1 National Policy

2.2.1.1 Clean Air Strategy

The 2019 Clean Air Strategy[16] sets out the Government's proposals aimed at delivering cleaner air in England and indicates how devolved administrations intend to make emissions reductions. It sets out the comprehensive action that is required from across all parts of government and society to deliver clean air.

2.2.1.2 Environment Improvement Plan 2025

The Environmental Improvement Plan (EIP) 2025[17] is the current revision of the UK Government's 25 Year Environment Plan, setting out the five-year delivery roadmap for improving the natural environment. Under Goal 2 (Air), the EIP strengthens and formalises the approach to air quality by detailing the strategy to achieve the statutory targets established under the Environment Act 2021. Key commitments include achieving a target annual mean $PM_{2.5}$ concentrations of 10µg/m^3 by the interim deadline of December 2030. At the same time, the EIP mandates a 30% reduction in population exposure to $PM_{2.5}$ by December 2030 compared to 2018 levels. These goals are supported by action plans to reduce emissions from major sources, specifically domestic combustion, transport, and agriculture.

2.2.1.3 National Planning Policy Framework

The December 2024 update to the National Planning Policy Framework[18] (NPPF) sets out planning policy for England. The NPPF states that the planning system should contribute to and enhance the natural and local environment, by preventing new development from contributing to or being adversely affected by unacceptable concentrations of air pollution and development should, wherever possible, help to improve local environmental conditions such as air quality.

[14] UK Government, Wildlife and Countryside Act, (1981).

[15] UK Government, Natural Environment and Rural Communities Act, (2006).

[16] The Clean Air Strategy, Defra. January 2019.

[17] Environmental Improvement Plan 2025, Defra. December 2025.

[18] Ministry of Housing, Communities & Local Government, National Planning Policy Framework, (2024).

In specific relation to air quality policy, the document states:

> ***Chapter 15 - Conserving and Enhancing the Natural Environment***
>
> *"Para 199: Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."*

The NPPF is accompanied by web based supporting Planning Practice Guidance (PPG)[19] which includes guiding principles on how planning can take account of the impacts of new development on air quality. In regard to air quality, the PPG states:

> *"The Department for Environment, Food and Rural Affairs carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with relevant limit values. It is important that the potential impact of new development on air quality is taken into account where the national assessment indicates that relevant limits have been exceeded or are near the limit, or where the need for emissions reductions has been identified."*
>
> *"Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and/or breach legal obligations (including those relating to the conservation of habitats and species)."*

The PPG sets out the information that may be required within the context of a supporting air quality assessment, stating that "*Assessments need to be proportionate to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific* […] *Mitigation options will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact*".

2.2.2 Local Policy

2.2.2.1 Local Plan

The Barnsley Local Plan[20] is the currently adopted strategic planning document within BMBC and provides a framework for guiding planning decisions. The Local Plan was adopted in January 2019.

Condition 4 of the reserved matters approval (BMBC application reference: 2021/1405) to which this AQA relates makes reference to the following policy within the Barnsley Local Plan:

> ***"Policy Poll1: Pollution Control and Protection***

[19] Ministry of Housing, Communities & Local Government, Planning Practice Guidance: Air Quality, (2019).

[20] Barnsley Metropolitan Borough Council, Barnsley Local Plan, adopted January 2019.

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."

The above policy has been considered as part of this assessment.

2.3 Assessment Guidance

This assessment has been carried out in accordance with the following principles contained within the guidance documents below.

- BMBC: Air Quality and Emissions Good Practice Planning Guidance[21] (hereafter referred to as the 'BMBC Guidance');
- Defra: Local Air Quality Management Technical Guidance (LAQM.TG(22))[22];
- Defra: COVID-19: Supplementary Guidance. Local Air Quality Management Reporting in 2021[23];
- Environmental Policy Implementation Community (EPIC) (previously Environmental Protection UK (EPUK)) and the Institute of Air Quality Management (IAQM): Land-Use Planning and Development Control: Planning for Air Quality[24] (hereafter referred to as the 'EPIC & IAQM guidance');
- IAQM: A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites[25] (hereafter referred to as the 'IAQM nature guidance');
- IAQM: Guidance on the Assessment Dust from Demolition and Construction[26] (hereafter referred to as the 'IAQM Construction Dust Guidance'); and
- IAQM: Use of 2020 and 2021 Monitoring Datasets[27].

[21] Barnsley Metropolitan Borough Council, Air Quality and Emissions Good Practice Planning Guidance, November 2021.

[22] Local Air Quality Management Technical Guidance (22), Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland. May 2025.

[23] Defra and the Greater London Authority, COVID-19: Supplementary Guidance. Local Air Quality Management Reporting in 2021. April 2021.

[24] EPIC and IAQM, Land-Use Planning and Development Control: Planning for Air Quality, v1.2 2017.

[25] IAQM, A guide to the assessment of air quality impacts on designated nature conservation sites, v1.1, 2020.

[26] IAQM, Guidance on the Assessment Dust from Demolition and Construction, v2.2, January 2024.

[27] IAQM, Use of 2020 and 2021 Monitoring Datasets, v1.1, December 2023.

3.0 Assessment Methodology

3.1 Development Classification

The Development comprises c.91 dwellings and associated infrastructure. This meets the criteria for 'Medium' development, presented in Table C below and as referenced within the BMBC Guidance.

Table C: Relevant BMBC Guidance Development Classification Criteria

Land Use	Description	Criteria
Dwelling Houses (C3)	Dwellings for individuals, families or not more than six people in a single household.	>50 units

It is not considered that any of the '*additional trigger for major developments*' have been met, as outlined in Table 4 of the BMBC Guidance.

As such, the Development is classified as 'medium' and the required scope of works defined on this basis.

3.2 Construction Phase

A construction dust assessment has been undertaken in accordance with the IAQM Construction Dust Guidance. The assessment of risk is determined by considering the risk of dust effects arising from four activities in the absence of mitigation:

- Demolition;
- Earthworks;
- Construction; and
- Trackout.

The assessment methodology considers three separate dust impacts with account being taken of the sensitivity of the area that may experience these effects:

- Annoyance due to dust soiling;
- The risk of health effects due to an increase in exposure to PM_{10}; and
- Harm to ecological receptors.

The first stage of the assessment involves a screening review to determine if there are sensitive receptors within threshold distances of the Site activities associated with the construction phase of the scheme. A detailed assessment is required where a:

- Human receptor is located within 250m of the Site, and/or within 50m of routes used by construction vehicles, up to 250m from the Site entrance(s); and/or
- Ecological receptor is located within 50m of the Site, and/or within 50m of routes used by construction vehicles, up to 250m from the Site entrance(s).

The dust emission class (or magnitude) for each activity is determined on the basis of the guidance, indicative thresholds and professional judgement by a technically competent assessor. The risk of dust effects arising is based upon the relationship between the dust emission magnitude and the sensitivity of the area. The risk of impact is then used to determine the appropriate mitigation requirements, whereby through effective application, residual effects are considered to be 'not significant'.

Given the short-term nature of the construction phase and the comparatively low volume of vehicle movements that will likely arise (when compared to the operational phase), it is unlikely that significant air quality effects from development related road traffic emissions during the construction phase will arise. Such potential impacts have therefore been scoped out from requiring detailed assessment based on their assumed 'insignificant' effect in reference to the EPIC & IAQM guidance.

3.3 Operational Phase

3.3.1 Human Receptors

The assessment of potential air quality effects in relation to the operation of the Development has been undertaken qualitatively, in accordance with the EPIC & IAQM Guidance.

The EPIC & IAQM Guidance provides a series of '*indicative criteria for assessment*' where, if exceeded, requires further consideration to determine the potential effect on air quality. If the change in road traffic movements on the local road network is found not to exceed any of the relevant indicative criteria presented, then a detailed impact assessment is consequently not required. Impacts can therefore be described as having an 'insignificant' effect on local air quality.

The indicative screening criteria relevant for this assessment is as follows:

- Outside of an AQMA:
  - A change of Light-Duty Vehicle (LDV: defined as <3.5t) flows of more than 500 as a 24-hour annual average daily traffic (AADT) flow; and/or
  - A change of Heavy-Duty Vehicles (HDV: defined as >3.5t) flows of more than 100 as a 24-hour AADT.

3.3.2 Ecological Receptors

The assessment procedure outlined within the IAQM nature guidance document has been used in relation to the assessment of sensitive ecological receptors. This initially comprises a screening assessment irrespective of current baseline rates to indicate whether:

- Any sensitive qualifying features are located within 200m of a relevant road link projected to experience developmental-generated vehicle movements; and
- The Development is likely to generate >1,000 AADT total vehicles on a road link and/or >200 HDVs.

The outcomes of the above will determine whether impacts associated with the Development could result in a '*likely significant effect*' on the assessed ecological feature, providing the location of the screened ecological receptor can be validated. If the above conditions are not met, then impacts on ecological designations are likely to be 'imperceptible', whereby resultant effects can be classed as 'insignificant'.

3.4 Exposure Assessment

In accordance with the BMBC Guidance and as required for all 'minor' and 'medium' developments, an 'exposure assessment' has been undertaken to determine whether future occupants of the scheme are likely to be exposed to existing levels of poor air quality.

Guidance for determining operational phase effects associated with air quality is provided by EPIC & IAQM, as follows:

"where the air quality is such that an air quality objective at the building façade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means".

The requirements of the Defra: $PM_{2.5}$ Targets: Interim Planning Guidance[28] are not applicable to this assessment, as the original outline planning application was submitted prior to the document's publication. This is confirmed within the guidance, which states:

"This interim guidance applies to future developments and those that were in pre-application at the publication date of this guidance. The guidance is not required to be applied retrospectively for planning decisions where applications were submitted prior to the publication of the interim guidance."

[28] Defra, $PM_{2.5}$ Targets: Interim Planning Guidance, (2024).

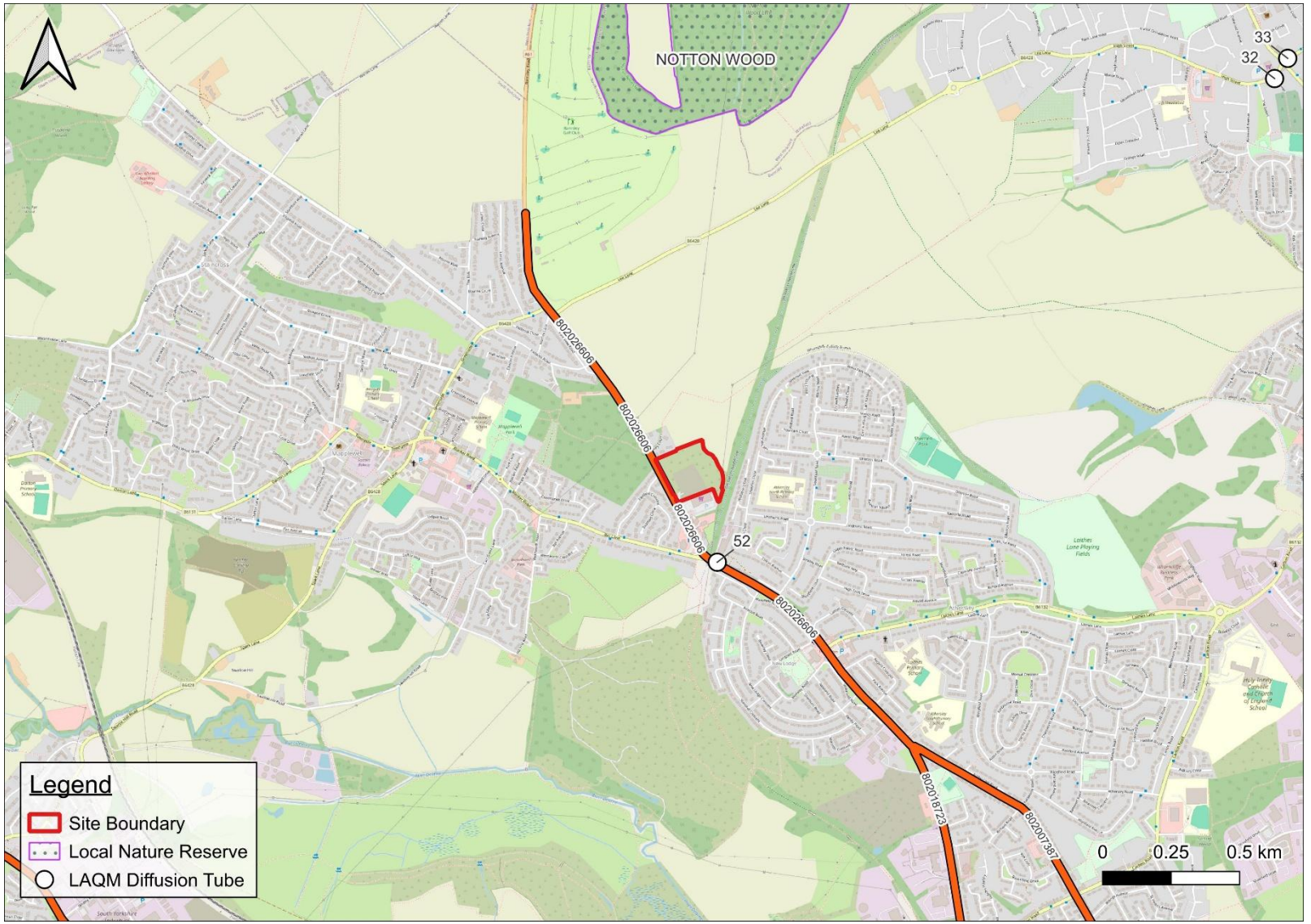


Figure 1: Site Setting, LAQM Monitoring and Local Ecological Designation

4.0 Baseline Environment

4.1 LAQM Review and Assessment

BMBC, in fulfilment of statutory requirements, has conducted an on-going exercise to review and assess air quality within their administrative area. The latest publicly available LAQM report for BMBC at the time of writing is the 2025 Air Quality Annual Status Report[29] (ASR) (the '2025 ASR').

BMBC currently has five declared AQMAs within their administrative area, four of which have been declared due to exceedences of the annual mean NO_2 AQAL only (i.e. AQMAs No.1, No.2A, 4 & 7), whilst AQMA No.6 has been declared for exceedences of both the annual mean and the 1-hour mean NO_2 AQALs. 'AQMA No.4' is the closest to the Site and located approximately 2.9km south-east. The nearest AQMA to the Site is AQMA No.4, which at its closest extent is located approximately 2.9km to the south-west.

Within the BMBC 2025 ASR the Council outlines their intent to explore the revocation of AQMA No.1 following sustained compliance with the AQAL. The ASR states:

> *"The Council is considering and collating the evidence for the revocation of AQMA 1 in future years. AQMA 1 covers parts of the M1 and extends to 100 m either side of the motorway carriageway. The case for revocation is based on monitoring data showing compliance with the Air Quality Objective for NO2 for several years.*
>
> *[…]*
>
> *Barnsley MBC previously postponed the revocation process as a proposed "Smart Motorway" was planned for the stretch of M1 passing though the Borough; however, an announcement by the UK Government in April 2023 stated that "plans for new smart motorways will be cancelled in recognition of the current lack of public confidence felt by drivers and cost pressures" and so the Council is revisiting the case."*

4.2 Review of Air Quality Monitoring

4.2.1 Automatic Air Quality Monitoring

BMBC undertook automatic monitoring at three locations within their administrative area during 2024. The nearest automatic monitor to the Site is the BAR3 monitor, located approximately 2.8km to the south-west of the Site and of an 'urban background'[30] classification. By definition in LAQM.TG(22)[22], such locations are sited where pollution levels are not influenced by specific local sources, thereby providing data that is representative of wider city ambient conditions.

The above-mentioned automatic monitor is also affiliated with the Automatic Urban and Rural Network (AURN) (the 'Barnsley Gawber AURN' UK-AIR ID: UKA00353) and is the closest of the AURN monitors to the Site.

Further details of the BAR3 / Barnsley Gawber AURN monitor (hereafter referred to as the 'BAR3' automatic monitor) and its associated monitored pollutant concentrations are presented in Table D to Table G.

[29] Barnsley Metropolitan Borough Council, Air Quality Annual Status Report 2025, July 2025.

[30] Urban Background site defined by LAQM.TG(22) as: *"An urban location distanced from sources and therefore broadly representative of city-wide background conditions".*

Table D: LAQM Automatic Monitoring Sites: Details

Site ID	Site Type	NGR (m)		Height (m)	Within AQMA	Distance and Direction from Site (km)
		X	Y			
BAR3	Urban Background	432524	407478	2.0	No	2.77, SW

Table E: LAQM Automatic Monitoring: NO_2 Results

Monitoring Location	2024 Data Capture (%)	Annual Mean NO_2 Concentration (µg/m^3)				
		2020 (A)	2021 (A)	2022	2023	2024
BAR3	97.4	12.0	13.0	13.0	12.0	11.1
		1-hour Means >200µg/m^3 (B)				
		0	0	0	0	0

Table Notes:

(A) As per guidance published by Defra[23] and the IAQM's Position Statement[27], monitoring results obtained in 2020 and 2021 are likely to be atypical due to the impacts of the COVID-19 pandemic. The IAQM's Position Statement[27] further states "*the 2022 (or later year) monitoring data is likely to represent a post-pandemic baseline*".

(B) 18 1-hour mean concentrations in excess of 200µg/m^3 are permitted.

As shown in Table E, BAR3 has not exceeded the annual mean NO_2 AQAL (40µg/m^3) between 2020 and 2024. A maximum recorded concentration of 13µg/m^3 was recorded in 2021 and 2022, representing 32.5% of the AQAL. In 2024, the annual mean NO_2 concentration was 11.1µg/m^3, representing 27.8% of the AQAL (i.e. 'well-below' (<75% of the AQAL)). No exceedences of the 1-hour mean NO_2 AQAL were recorded between 2020 to 2024.

As such, it is possible to conclude that urban background locations within the vicinity of BAR3 (i.e. including locations set back from Wakefield Road at the Site) have shown compliance with both the annual mean and 1-hour mean NO_2 AQALs between 2020 and 2024.

Table F: LAQM Automatic Monitoring: PM_{10} Results

Monitoring Location	2024 Data Capture (%)	Annual Mean PM_{10} Concentration (µg/m^3)				
		2020 (A)	2021 (A)	2022	2023	2024
BAR3	99.6	-	-	-	12.0	11.4
		24-hour Means >50µg/m^3 (B)				
		-	-	-	0	0

Table Notes:

(A) As per guidance published by Defra[23] and the IAQM's Position Statement[27], monitoring results obtained in 2020 and 2021 are likely to be atypical due to the impacts of the COVID-19 pandemic. The IAQM's Position Statement[27] further states "*the 2022 (or later year) monitoring data is likely to represent a post-pandemic baseline*".

(B) 35 24-hour mean concentrations in excess of 50µg/m^3 are permitted.

As shown in Table F, concentrations monitored at BAR3 did not exceeded the annual mean PM_{10} AQAL (40µg/m^3) during 2023 and 2024. The 2024 monitored annual mean PM_{10} concentration was 11.4µg/m^3, representing 28.5% of the AQAL (i.e. 'well-below').

During 2023 and 2024, there were no exceedences of the 24-hour mean AQAL.

As such, it is possible to conclude that urban background locations within the vicinity of BAR3 (i.e. including locations set back from Wakefield Road at the Site) showed compliance with both the annual mean and 24-hour mean PM_{10} AQALs during 2023 and 2024.

Table G: LAQM Automatic Monitoring: $PM_{2.5}$ Results

Monitoring Location	2024 Data Capture (%)	Annual Mean $PM_{2.5}$ Concentration (µg/m^3)				
		2020 (A)	2021 (A)	2022	2023	2024
BAR3	99.7	-	-	-	7.0	7.1

Table Note:

(A) As per guidance published by Defra[23] and the IAQM's Position Statement[27], monitoring results obtained in 2020 and 2021 are likely to be atypical due to the impacts of the COVID-19 pandemic. The IAQM's Position Statement[27] further states "*the 2022 (or later year) monitoring data is likely to represent a post-pandemic baseline*".

As shown in Table G, BAR3 did not exceeded the annual mean $PM_{2.5}$ AQAL (20µg/m^3) during 2023 or 2024. In 2024 the monitored annual mean $PM_{2.5}$ concentration was 7.1µg/m^3, representing 35.5% of the AQAL (i.e. 'well-below').

As such, it is possible to conclude that urban background locations within the vicinity of BAR3 (i.e. including locations set back from Wakefield Road at the Site) showed compliance with the annual mean $PM_{2.5}$ AQAL during 2023 and 2024.

4.2.2 Passive Diffusion Tube Monitoring

Passive NO_2 diffusion tube monitoring is currently undertaken by BMBC within the Site locale and wider authority area.

The details and results of the monitoring location of relevance to this assessment are presented in Table H and Table I, respectively, whilst also shown in Figure 1. All monitoring data presented has been ratified by BMBC.

Table H: Local NO_2 Diffusion Tube Monitoring Sites: Details

Site ID	Site Type	NGR (m)		Height (m)	Within AQMA?	Distance and Direction from Site (m)
		X	Y			
52	Roadside (A)	434112	409625	2.7	No	220, S

Table Note:

(A) Roadside site classification defined by LAQM.TG(22) as: "*a site sampling typically within one to five metres of the kerb of a busy road*".

Table I: Local NO_2 Diffusion Tube Monitoring Sites: Results

Site ID	2024 Data Capture %	Annual Mean NO_2 Concentration (µg/m^3)				
		2020 (A)	2021 (A)	2022	2023	2024
52	100	24.3	25.0	26.3	25.5	24.7

Table Notes:

(A) As per guidance published by Defra[23] and the IAQM's Position Statement[27], monitoring results obtained in 2020 and 2021 are likely to be atypical due to the impacts of the COVID-19 pandemic. The IAQM's Position Statement[27] further states "*the 2022 (or later year) monitoring data is likely to represent a post-pandemic baseline*".

As shown in Table H and Table I, there is only one monitoring location considered to be of relevance to the Site: diffusion tube location '52'. The 2024 annual mean NO_2 concentration at diffusion tube location '52' was 24.7µg/m^3, representing 61.8% of the AQAL (i.e. 'well-below').

Overall, there has been a downward trend in annual mean NO_2 concentrations at diffusion tube location '52' between 2022 and 2024.

This downward trend in monitored concentrations is highlighted within BMBC's 2025 ASR, which states:

> *"There have been inter-year fluctuations of NO_2 concentrations, but there is a general downward trend […]"*

The empirical relationship given in LAQM.TG(22) states that exceedences of the 1-hour mean NO_2 AQAL is unlikely to occur where annual mean concentrations are <60µg/m^3. This indicates that an exceedence of the 1-hour mean AQAL was unlikely to have occurred at the above location in between 2020 and 2024.

4.3 Defra Mapped Background Concentrations

Defra maintains a nationwide model of existing and future background air quality concentrations at a 1km grid square resolution which is routinely used to support LAQM requirements and air quality assessments. The data sets include annual average concentration estimates for NO_2, PM_{10} and $PM_{2.5}$ using a base year of 2021 (the year in which comparisons between modelled and monitoring are made).

The Defra mapped background concentrations for the base year (2024) and the earliest anticipated opening year of the Development (2028) are presented in Table J below.

All of the mapped background concentrations presented are "well-below" the respective annual mean AQALs.

Table J: Defra Mapped Background Pollutant Concentrations

Grid Square (X, Y) (m)	Year	Annual Mean Concentration (µg/m^3)		
		NO_2	PM_{10}	$PM_{2.5}$
434500, 410500	2024	8.0	12.6	6.3
	2028	7.0	12.3	6.1
433500, 410500	2024	8.3	11.5	6.3
	2028	7.2	11.2	6.0
433500, 409500	2024	8.4	11.2	6.2
	2028	7.3	11.0	6.0
434500, 409500	2024	9.1	10.9	6.4
	2028	7.8	10.6	6.1
AQAL		***40***	***40***	***20***

4.4 Defra's Pollutant Climate Mapping Model

Defra's Pollutant Climate Mapping (PCM) model is a collection of models designed to fulfil part of the UK's AQSR requirements to report on the concentrations of particular pollutants in the atmosphere. The latest PCM model data, released by Defra in 2020, has modelled concentrations incorporating Defra's 2018 action plan (2018 reference year), up until 2030 taking into account the anticipated uptake of cleaner vehicles, along with other policy

interventions. Concentrations reported by the PCM assume roadside locations, typically at a 4m separation distance.

The nearest PCM link to the Site (Census ID: 802026606 – see Figure 1) is located along A61 Wakefield Road, immediately adjacent to the western Site boundary. The roadside annual mean NO_2 concentrations reported in relation to this PCM link are: 14.2µg/m^3 in 2024; and 11.56µg/m^3 in 2028 (the predicted opening year). All PCM roadside annual mean NO_2 concentrations are 'well-below' the AQAL (40µg/m^3).

5.0 Construction Phase Assessment

This section presents the potential air quality impacts and effects associated with the construction of the Development.

5.1 Construction Dust Assessment

Where figures relating to area and volume of the Site, approximate number of construction vehicles or distances to receptors are given, these relate to thresholds as defined in the IAQM Construction Dust Guidance to guide the assessor to define the dust emissions magnitude and sensitivity of the area.

5.1.1 Assessment Screening

There are 'human receptors' within 250m of the Site but no designated habitat sites within 50m of the Site boundary or up to 250m of the Site entrance(s) / 50m of the roads anticipated to witness construction traffic movements. Therefore, an assessment of construction dust on human receptors, only, is required.

5.1.2 Potential Dust Emissions Magnitude

5.1.2.1 Demolition

The Site currently comprises vacant and partially wooded land, with no buildings or above ground structures which require demolition. However, prior to construction works commencing the breaking and removal of an existing concrete hardstanding area is required. The area of the hardstanding is approximately 9,000m^2.

As such, the dust emission magnitude for demolition is therefore considered to be 'small'.

5.1.2.2 Earthworks

The total area of the Site is approximately 35,500m^2. Site earthworks are therefore anticipated over an area between 18,000m^2 – 110,000m^2.

The dust emission magnitude for earthworks is therefore considered to be 'medium'.

5.1.2.3 Construction

The proposals constitute a total of 91 dwellings. The total building volume associated with the Development is predicted to be >12,000m^3. However, in recognition of the phased construction of residential schemes, the total building volume associated with the Development is considered likely to be <75,000m^3 at any given time. Building materials are anticipated to be as standard brick masonry.

As such, the dust emission magnitude for construction is therefore initially considered to be 'medium'.

5.1.2.4 Trackout

Construction vehicles will access the Site from A61 Wakefield Road. Given the scale and nature of works required, there are anticipated to be a maximum 20 – 50 HDV outward movements in any worst-case day. Due to the size of the Site, the unpaved road length may be 50 – 100m at any given time.

Therefore, the dust emission magnitude for earthworks is considered to be 'medium'.

5.1.2.5 Summary

A summary of the potential dust emission magnitude for each of the activities is displayed in Table K.

Table K: Potential Dust Emission Magnitude

Activity	Dust Emission Magnitude
Demolition	Small
Earthworks	Medium
Construction	Medium
Trackout	Medium

5.1.3 Sensitivity of the Area

5.1.3.1 Dust Soiling Impacts

Overall, there are anticipated to be between 1 – 10 residential properties (receptors of high sensitivity) within 20m of the Site.

The sensitivity of the area with respect to dust soiling effects on people and property in relation to demolition, earthworks and construction is therefore considered to be 'medium'.

Furthermore, there are believed to be 10 – 100 residential receptors within 20m of construction traffic routes, up to 250m from the Site entrance.

The sensitivity of the area with respect to dust soiling effects on people and property in relation to trackout is therefore considered to be 'high'.

5.1.3.2 Human Health Impacts

The maximum background PM_{10} concentration for the $1km^2$ grid squares covering the Site is estimated to be 12.6µg/m³, based upon 2024 mapped background estimates (i.e. falls into the <24µg/m^3 class).

Given the above information regarding the number and nature of surrounding receptors within 20m of the Site boundary, the sensitivity of the area with respect to human health impacts in relation to demolition, earthworks, construction and trackout is considered to be 'low'.

5.1.3.3 Summary

A summary of the sensitivity of the area defined for each potential impact is displayed in Table L, whereas the spatial densities of receptors discussed in relation to the Site boundary are illustrated in Figure 2.

Table L: Sensitivity of the Area

Potential Impact	Sensitivity of the Surrounding Area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium	Medium	Medium	High
Human Health	Low	Low	Low	Low

5.1.4 Risk of Impacts (Unmitigated)

The outcome of the assessment of the potential 'magnitude of dust emissions', and the 'sensitivity of the area' are combined in Table M below to determine the risk of impact which is used to inform the selection of appropriate mitigation.

Table M: Risk of Dust Impacts (Unmitigated)

Potential Impact	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Low Risk	Medium Risk	Medium Risk	Medium Risk
Human Health	Negligible	Low Risk	Low Risk	Low Risk

5.1.5 Mitigation

Following the construction dust assessment, the Site is found to be at worst 'medium risk' in relation to dust soiling effects on people and property and 'low risk' in relation to human health impacts (Table M). However, potential dust effects during the construction phase are considered to be temporary in nature and may only arise at particular times (i.e. certain activities and/or meteorological conditions).

Nonetheless, commensurate with the above designation of dust risk, mitigation measures as identified by the IAQM Construction Dust Guidance are required to ensure that any potential impacts arising from the construction phase of the Development are reduced and, where possible, completely removed. In accordance with IAQM Construction Dust Guidance, providing effective mitigation measures are implemented, such as those outlined in Section 8.1, construction dust effects are considered to be 'not significant'.

Figure 2: Construction Dust Buffers

6.0 Exposure Assessment

This section presents a review of monitoring data and the BMBC Guidance in consideration with the Development, for the purposes of identifying requirements for mitigation to be embedded into the scheme design.

6.1 BMBC Guidance – Exposure Assessment

The BMBC Guidance requires an 'exposure assessment' to determine whether future occupants of the scheme are likely to be exposed to existing levels of poor air quality. An 'exposure assessment' is required if the development meets any of the following criteria:

- The proposal is adjacent to or within an AQMA;
- The proposal is in a location 20m from roads at or above the relevant national objective highlighted on the Defra GIS modelled maps[31] and is one of the following Land Use Types;
  - C1 to C3;
  - C4 (Homes of Multiple Occupation); or
  - D1 in table1.
- And the Proposal is within the areas identified on Map 1 [of the BMBC Guidance] (this includes the area within or adjacent to an AQMA; applicable roads; and includes roads at or above the relevant national objective highlighted on the Defra GIS modelled maps.

In consideration of the above criterion:

- The Site is not located within or adjacent to an AQMA as discussed in Section 4.1;
- The Development is for C3 use-class but is not located within 20m of a road above the annual mean roadside NO_2 AQAL as presented within Section 4.2; and
- The Development is located within areas identified on Map 1 of the BMBC Guidance as being adjacent to a road with baseline trips >10,000 AADT, namely the A61 Wakefield Road (confirmed via Department for Transport (DfT) Count Point 26606[32]).

As such, in accordance with the BMBC Guidance, further consideration to the 'exposure assessment' has been undertaken below, with reference to information previously discussed in Section 4.0:

- The closest BMBC diffusion tube ('52') is situated along the same stretch of the A61 Wakefield Road as the Site, located approximately 220m south of the Site boundary. Given its proximity to the Site and the road, monitored concentrations at diffusion tube '52' are considered directly representative of baseline conditions at the Site. This location ('52') and the BAR3 automatic monitor recorded annual mean NO_2 concentrations well below the AQAL (40µg/m^3) across all years presented;
- The BAR3 automatic monitor recorded PM_{10} and $PM_{2.5}$ concentrations 'well below' the relevant AQALs; and

[31] http://uk-air.defra.gov.uk/data/gismapping.

[32] DfT Road Traffic Statistic, Count Point 26606. https://roadtraffic.dft.gov.uk/count-points/26606.

- In addition, Defra mapped background concentrations are ‘well below’ the relevant NO_2, PM_{10} and $PM_{2.5}$ AQALs for the 1km grid square containing the Site in 2024 (base year) and 2028 (opening year).
- A review of aerial imagery in the Site locale identifies no localised pollution sources including those of $PM_{2.5}$ emission contributions.

Overall, the findings of the exposure assessment show the Site is suitable for residential use with no predicted exceedences of the considered AQALs, and no further assessment is required. Effects associated with the likely exposure of future occupants in relation to NO_2, PM_{10} and $PM_{2.5}$ concentrations are considered to be ‘not significant’ in reference to the stated EPIC & IAQM guidance and no further mitigation measures are required.

7.0 Operational Phase Assessment

A Transport Assessment[33] was prepared by the appointed transport consultant, Bryan G Hall, in support of the original planning application, which has since been granted consent (BMBC application reference: 2017/1718). Within Appendix BGH 16 of the Transport Assessment, a trip rate figure is reported, derived from the Trip Rate Information Computer System (TRICS) output, which includes a 24-hour / daily averaging period. This figure has been used, in conjunction with the number of dwellings associated with the revised layout under the proposed Section 73 amendment (i.e. 91 dwellings), to inform the predicted trip generation associated with the Development as 24-hour AADT, which is summarised in Table N.

Based on the TRICS output provided by Bryan G Hall, the Development is predicted to generate a total of +421 AADT of which comprises 1% HDVs. These trips are then predicted to distribute across the surrounding highway network in accordance with the trip distribution diagram presented within Appendix BGH 17 of the Transport Assessment[33]. This data has been applied within the assessment of operational phase road traffic emissions.

Table N: Predicted Development Trip Generation and Distributed Trips

Link ID & Name		AADT (LDV)	AADT (HDV)
1	Site Access	+417	+5
2	A61 Wakefield Road (north of Site access)	+150	+2
3	A61 Wakefield Road (south of Site access)	+267	+3
4	Bar Lane	+63	+1
5	A61 Wakefield Road (south of Bar Lane)	+200	+2
6	Laithes Lane	+21	+0
7	A61 Wakefield Road (south of Laithes Lane)	+179	+2
8	Rotherham Road	+54	+1
9	A61 Wakefield Road (south of Rotherham Road)	+125	+1
10	Paddock Road	+54	+1
11	A61 Wakefield Road (north of Paddock Road)	+96	+1
12	Lee Lane	+13	+0
13	A61 Wakefield Road (north of Lee Lane)	+83	+1

As presented in Table N, predicted distributed development trips on all links are below the *indicative criteria for assessment*.

As such, road traffic emission impacts associated with the operation of the Development can be considered as having an ‘insignificant’ effect on human receptors at all locations, and no further assessment is considered to be required.

[33] Bryan G Hall Consulting Civil & Transportation Planning Engineers. Transport Assessment, Proposed Residential Development, Former William Freeman Works, Mapplewell. Report Ref: 14-114-001.04. August 2018.

7.1.1 Ecological Receptors

As presented within Figure 1, the Development is situated in proximity to the Notton Wood LNR. In accordance with the methodology outlined in Section 3.3.2, project alone operational-phase trip generation has been reviewed for all road links within 200m of these designated sites.

Consultation with the Transport Assessment[33] has confirmed that development generated traffic will not occur on roads within 200m of Notton Wood LNR. Therefore, as 'affected roads' are >200m from the identified ecological designation, in accordance with the IAQM nature guidance[25] road traffic emissions can be concluded to result in '*no likely significant effect*' at habitats within the Notton Wood LNR. No further assessment is required.

8.0 Mitigation Measures

This section presents any proportionate mitigation measures required during the construction and operational phases of the Development.

8.1 Construction Dust

As discussed in Section 5.0, construction impacts associated to the Development would result in the generation of dust and PM_{10}.

In order to control potential impacts, Table O presents a range of mitigation measures which could be applied and align with the IAQM Construction Dust Guidance. With the effective application of the dust mitigation measures, residual effects will be 'not significant'.

Table O: Construction Dust Mitigation Measures

Site Application	Mitigation Measures
Highly Recommended	
Communications	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
	Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
	Display the head or regional office contact information.
Construction	Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
Demolition	Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.
	Avoid explosive blasting, using appropriate manual or mechanical alternatives.
	Bag and remove any biological debris or damp down such material before demolition.
Monitoring	Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
Operating Vehicle/Machinery and Sustainable Travel	Ensure all vehicles switch off engines when stationary - no idling vehicles.
	Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
Operations	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
	Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
	Use enclosed chutes and conveyors and covered skips.
	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.

	Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Preparing and Maintaining the Site	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
	Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
	Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
	Avoid site runoff of water or mud.
	Keep site fencing, barriers and scaffolding clean using wet methods.
	Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
	Cover, seed or fence stockpiles to prevent wind whipping.
Site Management	Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
	Make the complaints log available to the local authority when asked.
	Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.
Trackout	Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
	Avoid dry sweeping of large areas.
	Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
	Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
	Record all inspections of haul routes and any subsequent action in a site log book.
	Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
	Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
	Access gates to be located at least 10m from receptors where possible.
Waste Management	Avoid bonfires and burning of waste materials.
Desirable	
Construction	Avoid scabbling (roughening of concrete surfaces) if possible.
	Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
	For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.
Earthworks	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
	Use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable
	Only remove the cover in small areas during work and not all at once.
Monitoring	Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results,

	and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary.
Operating Vehicle/Machinery and Sustainable Travel	Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).
	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).

8.2 Operational Phase

In accordance with the EPIC & IAQM guidance, road traffic impacts associated with the operation of the Development can be considered as having an 'insignificant' effect on local air quality. Furthermore, the Development is found to be suitable for residential purposes in accordance with the Exposure Assessment undertaken in Section 6.0, with site-suitability effects concluded to be 'not significant'. As such, long-term scheme-specific mitigation measures in relation to operational effects arising from road traffic emissions are therefore not considered to be necessary. As no baseline air quality constraints have been identified, no embedded mitigation measures are required in relation to the Development with respect to locations of relevant exposure on the Site.

Nonetheless, in accordance with the BMBC Guidance, all 'minor' and 'medium' proposals are expected to implement the 'Type 1' and 'Type 2' mitigation measures detailed within the guidance document, as follows:

Type 1

- 1 charging point per unit (dwelling with dedicated parking) or 1 charging point per 10 spaces (unallocated parking).

It should be noted that electric vehicle (EV) charging points are to be included as required by Approved Document S: Infrastructure for Charging Electric Vehicles of the Building Regulations[34].

Type 2

- Travel Plan including agreed mechanisms for discouraging high emission vehicle use and encouraging modal shift (i.e. public transport, cycling and walking) as well as the uptake of low emission fuels and technologies;
- Improved pedestrian links to public transport stops;
- New or improved bus stop infrastructure including shelters, raised kerbing, information displays;
- Provision of subsidised or free public transport ticketing;
- Site layout designed to encourage walking;
- Cycle paths to link to local cycle network; and
- Improved convenient and segregated cycle paths to link to local cycle network.

A Framework Travel Plan has been produced by the appointed transport consultant to the Applicant. Within the Travel Plan there are a number of measures aimed to encourage the occupants to use more sustainable modes of transport to and from the Site. These

[34] https://www.gov.uk/government/publications/infrastructure-for-charging-electric-vehicles-approved-document-s.

measures would subsequently have a knock-on effect in terms of reducing road traffic emissions from personal car use. The measures within the Travel Plan are as follows:

- Site Specific Travel Guide;
- Personalised Travel Planning;
- Trial Public Transport Ticket;
- Promote Walking and Cycling;
- Promote Car Sharing; and
- Reducing the Need to Travel.

The measures within the Framework Travel Plan confirm with the requirements of Type 2 measures outlined within the BMBC Guidance. However, it is noted Condition 8 to BMBC application reference: 2021/1405 requires for submission of a detailed Travel Plan within 3-months of first occupation of the Development.

9.0 Conclusions

SLR has been commissioned by Countryside Properties to undertake an Air Quality Assessment to support the discharge of planning Condition 4 for an approved 91-dwelling residential development on land known as the Former William Freeman Site, Wakefield Road, Mapplewell, Barnsley (BMBC application reference: 2017/1718).

9.1 Construction Phase

A qualitative assessment of the potential dust impacts during the construction of the development has been undertaken following IAQM guidance. Following the construction dust assessment, the Site is found to be at worst 'Medium Risk' in relation to dust soiling effects on people and property, and 'Low Risk' in relation to human health impacts.

Providing effective mitigation measures are implemented, such as those outlined in Table O of this report, residual impacts from dust emissions during the construction phase are deemed to be 'not significant'.

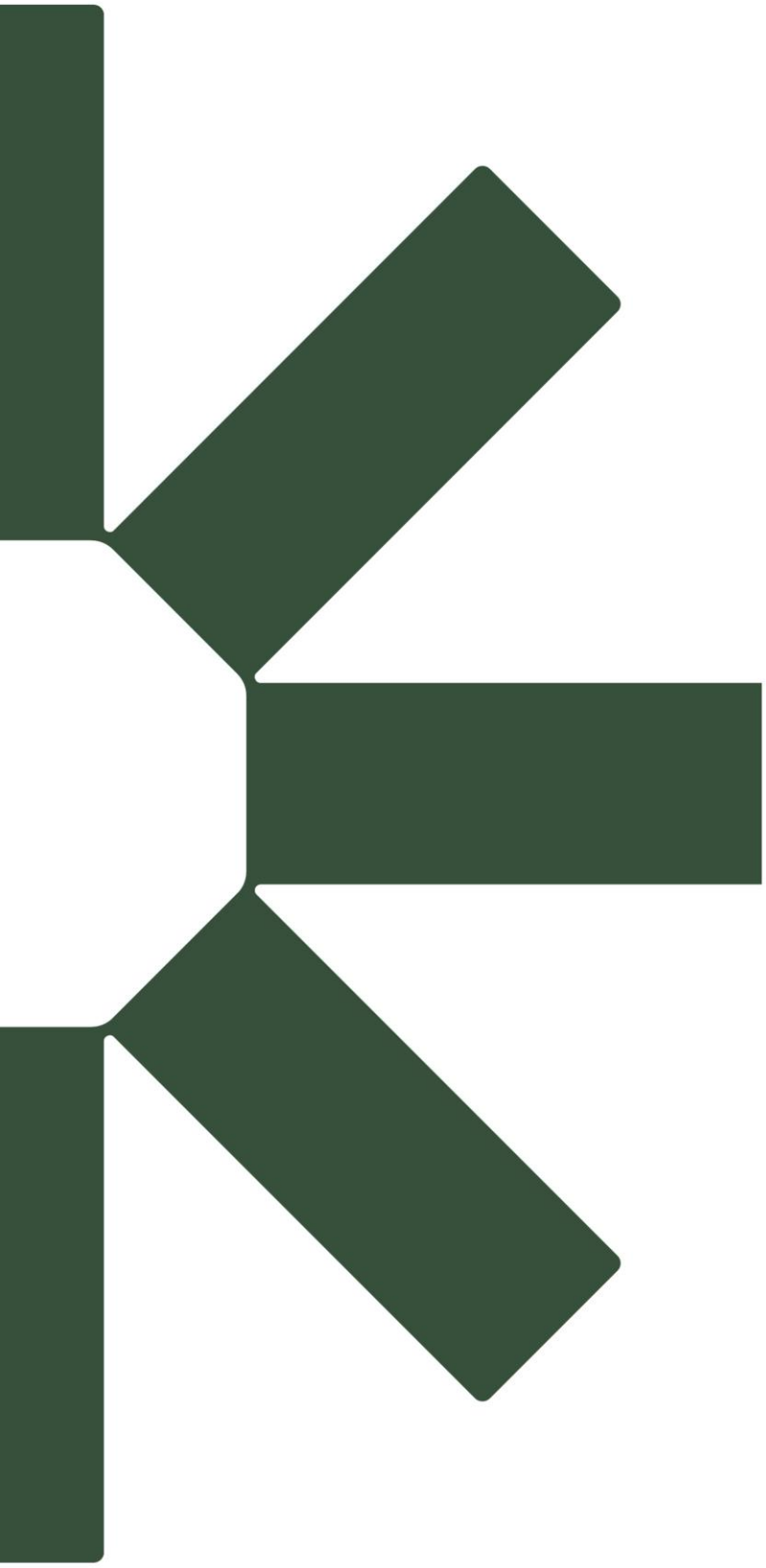
Given the short-term nature of the construction phase and the comparatively low volume of vehicle movements that will likely arise when compared to the operational phase, there is predicted to be an 'insignificant' effect on air quality from construction-generated road traffic emissions.

9.2 Operational Phase

The assessment of operational phase effects considered impacts on all relevant receptors from road traffic emissions associated with the Development.

In accordance with the EPIC & IAQM guidance, road traffic impacts associated with the operation of the Development can be considered as having an 'insignificant' effect on local air quality. An Exposure Assessment has been undertaken in accordance with the BMBC Guidance. The findings of the exposure assessment indicate no exceedences of the considered AQALs at locations of relevant exposure within the Site. Effects associated with the likely exposure of future occupants in relation to NO_2, PM_{10} and $PM_{2.5}$ concentrations are considered to be 'not significant' in reference to the stated EPIC & IAQM guidance and no further mitigation measures are required.

Furthermore, in accordance with the IAQM nature guidance, net change in operational phase trips associated with the Development can be considered as having '*no likely significant effect*' on habitats within the identified ecological designation.



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