

Former Spurr House, Pole Lane, Unsworth

Air Quality Assessment

Watson Construction Ltd

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Executive summary

Cundall has been commissioned to prepare an Air Quality Assessment Report for the proposed residential development at the Former Spurr House, Pole Lane, Unsworth.

The Proposed Development is not located within an Air Quality Management Area (AQMA), with the nearest approximately 120 m to the east (Bury AQMA, which covers the M66). Existing conditions within the study area indicate that there is unlikely potential for nitrogen dioxide (NO₂) and particulate matter (PM₁₀, PM_{2.5}) concentrations in the wider area to exceed the National Air Quality Objective threshold levels.

In setting the scope of assessment, consideration has been made of the potential for impacts to occur during both the construction and operation phases of the development, and the exposure of future occupants of the site to air pollution.

A construction dust impact assessment was undertaken in accordance with Institute of Air Quality Management (IAQM) guidance. It was concluded that without appropriate mitigation measures, medium risks were posed by demolition and construction and low risks by construction and trackout activities. However, with appropriate mitigation measures implemented, it was concluded that the construction effects of the Proposed Development would be not significant. It is likely that an Air Quality Dust Management Plan (AQDMP) will need to be approved by Bury Council's Planning Authority prior to the commencement of any on-site works and to ensure that the measures and monitoring protocols are to be implemented throughout the construction phase.

The Client will commit to the implementation of the best practice mitigation measures identified in this report during the construction phase of the development. It is anticipated that the generation of dust and harmful pollutants emissions from construction site activities will be reduced with the correct implementation of these measures.

As the Proposed Development is unlikely to increase annual average daily traffic flows by greater than 500 vehicles on any road link close to the Proposed Development (or by more than 100 vehicles within the nearest section of AQMA), further assessment of traffic-related impacts was scoped out of the operation phase assessment.

Heating and cooling provision for the development will be electrically sourced and it is understood that there will be no requirement for any standby/back-up generators. Therefore, there are not anticipated to be any emissions associated with combustion plant.

The exposure of future occupants of the Proposed Development has been assessed, with the following results:

- Annual mean NO₂ concentrations recorded by the monitoring sites within 2 km in recent years have shown some exceedances of the annual mean objective, most recently the kerbside site BU15NO in 2022 (40.5 µg/m³). Most sites during the period between 2018 and 2023 did not exceed the objective. As the western boundary of the Site borders a minor road, it is anticipated that concentrations at the roadside of the redline boundary may be comparable to those recorded at roadside sites such as the triplicate site BU3ANO, BU3BNO and BU3CNO. The concentration recorded at these sites in 2023 was 18.8-19.7 µg/m³. As this site is adjacent to an A road and the Site borders a minor road, concentrations at the Site may be lower than those recorded at the triplicate sites. Defra background concentrations do not exceed the annual mean NO₂ objective (40 µg/m³). It is therefore anticipated that annual mean NO₂ concentrations at the Proposed Development will be below the annual mean objective.
- All monitored NO₂ concentrations have been below 60 µg/m³ since 2018. Exceedance of the national short-term NO₂ objective at the Site is unlikely.
- Exceedances of the annual mean and short-term mean fine particulate matter (PM₁₀) objectives at the Site are unlikely.
- Exceedances of the annual mean fine particulate matter (PM_{2.5}) objective at the Site are unlikely.

It is anticipated that the impact of the operation phase on future site users is likely to be negligible, and therefore no mitigation measures are required. However, consideration should be made for integrating particulate filters into the intakes of the air handling units where this is practicable, to help strive towards achieving the more stringent WHO guideline values.

Overall, it was concluded that with the provision of appropriate mitigation measures, construction activities and operational impacts will have no significant effects on local air quality. The proposals are therefore compliant with the

requirements of Bury Council. It can therefore be concluded that there are no air quality constraints to the construction and operation of the Proposed Development.

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1.0

Introduction

1.0 Introduction

Cundall has been commissioned to prepare an Air Quality Assessment Report for Watson Construction Limited for the proposed residential development at the Former Spurr House, Pole Lane, Unsworth. The Proposed Development is not located within an Air Quality Management Area (AQMA).

1.1 Site Location

The Site is situated at Pole Lane, Unsworth, Bury.

The Site covers an area of approximately 6700 square metres (0.67 hectares) and currently comprises Spurr House.

The surrounding land use can be summarised as follows:

- Residential properties to the north and west
- Unsworth Academy to the northeast
- Cricket & Tennis Club to the south
- The M66 approximately 120m to the east

The location of the development site is illustrated in Figure 1-1. Additional context is provided by the aerial image (Figure 1-2).

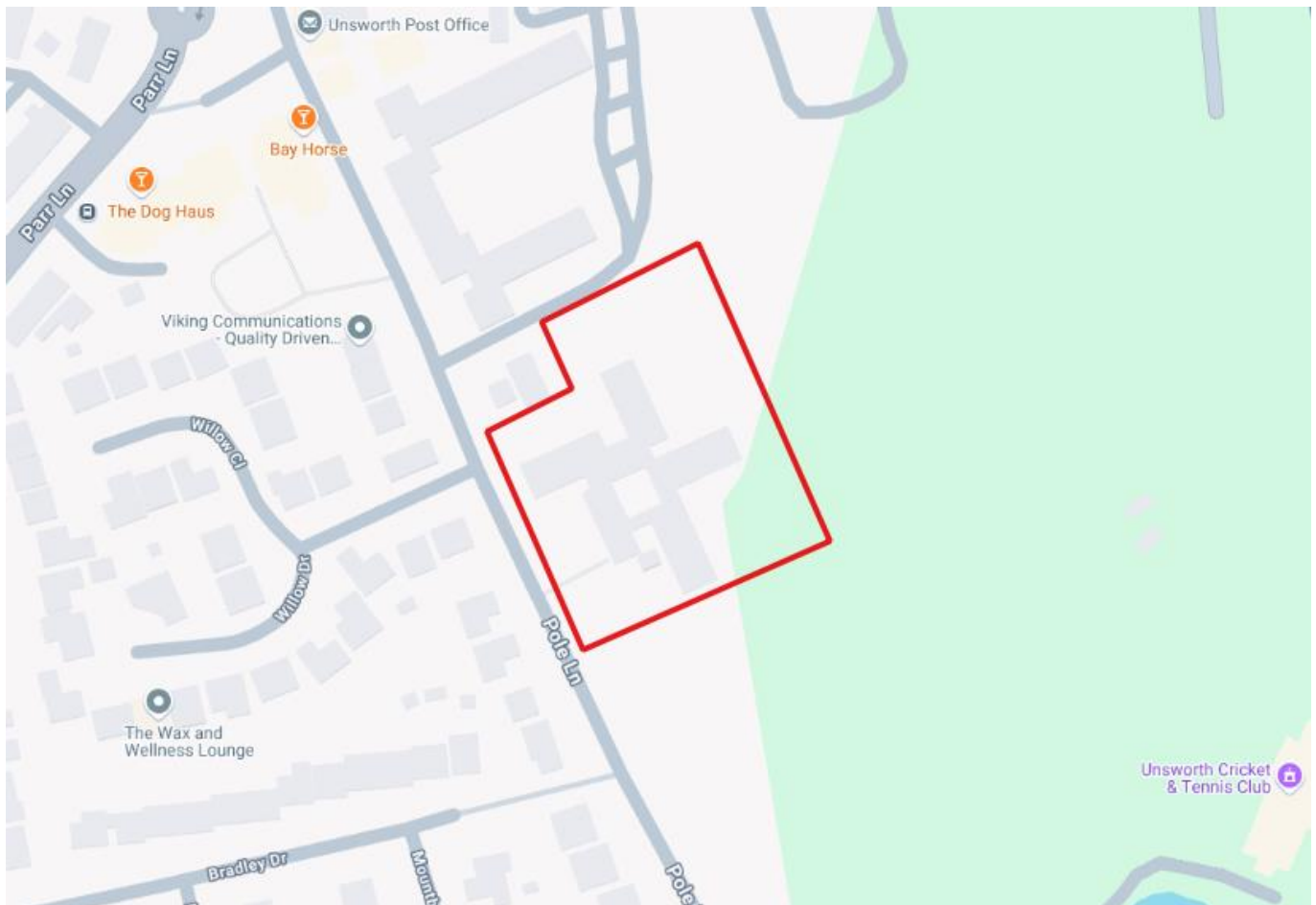


Figure 1-1: Location of the Development Site (Courtesy of Google Maps)



Figure 1-2: Aerial Image (Courtesy of Google Maps)

1.2 Proposed Development

Proposals are for the redevelopment of the Former Spurr House into two residential apartment blocks. The design requires the demolition of the existing on-site buildings.

The planning application comprises:

- 15 x 1B2P apartments (50sqm each)
- 45 x 2B4P apartments (70sqm each)
- 62 parking spaces

The proposed site plan has been reproduced as Figure 1-3, courtesy of tadw Architects¹.

¹ tadw Architects (2024) Pole Lane, Bury, Proposed Site Plan, Ref: B1045, Drawing No. 02, Issue No. P8, 03.09.24.



Figure 1-3: Proposed Site Plan (Courtesy of tadw Architects)

1.3 Scope of Assessment

In setting the scope of assessment, consideration has been made of guidance provided within the Greater Manchester Air Quality Action Plan², which states that the criteria that may trigger the need for air quality assessments (AQA) are set out by IAQM and EPUK guidance. The guidance states that an AQA will be required if any of the following apply:

- Development of dwellings where 10 or more dwellings are to be provided, or the site area is 0.5 hectares or more.
- Development of other uses, where the floor space is 1,000 square metres or more, or the site area is 1 hectare or more.

The Proposed Development site area will consist of more than 10 dwellings and is more than 0.5 hectares (approx. 0.67 hectares), which triggers the requirement for a supporting air quality assessment. This document has therefore been prepared in support of the planning application and considers the potential for effects to occur during both the construction and operation phases of the development.

This air quality assessment outlines the relevant air quality legislation and policy guidance and presents the assessment methodology. The main pollutants of concern for this assessment are oxides of nitrogen (NO_x), including nitrogen dioxide (NO₂), fine and very fine particulate matter (PM₁₀ and PM_{2.5}). The existing air quality conditions are presented and the likely air quality impacts from construction and operation of the Proposed Development are considered. The effects are assessed in the context of relevant national, regional and local air quality legislation, policies and guidance. Mitigation measures are proposed, as required, to reduce the effect of the Proposed Development to negligible, as far as reasonably practicable. The scope of the assessment is detailed further in section 3.0.

This assessment has been undertaken by Cundall's Air Quality Team, who are all Members or Associate Members of the Institute of Air Quality Management (MIAQM) and managed by a team member who is professionally chartered. Full details are provided in Appendix A.

² Greater Manchester Combined Authority/ Transport for Greater Manchester, Greater Manchester Air Quality Action Plan 2016-2021, https://www.manchester.gov.uk/downloads/download/4166/air_quality_reports

2.0

Legislation, Policy and Guidance

2.0 Legislation, Policy and Guidance

2.1 Key Legislation and Policy

This assessment considers key air quality legislation, which is summarised in Table 2-1.

Legislation	Description
EU Ambient Air Quality Directive 2008/50/EC ³	Establishes the requirements of Member States in terms of improvements required to air quality. Sets standards for a variety of pollutants for human-health and the environment.
The Air Quality Standards Regulations 2010 ⁴	Transposes formalised EU Limit Values set out in directive 2008/50/EC to UK law. An Amendment was published in 2016 ⁵
Clean Air Strategy 2019 ⁶	Defra published a Clean Air Strategy in January 2019, setting out a wide range of actions for UK Government to reduce pollutant emissions and improve air quality. The actions are grouped into four main emission sources: Transport, Domestic, Farming and Industry The Clean Air Strategy sets out the case for action and demonstrates the government's determination to improve air quality. In some cases, the goals are even more ambitious than EU requirements to reduce people's exposure to toxic pollutants like nitrogen oxides, ammonia, particulate matter, non-methane volatile organic compounds and sulphur dioxide.
Environment Act 1995, Part IV ⁷ , amended by the Environment Act 2021 ¹⁰ .	Defines the requirements for Local Air Quality Management (LAQM).
Environment Protection Act 1990, amended by the Pollution Prevention and Control Act 1999 ⁸ and the Environment Act 2021 ¹⁰ .	Part III provides statutory nuisance provisions for nuisance dust. Nuisance complaints about dust would need to be investigated by the Local Authority. In practice, dust deposition is generally managed appropriately by suitable on-site practices and mitigation, avoiding the determination of statutory nuisance and/or prosecution or enforcement notices.
The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018 ⁹	Developers and contractors are required to meet compliance with the emission standards for Non-Road Mobile Machinery (NRMM). The Regulations exercise of the powers conferred by section 2(2) of, and paragraph 1A of Schedule 2 to, the European Communities Act 1972 in relation to the type, description, construction or equipment of vehicles.
Environment Act, 2021 ¹⁰ .	The Act makes provision about targets, plans and policies with the focus of improving the natural environment. This includes air quality, as well as water, nature and biodiversity, regulation of chemicals, waste and resource efficiency and recall of products failing to meet environmental standards. The Act introduces a duty on government to bring forward at least two air quality targets by October 2022 for consultation. These are to be to reduce the annual average level of fine particulate matter (PM _{2.5}) and to set a long-term (minimum of 15 year) target for its reduction. The 2021 Act amends the Environment Act 1995 Part IV by seeking to strength local air quality a management (LAQM) through greater cooperation at local level and broadening the range of organisations that play a role in improving air quality. Responsibility for tackling air pollution is to be shared between

³ Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe

⁴ HMSO (2010). Statutory Instrument 2010 No. 1001, The Air Quality Standards Regulations 2010, London: HMSO

⁵ HMSO (2016). Statutory Instrument 2016 No. 1184, Environmental Protection, England, The Air Quality Standards (Amendment) Regulations 2016, London: HMSO, <https://www.legislation.gov.uk/uksi/2016/1184/contents/made>

⁶ Department for Environment Food and Rural Affairs (Defra) (2019) Clean Air Strategy 2019, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf

⁷ Environment Act 1995, Chapter 25, Part IV Air Quality

⁸ Environmental Protection Act 1990, Chapter 43, Part III Statutory Nuisances and Clean Air <https://www.legislation.gov.uk/ukpga/1990/43/part/III>

⁹ HMSO (2018) The Non-Road Mobile Machinery Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018, UK Statutory Instruments, 2018 No. 764, <https://www.legislation.gov.uk/uksi/2018/764/made>

¹⁰ HMSO (2021) Environment Act 2021, November 2021, <https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted>

Legislation	Description
	designated local authorities, all tiers of local government and neighbouring authorities. The environment secretary will be required to review the Air Quality Strategy at least every five years and publish annual progress reports to parliament. The 2021 Act amends the Clean Air Act 1993 to give local authorities more power to reduce pollution in smoke control areas by replacing the criminal offence of emitting smoke from a chimney in a smoke control area with a civil penalty regime, seeking to enable simpler, quicker and more proportionate enforcement at local level. It also amends the Environmental Protection Act 1990 by extending the system of statutory nuisance to private dwellings in smoke control areas, which could result in abatement notice and issuing fines for criminal offence of breaches. The 2021 Act introduces new powers for the government to compel vehicle manufacturers to recall vehicles and non-road machinery that fails to meet legal binding standards.
Environmental Improvement Plan, 2023 ¹¹	The Environmental Improvement Plan (EIP23) highlights that air quality continues to be the biggest environmental risk to human health and a source of harm to the natural environment. The document makes provision about targets and plans with the focus of improving the environmental quality. This includes reducing emissions in the home, driving effective local action through local authorities, maintaining and improving regulatory framework for industrial emissions, supporting farmers to cut the impact of agriculture on air quality and reducing emissions from cars and other forms of transport. Ten environmental goals were set in the 25 Year Environmental Plan. The second goal is clean air and the EIP23 seeks to address this further through the following targets and commitments: ▪ In 2040 reduce population exposure of fine particulate matter (PM_{2.5}) by 35% compared to 2018 levels (with an interim target of a 22% reduction by January 2028) ▪ Work towards meeting compliance with a 40 µg/m³ limit for nitrogen dioxide (NO₂) ▪ Maximum annual mean 10 µg/m³ for PM_{2.5} (with an interim target of 12 µg/m³ by January 2028) ▪ Legal emission reduction targets for five damaging pollutants by 2030 relative to 2005 levels: ○ Reduce emissions of nitrogen oxides by 73%. ○ Reduce emissions of sulphur dioxide by 88%. ○ Reduce emission of (PM_{2.5}) by 46%. ○ Reduce emissions of ammonia by 16%. ○ Reduce emissions of non-methane volatile organic compounds by 39%. Progress towards delivering the EIP23 will be monitored through Annual Progress Reports and the Outcome Indicator Framework. This framework contains 66 indicators, six which are relevant to clean air.

Table 2-1: Key Legislation

¹¹ HM Government (2023) Environmental Improvement Plan 2023, <https://www.gov.uk/government/publications/environmental-improvement-plan>

The UK Air Quality Objectives (AQOs)¹² which apply to this assessment¹³ are shown in Table 2-2. Relevant Future Targets outlined in the Environmental Improvement Plan 2023¹¹ are also listed. Some pollutants have long-term (annual mean) objectives due to the chronic way they affect human health or the natural environment and others have short-term (1-hour, 24-hour mean) objectives due to the acute way they affect human health or the natural environment.

Pollutant	Averaging Period	Objective Threshold	Future Target (EIP23)
For the protection of human health			
Nitrogen Dioxide (NO ₂)	Annual mean	40 µg/m ³	-
	1-hour mean	200 µg/m ³ Not to be exceeded more than 18 times per year (equivalent to the 99.79 th percentile of 1-hour mean values)	-
Particulate Matter (PM ₁₀)	Annual mean	40 µg/m ³	-
	24-hour mean	50 µg/m ³ Not to be exceeded more than 35 times per year (equivalent to the 90.4 th percentile of 24-hour mean values)	-
Fine Particulate Matter (PM _{2.5})	Annual mean	20 µg/m ³	10 µg/m ³ by end of 2040 46% reduced by 2030 based on 2005 levels 35% reduced by end of 2040 based on 2018 levels
For the protection of vegetation and ecosystems			
Nitrogen oxides (NO _x)	Annual mean	30 µg/m ³	73% reduced by 2030 based on 2005 levels

Table 2-2: UK Air Quality Objectives (AQO) and future targets from EIP23

Previous research carried out on behalf of Defra identified that exceedances of the NO₂ 1-hour mean are unlikely to occur where the annual mean is below 60 µg/m³. This assumption is still considered valid; therefore, Defra's Technical Guidance document, LAQM (TG22)¹⁴ confirms that this figure can be referenced where 1-hour mean monitoring data are not available (typically if monitoring NO₂ using passive diffusion tubes).

Good practice design (e.g., Building Regulations) often consider WHO guidelines, which are usually more stringent (see Table 2-3 below). Compliance with WHO recommended guidelines for residential and non-residential elements is considered 'best practice' but is non-mandatory at present, i.e., suitable control can be adopted on an 'as-required' basis. The WHO recommended guidelines were updated in September 2021¹⁵. The update includes Air Quality Guideline (AQG) levels for the pollutants of relevance to this assessment (NO₂, PM₁₀ and PM_{2.5}) and a range of interim targets.

¹² Department for Environment Food & Rural Affairs (Defra) UK Air Information Resource (UK AIR), National air quality objectives, https://uk-air.defra.gov.uk/assets/documents/Air_Quality_Objectives_Update.pdf

¹³ Other pollutants have been screened out of this assessment as exceedance of their respective objectives is not anticipated to be associated with the pollutant sources of relevance to this assessment.

¹⁴ Department for Environment Food & Rural Affairs (Defra) (2022) Local Air Quality Management Technical Guidance (TG22), August 2022 <https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf>

¹⁵ World Health Organisation (WHO) (2021) WHO global air quality guidelines, Particulate matter (PM_{2.5} and PM₁₀), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide, <https://apps.who.int/iris/handle/10665/345329>.

Pollutant	Averaging Period	Air Quality Objective (AQO) ($\mu\text{g}/\text{m}^3$)	WHO Guidelines ($\mu\text{g}/\text{m}^3$)	
			Interim Target	AQG Level
NO ₂	Annual mean	40	40 to 20	10
PM ₁₀	Annual mean	40	70 to 20	15
PM _{2.5}	Annual mean	20	35 to 10	5

Table 2-3: Comparison of WHO Guidelines with National Air Quality Objectives

2.2 Consultation with Bury Council

Consultation with Bury Council's Environmental Health Team was undertaken on the 9th of October 2024 to discuss and agree the scope of the assessment. Further details are provided in Appendix B.

2.3 Planning Policy and Guidance

Consideration of the strategic location and design of new developments is of key important in the land-use planning process and can provide a means of improving air quality. Air quality considerations as part of development applications may become material in determining planning applications. Relevant planning policy and guidance at the National, Regional, and Local levels as summarised in Table 2-4.

Policy / Guidance	Description
National Policy and Guidance	
Department for Levelling Up, Housing and Communities – National Planning Policy Framework (NPPF) (2023) ¹⁶	The National Planning Policy (NPPF) first published March 2012 and last updated in December 2023, with the purpose of planning and achieving sustainable development. Paragraph 192 of the NPPF states that: <i>“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 AQMAs 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”.</i> In addition, paragraph 109 states that: <i>“The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making.”</i> Paragraph 180 discusses how planning policies and decisions should contribute to and enhance the natural and local environment. Of relevance to air quality, NPPF notes that this can be achieved by: <i>“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”</i>

¹⁶ Department for Levelling Up, Housing and Communities, National Planning Policy Framework, December 2023
https://assets.publishing.service.gov.uk/media/65829e99fc07f3000d8d4529/NPPF_December_2023.pdf

Policy / Guidance	Description
Planning Policy Guidance - Air Quality (updated 2019) ¹⁷	Planning Practice Guidance (PPG) documents have been published as part of the NPPF. PPG relating to air quality was last updated in November 2019. It provides guidance on the significance of air quality in determining the local impact of proposed developments and highlights the importance of local and neighbourhood plans with regard to air quality. A flowchart is provided to assist local authorities in determining how air quality considerations might fit into development management processes.
UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations. Detailed Plan. Defra / Department of Transport (DfT) (2017) ¹⁸	This plan was produced in response to a UK Supreme Court Ruling and sets out how the UK will achieve compliance with EU Limit Values for nitrogen dioxide (NO ₂) in the shortest possible time. The plan outlined infrastructure initiatives and grants and the requirements for Local Authorities to produce local action plans, with the aim of reducing NO ₂ concentrations below the objective as soon as practically possible.
Regional Planning Policies	
Greater Manchester's Clean Air Plan ¹⁹	Eight Greater Manchester authorities were identified by the Government as having roads which are expected to continue to exceed the maximum legal limits of NO₂ in 2021. They were directed by Government to undertake feasibility studies to identify measures for reducing NO₂ concentrations to compliant levels in the 'shortest possible time'. These studies must produce a series of business cases for assessing and implementing the relevant measures to address the problem. The 10 Greater Manchester local authorities, Greater Manchester Combined Authority (GMCA) and Transport for Greater Manchester (TfGM) have worked together to develop a Clean Air Plan to tackle nitrogen dioxide (NO₂) exceedances at the roadside, known as GM CAP. Central Government agreed that the Greater Manchester charging Clean Air Zone would not go ahead on 30 May 2022. The original Greater Manchester CAP was designed to comply with a legal direction from government issued before the coronavirus pandemic. Since then, there have been significant changes in the market for vehicles compliant with Clean Air Zone standards, particularly vans, and the cost of living has increased. Greater Manchester local authorities have now submitted the case for a new investment-led Greater Manchester CAP, with no charging Clean Air Zone, to government. In January 2023, the UK government asked for more evidence to support the case for the proposed CAP; initial evidence was submitted in March 2023, with further evidence expected in June 2023.
Greater Manchester Places for Everyone Joint Plan ²⁰	Nine Greater Manchester Councils (Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan) worked together on a joint development plan. The Places for Everyone underpins Greater Manchester's ambitious plans for sustainable and inclusive growth, building on evidence already collected. The plan was adopted on the 21 st of March 2024.
Greater Manchester Air Quality Action Plan 2016-2021 (AQAP) ²	The AQAP identifies a range of actions to reduce emissions and mitigate the impacts on air quality. Some Key actions regards development and transportation are: ▪ Actions for managing new development: ▪ Construction Management Guidance – where a key priority area is affected by a proposed scheme, a high level of mitigation control will be requested. ▪ Development Planning Guidance - to ensure that potential local air quality effects are not overlooked and is not intended to introduce a burden on developers or local authorities to undertake unnecessary work. ▪ Cumulative Development Database - A centralised database of significant planning applications and air quality assessments will be managed by Transport for Greater Manchester (TfGM), as a record of the cumulative effects of multiple developments and thereby facilitate combined approaches to minimising emissions.

¹⁷ Ministry of Housing, Communities and Local Government (2019) Planning Practice Guidance: Air Quality, updated 1 November 2019
<https://www.gov.uk/guidance/air-quality--3>

¹⁸ Department for Environment, Food and Rural Affairs / Department for Transport (2017) UK plan for tackling roadside nitrogen dioxide concentrations, July 2017 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/633269/air-quality-plan-overview.pdf

¹⁹ Greater Manchester Clean Air Plan | Clean Air Greater Manchester (cleanairgm.com)

²⁰ Places for Everyone Joint Development Plan Document for Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan 2022 to 2039, adopted 21st March 2024, [Places For Everyone - Greater Manchester Combined Authority \(greatermanchester-ca.gov.uk\)](https://www.greatermanchester-ca.gov.uk/places-for-everyone)

Policy / Guidance	Description
	- Clean Air Zone – TfGM will undertake an appraisal of the effects of charging Clean Air Zones (CAZ) 20mph Zones - The implementation of 20mph zones in urban areas has been cited as having the potential to benefit local air quality through smoother vehicle flow through junctions and reduced acceleration and braking, as well as having potential for additional benefits from encouraging modal shift from driving to walking or cycling - Encouraging Travel Planning - Individuals and companies are encouraged to look at travel planning measures, and to investigate the potential of additional demand management measures to affect a significant mode shift and to stimulate the uptake of low-emission vehicles. - Taxi and Private Hire Quality Controls to Priorities Low-Emission Vehicles Green Infrastructure - The provision of green infrastructure in and around urban areas is now widely recognised as contributing towards creating places where people want to live and work.
Greater Manchester Low-Emission Strategy (2016) ²¹	The Low-Emission Strategy sets out a framework for policies and measures to: - Reduce air pollution as a contributor to ill-health in Greater Manchester - Support the UK government in meeting EU air quality thresholds. Contribute to a reduction in Greater Manchester's carbon footprint; and encourage low-emission behaviours in the culture and lifestyles of the city region.
Greater Manchester Planning Guidance on Air Quality ²²	Greater Manchester Combined Authority (GMCA) have adopted the most recent IAQM guidance on the assessment and control of dust from demolition and construction sites, and also for air quality considerations in land-use planning and development control. Applicants, developers and consultants are advised to read the IAQM guidance prior to submitting a planning application.
Local Planning Policies	
Bury Unitary Development Plan (UDP) (1997) ²³	The plan acts as a guide for the future development or protection of land in the Borough. Its plans and proposals currently form the basis for the Council's decisions on planning applications. The UDP is set to be replaced by the Bury Local Plan. Policy EN7/1 – Atmospheric Pollution, states that: <i>"In seeking to limit atmospheric pollution the Council will not permit development which:</i> <i>would result in unacceptable levels of atmospheric pollution; and/or</i> <i>is not compatible with the achievement of the Council's long term air quality standards."</i> <i>"The Borough's air quality can be protected by restricting developments likely to cause atmospheric pollution problems. The Council's Environmental Principles Statement (approved by Council 1991), as part of its intention to reduce air pollution emissions, has made reference to developing and maintaining an "air pollution monitoring network". This policy will be implemented in liaison with the Council's Environmental Health Division which will not attempt to duplicate the work of other Pollution Control Authorities. The Council will also have regard to the proposed Greater Manchester Air Quality Strategy, which is to be produced following the requirements of the Environment Act 1995. This Act requires local authorities to assess and manage air quality."</i>

²¹ Greater Manchester Combined Authority (2016) Greater Manchester Low-emission Strategy, December 2016 [low-emission-strategy-dec-2016.pdf](https://www.greatermanchester-ca.gov.uk/low-emission-strategy-dec-2016.pdf) ([greatermanchester-ca.gov.uk](https://www.greatermanchester-ca.gov.uk/))

²² Manchester City Council (2022) Air Quality & Planning Technical Guidance, August 2022 <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKewiXtc6U04OIAxVoTkEAHXS5F5wQFNoECBcQAQ&url=https%3A%2F%2Fwww.manchester.gov.uk%2Fdownload%2Fdownloads%2Fid%2F28690%2Fair%2Fquality%2Fand%2Fplanning%2Fguidance.pdf&usq=AOvVaw2ZRVwCYVqA7hQWPWNDisyE&opi=89978449>

²³ Bury Council (1997) Bury Unitary Development Plan, 29 August 1997, <https://www.bury.gov.uk/planning-building-control/policy-and-projects/planning-policy/adopted-bury-unitary-development-plan>

Policy / Guidance	Description
Bury Local Plan ²⁴	Bury Council is in the process of preparing a new Local Plan to guide future development in the borough. It will form part of Bury's overall development plan, alongside the emerging Places for Everyone joint development plan. The documents will form the basis for determining future proposals for the next 20 years. It will contain locally specific planning policies.
Local Development Scheme (2022) ²⁵	The scheme sets out the proposed programme and timescales for the production of Bury's Development Plan and other associated documents.
Bury Local Plan Policy Directions (2018) ²⁶	The Bury Local Plan is currently being prepared; this document sets out the broad direction that the Council would wish to take. The Local Plan will form part of Bury's overall development plan and provide non-strategic policies on non-strategic issues. The document states that: <i>"the Plan should contribute to the protection and enhancement of natural, built and historic assets, the improvement of air quality, reduced carbon emissions and adapt to the cause and effects of climate change."</i> Policy Direction OP4, relating to Air Quality and Pollution Control, states: <i>"It is proposed that the Local Plan should include a policy that seeks to prevent both new and existing development from contributing to, or being adversely affected by, unacceptable levels of pollution either individually or cumulatively with other existing or proposed developments. It is considered that the policy should also set out the issues that the Council will have regard to when considering the potential impact of development on pollution and what should be required from applicants, including mitigation measures, in the event that a proposal is considered to have the potential to give rise to any impacts on air quality or other forms of pollution."</i>
Other Relevant Policy and Guidance	
Defra Local Air Quality Management (LAQM) Policy Guidance (2022) ²⁷ and Technical Guidance (2022) ²⁸	The guidance issued under Part IV of the Environment Act 1995 is designed to help local authorities with their LAQM duties. The guidance sets out the general approach to use and detailed technical guidance to guide local authorities through the Review and Assessment process.
World Health Organisation (WHO) Global Air Quality Guidelines (2021) ²⁹	Since 1987, WHO has periodically issued health-based air quality guidelines to assist governments and civil society to reduce human exposure to air pollution and its adverse effects. The WHO air quality guidelines published in 2006 provided health-based guideline levels for the major health-damaging air pollutants, including particulate matter (PM₁₀ and PM_{2.5}), ozone (O₃), nitrogen dioxide (NO₂) and sulphur dioxide (SO₂). These guidelines had a significant impact on pollution abatement policies all over the world and led to the first universal frame of reference. Following extensive research which started in 2016 and has referred to numerous epidemiological studies, WHO have reassessed their guideline values and recently (September 2021) provided updated values.
IAQM Indoor Air Quality Guidance (2021) ³⁰	The IAQM have provided guidance on the assessment of indoor air quality. This was published in September 2021 and covers assessment, monitoring, modelling and mitigation relating to indoor air quality.
Covid-19: Supplementary Guidance, Local Air Quality	The guidance had been informed by responses from an impact survey received following the release of the interim statement on Covid-19 impacts to the LAQM regime. The guidance is to be read in conjunction with LAQM (TG22) ²⁸

²⁴ Bury Council, Bury Local Plan <https://www.bury.gov.uk/planning-building-control/policy-and-projects/planning-policy/bury-local-plan>

²⁵ Bury Council (2022) Local Development Scheme, February 2020, <https://www.bury.gov.uk/asset-library/local-development-scheme-feb-2022.pdf>

²⁶ Bury Council (2018) Bury Local Plan Policy Directions, October 2018, <https://www.bury.gov.uk/asset-library/bury-local-plan-policy-directions.pdf>

²⁷ Defra (2022) Local Air Quality Management Policy Guidance PG(22) <https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-Policy-Guidance-2022.pdf>

²⁸ Defra (2022) Local Air Quality Management Technical Guidance (TG22) August 2022 <https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf>

²⁹ World Health Organisation (WHO) (2021) WHO global air quality guidelines, Particulate matter (PM_{2.5} and PM₁₀), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide, <https://apps.who.int/iris/handle/10665/345329>.

³⁰ Institute of Air Quality Management (IAQM) (2021), Indoor Air Quality Guidance: Assessment, Monitoring, Modelling and Mitigation, version 1.0, September 2021, https://iaqm.co.uk/wp-content/uploads/2013/02/iaqm_indoorairquality.pdf

Policy / Guidance	Description
Management Reporting in 2021 ³¹	
Environmental Protection (EPUK)/Institute of Air Quality Management (IAQM) Land Use Planning & Development Control (2017) ³²	This guidance has been produced to ensure that air quality is adequately considered in the land use planning and development control processes by relevant officers within local authorities, developers, and consultants involved in the preparation of development proposals and planning applications. This document is best practice guidance and has no formal or legal status.
IAQM Guidance on the Assessment of Dust from Demolition and Construction (2024) ³³	The document provides guidance for developers, their consultants and environmental health practitioners on how to undertake a construction impact assessment (including demolition and earthworks). The guidance provides a method for assigning a magnitude of risk (high, medium or low) and identifies appropriate mitigation measures.
IAQM assessment of air quality impacts on designated nature conservation sites ³⁴	This guidance signposts the appropriate thresholds used by local authorities, the Environment Agency and other regulators to determine the potential for air quality damage on sensitive ecological sites. Should threshold be likely to be exceeded, a suitably qualified and experienced ecologist is required to determine whether there is likely to be a significant impact on the habitat.

Table 2-4: Key Policy and Guidance

³¹ Department for Environment, Food and Rural Affairs (Defra) / Greater London Authority (2021). Covid-19: Supplementary Guidance, Local Air Quality Management Reporting in 2021, April 2021, Version 1.0, <https://iaqm.defra.gov.uk/supporting-guidance.html>

³² Environmental Protection UK (EPUK)/Institute of Air Quality Management (IAQM), (2017) Land-Use Planning & Development Control: Planning for Air Quality <https://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>

³³ Institute of Air Quality Management (IAQM) (2024) Guidance on the Assessment of Dust from Demolition and Construction (Version 2.2) <https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf>

³⁴ Institute of Air Quality Management (IAQM) (2020) A guide to the assessment of air quality impacts on designated nature conservation sites, version 1.1, May 2020, <https://iaqm.co.uk/text/guidance/air-quality-impacts-on-nature-sites-2020.pdf>

3.0

Approach and Scope

3.0 Approach and Scope

3.1 Overall Approach

The overall approach of this air quality assessment comprises the following:

- A review of existing conditions within the study area, defined as 2km from the boundary of the Proposed Development
- An assessment of the potential to change in air quality conditions as a result of the construction and operation of the Proposed Development; and
- The formulation of appropriate mitigation measures, where required, to mitigate any adverse impacts on air quality as a result of the construction and/or operation of the Proposed Development.

The scope and methodology of this assessment has been forwarded to the Environmental Health Officer at Bury Council, but at the time of writing, no response has been received. The email correspondence is included as Appendix B.

3.2 Existing Conditions

Existing ambient air quality conditions relates to relevant pollution that is already present in the environment from various sources such as industrial processes, commercial and domestic activities, road traffic emissions and natural resources.

Existing sources of emissions within the study area (2 km) have been defined using several approaches, as follows:

- Industrial and waste management sources that may affect the area have been identified using the Environment Agency's Pollution Inventory Data³⁵.
- Local sources have also been reviewed through examination of the latest Air Quality Annual Status Report³⁶
- Background concentrations have been defined using the national pollution maps published by Defra³⁷. These cover the whole country on a 1x1 km grid.

3.3 Construction Phase

The site currently consists of Spurr House, which will need to be demolished to enable redevelopment.

The construction proposals comprise the following activities:

- 15 x 1B2P apartments (50sqm each)
- 45 x 2B4P apartments (70sqm each)
- 62 parking spaces

Machinery used during demolition and construction can generate new sources of emissions, as well as traffic movements to/from the site and the works themselves. When assessing the effect of dust emissions generated during construction works, receptors include those nearest to the construction boundary of the site in each direction. These receptors have the potential to experience effects of greater magnitude due to emissions of dust generated by the works, when compared with more distant receptors.

Without appropriate mitigation controls in place, there is the potential for adverse effects to occur during to the construction of the Proposed Development. The implementation of best practice mitigation controls can ensure any potential adverse effects would be not significant.

The impact of anticipated construction activities has been assessed in accordance with IAQM Guidance on the

³⁵ Environment Agency, Pollution Inventory <https://data.gov.uk/dataset/cfd94301-a2f2-48a2-9915-e477ca6d8b7e/pollution-inventory>

³⁶ Greater Manchester Combined Authority (2024) 2023 Air Quality Annual Status Report, June 2024
https://downloads.ctfassets.net/tlpgbv1k6h2/3XAEIZRea7W64L3A61H8R7/7a092aac00f18413a78ac611418526fe/ASR_2024_reporting_on_2023_Air_Quality_Final.pdf

³⁷ Department for Environment, Food and Rural Affairs (Defra). Background Mapping data for local authorities, <https://uk-air.defra.gov.uk/data/iaqm-background-home>

Assessment of Dust from Demolition and Construction v2.2 (2024)³³. The construction phase assessment considers the anticipated physical activities occurring on-site that are likely to result in the generation of dust which gives rise to impacts on dust soiling and human health, especially through the generation of PM₁₀ and PM_{2.5}.

The assessment involves the identification of whether each phase of on-site activity (demolition, earthworks, construction, and trackout) represents a low, medium, or high risk of causing a significant effect and then identifies suitable mitigation measures for the relevant level of risk assigned. Details of the IAQM³³ construction impact assessment procedure are presented in Appendix C.

Best practice mitigation controls have been identified in accordance with IAQM guidance³³.

3.4 Operation Phase

EPUK/IAQM's guidance on Land-Use Planning and Development Control: Planning for Air Quality³² was issued to ensure that air quality is adequately considered in the land-use planning and developmental control process. A summary of the requirements is provided in Appendix D. To determine the need for operational assessment, a screening assessment has been undertaken using the criteria outlined in the EPUK/IAQM guidance note (Appendix E).

3.4.1 Combustion Plant Impact

Any on-site combustion plant such as boilers and combined heat and power (CHP) has the potential to impact air quality receptors both on and off-site. Emissions from combustion plant would include NO₂ and possibly also PM₁₀ and PM_{2.5} if diesel is used as a source.

Heating and cooling provision for the development will be electrically sourced and it is understood that there will be no requirement for any standby/back-up generators. Therefore, there are not anticipated to be any emissions associated with combustion plant.

3.4.2 Road Traffic Impacts

The Proposed Development has the potential to impact existing air quality as a result of pollutants from road traffic exhaust emissions, such as NO₂, PM₁₀ and PM_{2.5}, associated with traffic travelling to and from the development during the operation phase.

The EPUK/IAQM guidance³² includes a method for screening the requirement for an air quality assessment, the undertaking of an air quality assessment, the determination of the air quality impact associated with a development proposal and whether this impact is significant. Interpretation of this guidance was used to develop a methodology for the assessment of road impact emissions.

As the site is not located within an AQMA, the EPUK/IAQM guidance³² states the following criteria to establish when an air quality assessment is likely to be considered necessary:

- A change of Light Duty Vehicle (LDV) flows of more than 500 Annual Average Daily Traffic (AADT) movements; and
- A change of Heavy-Duty Vehicle (HDV) flows of more than 100 AADT movements.

It is noted that the Bury AQMA is located approximately 120 m to the east of the Proposed Development, covering areas of the M66.

3.4.3 Human Exposure

Potential exposure of future occupants of the site was considered in accordance with Defra Local Air Quality Management (LAQM) Technical Guidance (TG22)²⁸ and EPUK/IAQM Planning Guidance³². This assessment evaluated the exposure that future occupants or visitors might experience associated with existing baseline conditions, considering the following:

- The background and future baseline air quality, and whether this will be likely to approach, or exceed, the threshold values set by the air quality objectives.
- The presence and location of air quality focus areas as an indicator of local hotspots where the air quality objective thresholds may be exceeded.

- The presence of any heavily trafficked roads, with emissions that could give rise to significantly higher concentrations of pollutants (e.g., NO₂), that would cause unacceptably high exposure for users of the new development; and
- The presence of non-road transport sources that may be significant, such as nearby airports, railway lines with high traffic usage of diesel locomotives³⁸ or coal-fired steam locomotive railway lines.

The current/baseline conditions were established qualitatively by reviewing relevant air quality information that is readily available from the Local Authority, including Annual Status Reports and historic monitoring data. These data were used to understand current/baseline pollutant concentrations at receptors within the study area, and the risk that any changes in air quality may cause exceedance of AQOs at these locations.

³⁸ Defra (2022), Local Air Quality Management Technical Guidance (TG22) - which lists rail lines with a heavy traffic of diesel passenger trains

4.0

Site Description and Baseline Conditions

4.0 Site Description and Baseline Conditions

To assess the significance of any new development proposal (in terms of air quality), it is necessary to identify and understand the baseline air quality conditions in and around the study area. This provides a reference against which any potential changes in air quality can be assessed. Since air quality is predicted to change in the future (mainly because of changes to vehicle emissions), the baseline situation is extrapolated forward to the opening year. The future baseline scenario is the predicted baseline for the opening year.

To identify the existing air quality conditions, a review of publicly available information has been undertaken, including the latest local authority air quality reports, monitoring data, and background concentration maps. This section presents the results of the review.

4.1 Local Air Quality Management

The Environment Act 1995⁷ requires local authorities to review and assess air quality with respect to the objectives for seven pollutants specified in the National Air Quality Strategy. Local authorities are required to carry out an assessment and provide an Annual Status Report (ASR) of their area every year. If the ASR identifies any potential hotspot areas likely to exceed air quality objectives, a detailed assessment of those areas is required. If objectives are not predicted to be met, the local authority must declare the area as an Air Quality Management Area (AQMA). If an AQMA has been declared, the Local Authority will also need to produce an Air Quality Action Plan (AQAP), to include measures to improve air quality in the AQMA.

The Proposed Development is in Unsworth, Bury, and the baseline assessment includes a brief review and summary of the Council's latest LAQM Annual Status Report (ASR).

The Site is not located within an Air Quality Management Area (AQMA), with the nearest approximately 120 m to the east (Bury AQMA, which covers the M66). The location of the Proposed Development in relation to the AQMA boundary is shown in Figure 4-1.



Figure 4-1: Proximity of Proposed Development to Air Quality Management Area (AQMA)

4.1.1 Local Air Quality Monitoring

A review of existing local air quality conditions in the vicinity of the Proposed Development has been undertaken. Automatic and diffusion tube monitors within 2 km of the proposed development have been evaluated as part of this assessment.

4.1.1.1 Automatic Monitoring

Automatic or continuous monitoring involves drawing air through an analyser continuously to obtain near real-time pollutant concentration data. A review of the most recent Greater Manchester ASR³⁶ showed that there is one automatic monitoring stations within 2 km. The location of the automatic monitor is shown in Figure 5-2 and details about the automatic monitoring site is provided in Table 4-1.

Site ID	Site Location	OS Grid Reference		Site Type	Pollutants Monitored	Distance to kerb of nearest road (m)
		x	y			
BURW	Bury Whitefield	380636	406973	Roadside	NO ₂ , PM ₁₀	7

Table 4-1: Details of Automatic Monitoring Sites within 2km

Recent NO₂ monitoring results from 2018 to 2023 are shown in Table 4-2, with numbers of hourly exceedances of 200 µg/m³ indicated in brackets. An exceedance is defined as an annual mean greater than 40 µg/m³ for NO₂, or when the hourly value exceeds 200 µg/m³ more than 18 times within a calendar year.



Figure 4-2: Automatic Monitoring Sites

Site ID	Site Type	Distance from Site (km)	Annual Mean NO ₂ Concentration (µg/m ³)					
			2018	2019	2020	2021	2022	2023
BURW	Roadside	1.4	25 (0)	27 (2)	19 (0)	20 (0)	21 (0)	20 (0)

Table 4-2: Results of Local Air Quality Monitoring at Automatic Sites - Nitrogen Dioxide

These results show that the NO₂ annual mean air quality objective was not exceeded at the roadside site in the period 2018 to 2023. A maximum concentration of 27 µg/m³ was recorded in 2019.

The short-term NO₂ objective was met at the monitoring site during the monitoring period between 2018 and 2023. The number of daily exceedances of 200 µg/m³ have remained below the permissible 18 days per year, with a maximum of 2 days recorded in 2019. The annual averages recorded at the site during this monitoring period have been well below 60 µg/m³, and therefore exceedances of the short-term objective for NO₂ are considered to be unlikely.

Annual mean concentrations of PM₁₀ recorded at the monitoring site within 2 km are shown in Table 5-3, with number of days exceedance shown in brackets. An exceedance is defined as an annual mean greater than 40 µg/m³ for PM₁₀, or when the daily value exceeds 50 µg/m³ more than 35 days within a calendar year.

Site ID	Site Type	Distance from Site (km)	Annual Mean PM ₁₀ Concentration (µg/m ³)					
			2018	2019	2020	2021	2022	2023
BURW	Roadside	1.4	16 (2)	18 (9)	16 (0)	15 (0)	16 (5)	14 (1)

Table 4-3: Results of Local Air Quality Monitoring at Automatic Sites - PM₁₀

Annual mean concentrations of PM₁₀ met the air quality objective (40 µg/m³) in all years. A maximum concentration of 18 µg/m³ was recorded in 2019. The number of daily exceedances of 50 µg/m³ have remained well below the permissible 35 days per year, with a maximum of 9 days recorded in 2019.

There is no local monitoring of PM_{2.5}.

4.1.1.2 Non-Automatic Monitoring

The latest ASR indicates that Bury has 20 diffusion tubes monitoring NO₂, 7 of which are within approximately 2 km of the Proposed Development; all of these are classified as either "Roadside", "Kerbside" or "Urban Background". The locations of the sites within 2 km are shown in Figure 5-2.

Details of the diffusion tubes within 2 km and recent monitoring results are given in Table 5-4 and Table 5-5. An exceedance is defined as an annual mean greater than 40 µg/m³ for NO₂.

Of the 7 diffusion tube monitoring locations within 2 km, two sites exceeded the NO₂ objective (40 µg/m³) in 2019 (BU19NO and BU15NO), and BU15NO again exceeded the objective in 2022 (40.5 µg/m³). All other sites during the period between 2018 and 2023 did not exceed the objective. BU19NO is a roadside site and BU15NO is a kerbside site.

As the western boundary of the Proposed Development borders a minor road, it is anticipated that concentrations at the roadside of the redline boundary may be comparable to those recorded at roadside sites such as the triplicate site BU3ANO, BU3BNO and BU3CNO. The concentration recorded at these sites in 2023 was 18.8-19.7 µg/m³. As these sites are adjacent to an A road and the Proposed Development area borders a minor road, concentrations at the Proposed Development may be lower than those recorded at BU3ANO, BU3BNO and BU3CNO. Due to the distance from the road, the lowest on-site concentrations are anticipated to be in the eastern area of the Proposed Development.

The annual mean NO₂ concentrations recorded at all 5 sites within 2 km between 2018 and 2023 are below 60 µg/m³. Exceedances of the short-term objective are therefore considered to be unlikely.

Site ID	Site Name	OS Grid Reference		Site Type	Distance to kerb of nearest road (m)
		x	y		
BU20NO	BU20	382974	405930	Urban Background	25
BU3CNO	BU3C	380636	406973	Roadside	7
BU3BNO	BU3B	380636	406973	Roadside	7
BU3ANO	BU3A	380636	406973	Roadside	7
BU19NO	BU19	381321	405115	Roadside	12
BU15NO	BU15	380852	405209	Kerbside	0.5
BU5NO	BU5	380497	405420	Roadside	3.5

Table 4-4: Details of Diffusion Tube Monitoring Sites within 2km

Site ID	Site Type	Annual Mean NO ₂ Concentration (µg/m ³)					
		2018	2019	2020	2021	2022	2023
BU20NO	Urban Background	-	-	26.1	28.4	28.8	27.6
BU3CNO	Roadside	26.4	26.1	25.2	19.1	20.9	19.0
BU3BNO	Roadside	26.4	26.1	25.2	19.1	20.9	19.7
BU3ANO	Roadside	26.4	26.1	25.2	19.1	20.9	18.8
BU19NO	Roadside	-	42.1	32.7	33.1	37.7	33.5
BU15NO	Kerbside	-	46.6	34.4	37.4	40.5	36.8
BU5NO	Roadside	28.0	27.0	21.1	20.9	21.0	19.6

Notes: Exceedances of the annual mean air quality objective are indicated in **bold**; no data available

Table 4-5: Diffusion Tube Monitoring Results 2018 to 2023

4.2 Defra's Background Pollutant Concentration Mapping

Background concentrations refer to existing levels of pollution in the atmosphere, as a result of emission from a variety of sources, such as traffic, industrial and agricultural processes. Defra publishes background pollutant mapping³⁹ for every 1 km x 1 km OS grid square across the UK for NO_x, NO₂, PM₁₀ and PM_{2.5}. Background pollutant mapping has been reviewed for the grid square in which the Proposed Development lies and surrounding grid squares. The 2024 (current year) and 2027 (proposed opening year) background concentrations (which are based on 2018 monitoring data) are presented in Table 5-6.

OS Grid Square		Annual Mean Concentration (µg/m ³)							
		NO _x		NO ₂		PM ₁₀		PM _{2.5}	
X	Y	2024	2027	2024	2027	2024	2027	2024	2027
382500	406500	23.5	20.2	16.9	14.8	12.6	12.5	8.1	8.0
382500	407500	20.7	18.1	15.2	13.4	12.6	12.5	8.0	7.9
381500	407500	17.2	15.5	12.8	11.6	11.0	10.8	7.4	7.3
381500	406500	18.9	16.9	13.9	12.6	11.9	11.7	7.9	7.8
Average:		20.1	17.7	14.7	13.1	12.0	11.9	7.9	7.8

Table 4-6: Defra's 2024 and 2027 background concentrations of NO_x, NO₂, PM₁₀ and PM_{2.5}

³⁹ <https://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html>.

Defra background concentrations are all below the air quality objectives for annual mean NO₂, PM₁₀ and PM_{2.5}.

4.3 Local Sources of Transport Pollution

The presence of any heavily trafficked roads, with emissions that could give rise to significantly higher concentrations of pollutants (e.g., NO₂), may cause unacceptably high exposure for users of the new development. The emissions from roads in the area are assumed to be represented in the background concentrations used.

4.4 Local Sources of Industrial Pollution

Industrial air pollution sources are regulated through operating permits or authorisations, which list stringent emission requirements. Regulated industrial processes are classified as either Part A or Part B processes and are regulated through Environmental Permitting (England and Wales) Regulations 2016⁴⁰. The larger, more polluting, Part A processes are regulated by the Environment Agency for emissions to air, water and land. The smaller, less polluting processes are regulated by the local authority for emission to air.

A review of the Environment Agency Pollutant Inventory for 2022³⁵ indicated that there are no Part A permit sites within 1.8 km of the Proposed Development. Therefore, these installations are unlikely to significantly affect ambient air quality in the vicinity of the Proposed Development.

The Part B processes are regulated and reviewed by the Local Authorities and given the nature of these processes, they are unlikely to significantly affect ambient air quality in the vicinity of the Proposed Development. Any emissions from these installations are assumed to be represented in the Defra background concentrations.

The most recent 2023 ASR³⁶ also confirmed that there were no new industrial and other sources identified.

4.5 Sensitive Receptors

Sensitive receptors near the development were identified with reference to mapping data provided by Ordnance Survey. Receptors are illustrated in Figure 5-3 and include receptors within 20m of the red line boundary.

⁴⁰ HMSO (2016) The Environmental Permitting (England and Wales) Regulations 2016, UK Statutory Instrument 2016 No. 1154
<https://www.legislation.gov.uk/uksi/2016/1154/contents/made>



Figure 4-3: Sensitive Receptors

The Site is located within a suburban area. There are residential properties to the north and west, Unsworth Academy to the north-east, and the Cricket and Tennis Club to the south. There is therefore the potential for sensitive receptors to be impacted by the construction and operation of the Proposed Development.

Defra MAGIC mapping⁴¹ has been reviewed to determine the presence of any sensitive ecological sites⁴². There are no designated ecological receptors with 500 m of the Site boundary. Hollins Vale, a local nature reserve, is located approximately 850 m north of the Proposed Development, as illustrated in Figure 5-4.

⁴¹ Department for Environment, Food and Rural Affairs (Defra) (2019). MAGIC <https://magic.defra.gov.uk/MagicMap.aspx>

⁴² Typical ecological receptors of significance include Special Conservation Areas (SCAs), Special Protection Areas (SPAs), Sites of Special Scientific Interest (SSSIs), RAMSAR sites, Local Nature Reserves with dust sensitive features.



Figure 4-4: Sensitive Ecological Sites

5.0

Impact Evaluation

5.0 Impact Evaluation

5.1 Construction Phase Impacts

5.1.1 Need for a Detailed Assessment

An assessment was undertaken as there are 'human receptors' within 250 m of the boundary of the site; and 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).

5.1.2 Dust Emission Magnitude

The dust emission magnitude is based on the scale of the anticipated work and classified as Table 5-1 below. Information listed below has been provided by the project team.

Stage	Project Information	Highest Potential Dust Emission Magnitude
Demolition	- Existing demolition volume <12,000 m³ (8,400 m³) - Potentially dusty construction material includes bricks and blocks. - On-site crushing and screening will take place. - Demolition activities <6 m above ground level (2.5-5 m) - Demolition will take place between January and March 2025	Medium
Earthworks	- Site area is <18,000 m² (6,725 m²) - Moderately dusty soil type (gravel, clay) - Number of heavy earth-moving vehicles active at any one time will be <5. - Formation of bunds <3 m in height	Small
Construction	- Total building volume is 12,000 m³ - 75,000 m³ (13,750 m³) - Potentially dusty construction materials (concrete and brick)	Medium
Trackout	<20 HDV (>3.5 tonnes) outward movements in any one day - Moderately dusty surface material (gravel, clay) - Unpaved road length will be <50 m	Small

Table 5-1: Determination of the potential dust emission magnitude

The highest dust emission magnitude is likely to be medium.

5.1.3 Sensitivity of the Area

The surrounding area has a significant density of sensitive receptors, which have wide range of sensitivities to dust soiling and health effects. The numbers of these receptors likely to be affected by demolition, earthworks and construction activities during the construction phase has been assessed. The analysis involved counting receptors within each of the distance bands from the site boundary (20, 50, 100 and 250m), as illustrated in Figure 5-1. The analysis of sensitive receptors within each distance band is presented in Table 5-2.

Sensitive receptors are also susceptible to dust soiling and health effects resulting from construction vehicle trackout. It is understood that construction traffic will use Parr Lane followed by Pole Lane to access and egress the site. A 250 m distance band has been applied accounting for sensitive receptors 50m from the construction traffic route (Figure 5-2). The analysis of sensitive receptors within each distance band is presented in Table 5-2.

Defra MAGIC mapping⁴¹ has been reviewed to determine the presence of any sensitive ecological sites. There are no designated ecological receptors sensitive to dust within 500 m of the site boundary and therefore the sensitivity of the area to ecological receptors is not applicable.

Potential Impact	Sensitivity of the Area		
	Description	During Demolition, Earthworks and Construction	During Trackout
Dust Soiling	Receptor sensitivity	High	High
	Number of receptors and distance from source	10-100 residential properties 20 m from the site boundary	10-100 residential properties 20 m from the trackout route
	Sensitivity of the Area	High	High
Human Health	Receptor sensitivity	High	High
	Annual mean PM ₁₀ concentration	<24 µg/m ³	<24 µg/m ³
	Number of receptors and distance from source	10-100 residential properties 20 m from the site boundary	10-100 residential properties 20 m from the trackout route
	Sensitivity of the Area	Low	Low
Ecological	Receptor sensitivity	N/A	N/A
	Number of receptors and distance from source	N/A	N/A
	Sensitivity of the Area	N/A	N/A

Table 5-2: Sensitivity of the Area Summary



Figure 5-1: Construction Dust Buffer Zones (courtesy of Google Satellite)

There are 10-100 residential properties 20 m from the Proposed Development boundary. The sensitivity of the area to dust soiling effects on people and property from earthworks and construction activities is therefore **high**. The Defra PM₁₀ background concentration in the area of the Proposed Development is <24 µg/m³. The sensitivity of the area to human health impacts from earthworks and construction activities is therefore **low**.



Figure 5-2: Trackout Buffer Zones (courtesy of Google Satellite)

There are 10-100 residential properties 20 m from the Proposed Development trackout boundary (along roads used by construction traffic within 250 m of the site exit). The sensitivity of the area to dust soiling effects on people and property from trackout activities is therefore **high**. The Defra PM₁₀ background concentration in the area of the Proposed Development is <24 µg/m³. The sensitivity of the area to human health impacts for trackout activities is therefore **low**.

5.1.4 Risk of Impact

The dust emission magnitudes have been combined with the sensitivity of the area to determine the overall risk of dust impacts with no mitigation applied. The risk of impacts for dust soiling and human health for each construction activity are summarised in Table 5-3.

Potential Impact (Sensitivity of the Area)	Dust Risk (Dust Emission Category)				Overall Risk
	Demolition (Medium)	Earthworks (Small)	Construction (Medium)	Trackout (Small)	
Dust Soiling (High)	Medium	Low	Medium	Low	Medium
Human Health (Low)	Low	Negligible	Low	Negligible	Low
Overall Risk	Medium	Low	Medium	Low	Medium

Table 5-3: Risk of Impacts

The assessment has demonstrated that the risk of dust soiling without any mitigation is low for earthworks and trackout and medium for demolition and construction.

The risk of adverse human health effects of PM₁₀ without any mitigation is low for demolition and construction and negligible for earthworks and trackout.

The overall risk of unmitigated impacts is **low** for earthworks and trackout and **medium** for demolition and construction.

5.2 Operation Phase

5.2.1 Road Traffic Impacts

The Transport Planners (SCP) have indicated that the daily trip generation associated with the Proposed Development is estimated to be 138 vehicle movements. As the Proposed Development is therefore unlikely to increase annual average daily traffic flows by greater than 500 vehicles on any road link close to the Proposed Development (or by more than 100 vehicles within the nearest section of AQMA), further assessment of traffic-related impacts was scoped out of the operation phase assessment.

5.2.2 Human Exposure

Local authority monitoring data and Defra background concentrations have been reviewed to inform the on-site human exposure assessment.

Interpretation of the data indicates the following:

- Annual mean NO₂ concentrations recorded by the monitoring sites within 2 km in recent years have shown some exceedances of the annual mean objective, most recently the kerbside site BU15NO in 2022 (40.5 µg/m³). Most sites during the period between 2018 and 2023 did not exceed the objective. As the western boundary of the Site borders is a minor road, it is anticipated that concentrations at the roadside of the redline boundary may be comparable to those recorded at roadside sites such as the triplicate site BU3ANO, BU3BNO and BU3CNO. The concentration recorded at these sites in 2023 was 18.8-19.7 µg/m³. As this site is adjacent to an A road and the Proposed Development area borders a minor road, concentrations at the Proposed Development may be lower than those recorded at the triplicate sites. Defra background concentrations do not exceed the annual mean NO₂ objective (40 µg/m³). It is therefore anticipated that annual mean NO₂ concentrations at the Proposed Development will be below the annual mean objective.
- All monitored NO₂ concentrations have been below 60 µg/m³ since 2018. Exceedance of the national short-term NO₂ objective at the Site is unlikely.
- Exceedances of the annual mean and short-term mean fine particulate matter (PM₁₀) objectives at the Site are unlikely.

- Exceedances of the annual mean fine particulate matter (PM_{2.5}) objective at the Site are unlikely.

As compliance with the air quality objectives is expected at the Proposed Development, on-site human exposure related to the operation phase is predicted to be negligible and therefore not significant.

6.0

Mitigation

6.0 Mitigation

6.1 Construction

The primary aim of the dust risk assessment is to identify the appropriate site-specific mitigation measures that will be adopted to ensure there will be no significant effect on local amenity and public health.

Full details of mitigation measures are presented in Appendix G and have been selected based on the findings of the construction dust assessment (Section 5.1).

The Client will commit to the implementation of the best practice mitigation measures identified above during the construction phase of the development. It is anticipated that the generation of dust and harmful pollutants emissions from construction site activities will be reduced with the correct implementation of these measures.

Measures to control emissions during the construction phase are likely to be included in an Air Quality and Dust Management Plan (AQDMP) or form part of a Construction Environmental Management Plan (CEMP) and a Construction Logistics Plan which conform to the requirements of Bury Council's planning requirements. The document should be approved by Bury Council's Planning Authority and the measures and monitoring protocols are to be implemented throughout the construction phase.

6.2 Operation

It is anticipated that the impact of the operation phase on future site users is likely to be negligible, and therefore no mitigation measures are required.

Table 6-1 shows a comparison between the current AQOs and the updated WHO guidelines⁴³. The update includes Air Quality Guideline (AQG) levels for the pollutants of relevance to this assessment (NO₂, PM₁₀ and PM_{2.5}) which are significantly lower than the previous WHO guidelines. Compliance with WHO recommended guidelines for residential and non-residential elements is considered 'best practice' but is non-mandatory at present, i.e. suitable control can be adopted on an 'as-required' basis.

Pollutant	Averaging Period	Air Quality Objective (AQO) (µg/m ³)	WHO Guidelines (µg/m ³)	
			Interim Target	AQG Level
NO ₂	Annual mean	40	40 to 20	10
NO ₂	24-hour mean	N/A	120 to 50	25
PM ₁₀	Annual mean	40	70 to 20	15
PM ₁₀	24-hour mean	50	150 to 50	45
PM _{2.5}	Annual mean	20	35 to 10	5
PM _{2.5}	24-hour mean	N/A	75 to 25	15

Table 6-1: Comparison of WHO Guidelines with National Air Quality Objectives

Whereas PM_{10/2.5} filtration is unlikely to be required for planning (as it considers exceedances of national air quality objectives), it is recommended to be considered for good practice design (as Building Regulations often consider WHO guidelines which are usually more stringent), see Table 6-1. Consideration should be main for integrating particulate filters into the intakes of the air handling units where this is practicable, to help strive towards achieving the more stringent WHO guideline values.

Under these conditions, it is anticipated that the exposure of future site users to poor air quality will be unlikely, and no additional mitigation measures will be required.

The IAQM have published comprehensive guidance on indoor air quality³⁰. Further consultancy advice on indoor air quality can be provided on request but is not currently a prerequisite for planning applications.

⁴³ World Health Organisation (WHO) (2021) WHO global air quality guidelines, Particulate matter (PM_{2.5} and PM₁₀), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide, <https://apps.who.int/iris/handle/10665/345329>.

6.3 Carbon Management

In order to support of commitment to strive to achieve net zero carbon, tables in Appendix F highlights the recommended approaches to be considered on the project, focussing on construction and operation phases. This includes numerous opportunities for carbon reduction. It is strongly encouraged that the project team consider incorporating as many of the applicable measures as possible, with the aim of advancing towards the net zero carbon goal.

7.0

Residual Effects

7.0 Residual Effects

7.1 Construction

With appropriate mitigation in place, it is considered that the residual effects on dust soiling and human health from the construction phase activities would be reduced and not significant.

The mitigation measures required are detailed in Appendix G and are based upon the IAQM guidance³³. Selection of appropriate mitigation measures should be based on the findings of the construction dust assessment (Section 5.1).

7.2 Operation

Residual effects on human health from operation phase emissions are expected to be negligible.

8.0

Conclusion

8.0 Conclusion

This report presents the Air Quality Assessment for the proposed residential development at the Former Spurr House, Pole Lane, Unsworth. A review of current legislation and national and local policy has been made.

An assessment has been made of existing baseline air quality conditions and potential impacts associated with the construction and operation of the Proposed Development.

The Proposed Development is not located within an Air Quality Management Area (AQMA), with the nearest approximately 120 m to the east (Bury AQMA, which covers the M66). Existing conditions within the study area indicate that there is unlikely potential for nitrogen dioxide (NO₂) and particulate matter (PM₁₀, PM_{2.5}) concentrations in the wider area to exceed the National Air Quality Objective threshold levels.

Emissions of construction dust have been assessed using the qualitative approach outlined in the IAQM guidance. It was concluded that in the absence of any adequate mitigation, there is a medium risk from the demolition and construction and a low risk from the earthworks and trackout dust-generating activities associated with the Proposed Development. However, with appropriate mitigation measures implemented, it is anticipated that the dust generation and harmful emissions from construction site activities will not be significant. An Air Quality Dust Management Plan (AQDMP) will need to be approved by Bury Council's Planning Authority prior to the commencement of any on-site works and to ensure that the measures and monitoring protocols are to be implemented throughout the construction phase.

Operation phase impacts are expected to be negligible. As the Proposed Development is unlikely to increase annual average daily traffic flows by greater than 500 vehicles on any road link close to the Proposed Development (or by more than 100 vehicles within the nearest section of AQMA), further assessment of traffic-related impacts was scoped out of the operation phase assessment.

Heating and cooling provision for the development will be electrically sourced and it is understood that there will be no requirement for any standby/back-up generators. Therefore, there are not anticipated to be any emissions associated with combustion plant.

As compliance with the long and short-term air quality objectives is expected at the Proposed Development, on-site human exposure related to the operation phase is predicted to be negligible and not significant, and therefore no mitigation measures are required. However, consideration should be main for integrating particulate filters into the intakes of the air handling units where this is practicable, to help strive towards achieving the more stringent WHO guideline values.

Overall, it was concluded that with the provision of appropriate mitigation measures, construction activities and operational impacts will have no significant effects on local air quality. The proposals are therefore compliant with the requirements of Bury Council. It can therefore be concluded that there are no air quality constraints to the construction and operation of the Proposed Development.

9.0

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10.0

Glossary

10.0 Glossary

Term/Acronym	Details
$\mu\text{g}/\text{m}^3$	Micrograms (one-millionth of a gram) per cubic metre of air
AADT	Annual average daily traffic
AQAL	Air Quality Assessment Level
AQAP	Air quality action plan
AQMA	Air quality management area. Areas where the air quality objectives are likely to be exceeded. Declared by way of an order issued under the Section 83(1) of the Environment Act 1995.
AQO	Air quality objective. Air quality targets to be achieved locally as set out in the Air Quality Regulations 2000 and subsequent Regulations. Objectives are expressed as pollution concentrations over certain exposure periods, which should be achieved by a specific target date. Some objectives are based on long term exposure (e.g. annual averages), with some based on short term objectives. Objectives only apply where a member of the public may be exposed to pollution over the relevant averaging time.
AQS	Air quality strategy
ASR	Annual status report
Defra	Department for Environment, Food and Rural Affairs
EA	Environment Agency
Earthworks	The process of soil stripping, ground-levelling, excavation and landscaping.
Eft	Emission Factor Toolkit
EU	European union
Exceedance	Concentrations of a specified air pollutant greater than the appropriate Air Quality Objective.
HDV	Heavy duty vehicle
IAQM	Institute of Air Quality Management
LA	Local authority
LAQM	Local air quality management
LAQM, TG	Local air quality management technical guidance
LDV	Light duty vehicle
Limit Values / EU limit values	The maximum pollutant levels set out in the EU Daughter Directives on Air Quality. In some cases, the limit values are the same as the national air quality objective but may allow a longer period for achieving.
LT	Long-term averaging period (i.e. Annual mean)
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
NPPF	National Planning Policy Framework
PCM	Pollution climate model
PM_{10}	The fraction of particulates in air of very small size (less than 10 micrometres).
$\text{PM}_{2.5}$	Fine particles in the (ambient) air 2.5 micrometres or less in size.
Ramsar/ Ramsar site	The Convention on Wetlands of International Importance, called the Ramsar Convention is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. Ramsar sites are wetlands of international importance, designated under the Ramsar Convention.
SAC/ pSAC/ cSAC	Special area of conservation / potential SAC / candidate SAC
SPA / pSPA	Special protection area / potential special protection area
SPG	Supplementary planning guidance
SSSI	Site of special scientific interest

Term/Acronym	Details
ST	Short-term averaging period (i.e. Daily, hourly, or 15-min means)
TC	Transport Consultant
TEMPRO	Trip End Model Presentation Program
TP	Travel Plan
Trackout	The transfer of dust or dirt on the local road network and then re-suspended by vehicles on the network.
TS	Transport Statement

Table 10-1: Glossary

Appendices

Appendix A – Air Quality Assessment Authors

Author: **Annie Trevis**

Annie is a Senior Consultant in Cundall's Air Quality Team. She has 6 years' experience working in Air Quality and has previously worked in one other private consultancy. She is a Full Member of the Institution of Environmental Sciences and the Institute of Air Quality Management.

She is experienced in undertaking air quality assessments for a range of developments in numerous sectors, including air quality chapters for Environmental Impact Assessments. She is also fully conversant with atmospheric dispersion modelling through the use of ADMS and AERMOD software as part of more detailed air quality assessments.

She has completed air quality and dust management plans for a variety of developments. She has undertaken and been the project manager for numerous dust and air quality monitoring programs for a wide range of projects across the UK, Denmark and Germany.



Reviewer: **Jenny Carrington**

Jenny Carrington is a Chartered Scientist (CSci) and is based in Birmingham, where she works as an Associate Air Quality Consultant. Jenny is a Member of the Institute of Air Quality Management (IAQM) and the Institution of Environmental Sciences (IES) and an Affiliate member of the Chartered Institution of Building Services (CIBSE).

Jenny has seventeen years' experience working in the environmental sector for a range of both public and private clients. She is responsible for undertaking air quality assessments and is fully conversant with atmospheric dispersion modelling through the use of ADMS software as part of more detailed air quality assessments. She also has responsibility for managing air quality monitoring programs.

In her role as an environmental specialist Jenny has worked on a range of multi-disciplinary projects often fulfilling the role of project manager in coordinating third parties to enable a successful completion of the project. She is experienced in producing air quality chapters for Environmental Statements for a range of different developments and has previously reviewed Environmental Statement's on behalf of Local Authorities.



Reviewer: **Glyn Hodgkiss**

Glyn is an Associate Consultant in Cundall's Air Quality Team. He has 30 years' experience working in the environmental field and has specialised in Air Quality for over 15 years. He is a Chartered Environmentalist and Member of the Institute of Air Quality Management.

Working in both the private and public sectors, Glyn has gained extensive experience in monitoring and modelling air quality. His role in Local Government included air quality action planning, working with developers to minimise air quality impacts of new development, working on regional planning policy initiatives and on the delivery of government funded air quality improvement programs. He has also worked in private sector consultancy on the delivery of multiple air quality assessments ranging from small, single source dispersion modelling studies through to complex multi-source assessments and major road and infrastructure projects. This work has provided valuable support in the design, planning, construction and operation of new developments.

Glyn has a pedigree in collaborative working, bringing together the expertise of Cundall alongside other consultants and stakeholders to promote smooth project progression from inception to conclusion.



Appendix B – Consultation with Bury Council

From: Annie Trevis <a.trevis@cundall.com>
Sent: Wednesday, October 9, 2024 10:15 AM
To: C.Horth@bury.gov.uk
Subject: Air Quality Consultation - Former Spurr House

Hi Chris,

I hope you don't mind but I found your email in the latest Greater Manchester Air Quality ASR. Please forward this on to someone if needed.

Cundall are preparing the air quality assessment for the proposed residential development at the Former Spurr House, Pole Lane, Unsworth. The Site is not located within an Air Quality Management Area (AQMA), with the nearest approximately 120 m to the east (Bury AQMA, which covers the M66). The Site extends to approximately 0.67ha. The red line is shown below.



We propose the following scope of works for the Air Quality Assessment:

- Examination of project plans, online maps and aerial photographs.
- A review of legislation, national, regional and local policy and planning guidance related to air quality, including the recent Places for Everyone.
- Baseline assessment to establish likely air quality conditions in the vicinity of the Site. This will include consideration of pollutant concentrations taken from Defra's latest background pollution maps and Local Authority monitoring data as appropriate and available, and also a review of surrounding industrial activities which may impact on the Site.
- Assessment of construction phase impacts in accordance with the 2024 Institute of Air Quality Management (IAQM) guidance.
- Screening for the need for a detailed dispersion modelling assessment of operational traffic related impacts in accordance with the land-use planning guidance published by Environmental Protection UK (EPUK)/Institute of Air Quality Management (IAQM). The transport consultant has advised that the development will generate 138 daily vehicle movements, as this is below the 500 AADT threshold for a detailed assessment (and a negligible number of these vehicles are anticipated to enter the nearest AQMA), we are not proposing to carry out any detailed dispersion modelling. Please advise if you disagree.
- The proposed development does not include any significant combustion sources. Given this, we propose to scope out any further detailed assessment of combustion plant emissions.
- Recommendation of relevant mitigation measures, as required, in line with IAQM/EPUK guidance and other relevant planning guidance.
- Provision of an Air Quality Assessment Report.

If you have any questions or disagree with any elements of the proposed scope, please let me know, thank you.

Kind regards,

Annie Trevis

Senior Air Quality Consultant

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Appendix C – IAQM Construction Assessment Methodology

Screening (Step 1)

As 'human receptors' were identified within 250 m of the boundary of the site; and within 50 m of the route(s) to be used by construction vehicles on the public highway, up to 250 m from the site entrance, a detailed risk assessment was undertaken.

Dust Emission (Step 2A)

The potential dust emission magnitude for different activities have been defined based on the criteria listed in Table C-1.

Stage	Description	Large	Medium	Small
Demolition	Definitions for demolition are:	1. Total building volume >75,000 m ³ 2. Potentially dusty construction material (e.g. concrete) 3. On-site crushing and screening 4. Demolition activities >12 m above ground level	5. Total building volume 12,000 m ³ – 75,000 m ³ 6. Potentially dusty construction material (e.g. concrete) 7. Demolition activities 6 – 12 m above ground level	8. Total building volume <12,000 m ³ 9. Construction material with low potential for dust release (e.g. metal cladding or timber) 10. Demolition activities <6 m above ground, demolition during wetter months
Earthworks	Earthworks will primarily involve excavating material, haulage, tipping, and stockpiling. This may also involve levelling the site and landscaping.	11. Total site area >110,000 m ² 12. Potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size) 13. >10 heavy earth moving vehicles active at any one-time formation of bunds >6 m in height	14. Total site area 18,000 m ² – 110,000 m ² 15. Moderately dusty soil type (e.g. silt) 16. 5-10 heavy earth moving vehicles active at any one-time formation of bunds 3 m – 6 m in height	17. Total site area <18,000 m ² 18. Soil type with large grain size (e.g. sand) 19. <5 heavy earth moving vehicles active at any one-time formation of bunds <3 m in height
Construction	The key issues when determining the potential dust emission magnitude during the construction phase include the size of the building(s) / infrastructure, method of construction, construction materials, and duration of build.	20. Total building volume >75,000 m ³ 21. On-site concrete batching and sandblasting	22. Total building volume 12,000 m ³ – 75,000 m ³ 23. Potentially dusty construction material (e.g. concrete) 24. On-site concrete batching	25. Total building volume <12,000 m ³ 26. Construction material with low potential for dust release (e.g. metal cladding or timber)

Stage	Description	Large	Medium	Small
Trackout	Factors which determine the dust emission magnitude are vehicle size, vehicle speed, vehicle numbers, geology, and duration. As with all other potential sources, professional judgement must be applied when classifying trackout into one of the dust emission magnitude categories.	27. >50 HDV (>3.5 tonnes) outward movements in any one day 28. Potentially dusty surface material (e.g. high clay content) 29. Unpaved road length >100 m	30. 20-50 HDV (>3.5 tonnes) outward movements in any one day 31. Moderately dusty surface material (e.g. high clay content) 32. Unpaved road length 50 m – 100 m	33. <20 HDV (>3.5 tonnes) outward movements in any one day 34. Surface material with low potential for dust release 35. Unpaved road length <50 m

Table C-1: Potential Dust Emission Magnitude Criteria

Sensitivity of the Area (Step 2B)

The sensitivity of the area takes account of several factors:

1. The specific sensitivities of receptors in the area;
2. The proximity and number of those receptors;
3. In the case of PM₁₀, the local background concentration; and
4. Site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of wind-blown dust.

Table C-2 provides guidance on the sensitivity of different types of receptor.

Description	High Sensitivity Receptor	Medium Sensitivity Receptor	Low Sensitivity Receptor
Sensitivities of People to Dust Soiling Effects	1. Users can reasonably expect enjoyment of a high level of amenity. 2. The appearance, aesthetics, or value of their property would be diminished by soiling. 3. The people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land 4. Indicative examples include dwellings, museums, and other culturally important collections, medium, and long-term car parks, and car showrooms	5. Users would expect a to enjoy a reasonable level of amenity but would not reasonably expect a to enjoy the same level of amenity as in their home. 6. The appearance, aesthetics, or value of their property could be diminished by soiling. 7. The people or property wouldn't reasonably be expected a to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land. 8. Indicative examples include parks and places of work	9. The enjoyment of amenity would not reasonably be expected; or 10. Property would not reasonably be expected a to be diminished in appearance, aesthetics, or value by soiling. 11. There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land. 12. Indicative examples include playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short-term car parks, and roads

Description	High Sensitivity Receptor	Medium Sensitivity Receptor	Low Sensitivity Receptor
Sensitivities of People to the Health Effects of PM₁₀	13. Locations where members of the public are exposed over a time period relevant to the air quality objective for PM₁₀ (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day) 14. Indicative examples include residential properties. Hospitals, schools, and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment	15. Locations where the people exposed are workers d, and exposure is over a time period relevant to the air quality objective for PM₁₀ (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day). 16. Indicative examples include office and shop workers but will generally not include workers occupationally exposed to PM₁₀, as protection is covered by Health and Safety at Work legislation	17. Locations where human exposure is transient. 18. Indicative examples include public footpaths, playing fields, parks, and shopping streets
Sensitivities of Receptors to Ecological Effects	19. Locations with an international or national designation and the designated features may be affected by dust soiling. 20. Locations where there is a community of a particularly dust sensitive species such as vascular species included in the Red Data List for Great Britain 21. Indicative examples include a Special Area of Conservation designated for acid heathlands or a local site designated for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings	22. Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown. 23. Locations with a National designation where the features may be affected by dust deposition. 24. Indicative example is a Site of Special Scientific Interest with dust sensitive features	25. Locations with a local designation where the features may be affected by dust deposition. 26. Indicative example is a local Nature Reserve with dust sensitive features

Table C-2: Sensitivities of People to Dust Soiling Effects, Health Effects of PM₁₀, and Sensitivities of Receptors to Ecological Effects

Full details of the sensitivities of receptors are provided in the IAQM Guidance document.

Table C-3, Table C-4, and Table C-5 show how the sensitivity of the area has been determined for dust soiling, human-health, and ecosystem impacts respectively.

These tables take account of several factors which may influence the sensitivity of the area. The highest level of sensitivity from each table has been recorded.

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table C-3: Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Annual Mean PM ₁₀ Concentration (µg/m ³)	Number of Receptors ^d	Distance from the Source (m)			
			<20	<50	<100	<250
High	>32	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28-32	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24-28	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	>32	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28-32	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	24-28	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	<24	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	-	≥1	Low	Low	Low	Low

Table C-4: Sensitivity of the Area to Human-Health Impacts

Sensitivity of Area	Distance from the Source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Table C-5: Sensitivity of the Area to Ecological Impact

The highest level of sensitivity from each table has been recorded. Professional judgement has been used to determine alternative sensitivity categories with consideration of additional factors, such as any pre-existing screening between the source and the receptors, the season during which the works will take place, and duration of the potential impact.

Risk of Impact Definition

The dust emission magnitude (Step 2A) was combined with the sensitivity of the area (Step 2B) to determine the risk of impact with no mitigation applied. Tables C-6 to C-9 provide the method of assigning the level of risk of each activity and used to determine the level of site-specific mitigation.

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High risk	Medium risk	Medium risk
Medium	High risk	Medium risk	Low risk
Low	Medium risk	Low risk	Negligible

Table C-6 Risk of Impact – Demolition

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High risk	Medium risk	Low risk
Medium	Medium risk	Medium risk	Low risk
Low	Low risk	Low risk	Negligible

Table C-7: Risk of Impact – Earthworks

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High risk	Medium risk	Low risk
Medium	Medium risk	Medium risk	Low risk
Low	Low risk	Low risk	Negligible

Table C-8: Risk of Impact – Construction

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High risk	Medium risk	Low risk
Medium	Medium risk	Medium risk	Low risk
Low	Low risk	Low risk	Negligible

Table C-9: Risk of Impact – Trackout

Appendix D – EPUK/IAQM Local Air Quality Assessment Screening Criteria

Comparison Against EPUK/IAQM Criteria

EPUK/IAQM's guidance note 'Land-Use Planning & Development Control: Planning for Air Quality' (updated in January 2017)³² was issued to ensure that air quality is adequately considered in the land-use planning and developmental control process.

It provides a decision-making process which assists with the understanding of air quality impacts and implications because of development proposals. It provides a framework for air quality considerations within local development control processes, promoting a consistent approach to the treatment of air quality issues within development control decisions.

The guidance includes a method for screening the requirement for an air quality assessment, the undertaking of an air quality assessment, the determination of the air quality impact associated with a development proposal and whether this impact is significant.

The guidance also provides some clarification as to when air quality constitutes a material consideration and highlights the links to other relevant issues (for example traffic speed reduction measure and the use of alternative technology to provide energy) and the importance of the understanding of these with the input from other discipline specialists. The 'creeping baseline' is another issue raised about cumulative impacts.

The guidance note is widely accepted as the most appropriate reference method for this purpose. This guidance refers to the Town and Country Planning (Development Management Procedure) Order (England) 2010 [(Wales) 2012] definition of a 'major' development when scoping assessments required for the planning process.

A 'major' development includes developments where:

- The number of dwellings is 10 or above;
- The residential development is carried out on a site of more than 0.5ha where the number of dwellings is unknown;
- The provision of more than 1,000 m² commercial floor space; or,
- Development carried out on land of 1 ha or more.

There are two types of air quality impacts to be considered:

- The impact of existing sources in the local area on the Proposed Development (governed by background pollutant levels and proximity to sources of air pollution); and,
- The impacts of the Proposed Development on the local area.

Regarding the changes in air quality or exposure to air pollution, the guidance indicates that each local authority will be likely to have their own view on the significance of this; these are to be described in relation to whether a National Air Quality Objective (NAQO) predicted to be met, or at risk of not being met. Exceedances of these objectives are considered as significant, if not mitigated.

As part of the impact of the Proposed Development on the local area, a two-staged assessment is recommended as per current guidance.

Stage 1: Determines whether an air quality assessment is required. In order to proceed to Stage 2, it requires any of the criteria under (A) coupled with any of the criteria under (B) in Table D-1 to apply.

Stage 2: Where an assessment is deemed appropriate, this may take the form of a Simple Assessment or a Detailed Assessment, using suitable guidance provided in Table D-2.

Criteria to Proceed to Stage 2
A. If any of the following apply: 10 or more residential units of a site area of more than 0.5ha - More than 1,000 m² of floor space for all other uses or a site area greater than 1ha
B. Coupled with any of the following: - The development has more than 10 parking spaces - The development will have a centralised energy facility or other centralised combustion process Note: Consideration should still 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.

Table D-1: Stage 1 Criteria

The Development will	Indicative Criteria to Proceed to an Air Quality Assessment
1. Cause a significant change in Light Duty Vehicle (LDV) traffic flows on local roads with relevant receptors. (LDV = cars and small vans <3.5t gross vehicle weight).	A change of LDV flows of: - More than 100 AADT within or adjacent to an Air Quality Management Area (AQMA) - More than 500 AADT elsewhere.
2. Cause a significant change in Heavy Duty Vehicle (HDV) flows on local roads with relevant receptors. (HDV = goods vehicles + buses >3.5t gross vehicle weight).	A Change of HDV flows of: - More than 25 AADT within or adjacent to an AQMA - More than 100 AADT elsewhere.
3. Realign roads, i.e. changing the proximity of receptors to traffic lanes.	Where the change is 5m or more and the road is within an AQMA
4. Introduce a new junction or remove an existing junction near to relevant receptors.	Applies to junctions that cause traffic to significantly change vehicle accelerate/decelerate, e.g. Traffic lights, or roundabouts.
5. Introduce or change a bus station.	Where bus flows will change by: - More than 25 AADT within or adjacent to an AQMA - More than 100 AADT elsewhere.
6. Have an underground car park with extraction system.	The ventilation extract for the car park will be within 20 m of a relevant receptor. Coupled with the car park having more than 100 movements per day (total in and out).
7. Have one or more substantial combustion processes, where there is a risk of impacts at relevant receptors. NB. this includes combustion plant associated with standby emergency generators (typically associated with centralised energy centres) and shipping.	Typically, any combustion plant where the single or combined NO_x emission rate is less than 5 mg/sec is unlikely to give rise to impacts, provided that the emissions are released from a vent or stack in a location and at a height that provides adequate dispersion. In situations where the emissions are released close to buildings with relevant receptors, or where the dispersion of the plume may be adversely affected by the size and/or height of adjacent buildings (including situations where the stack height is lower than the receptor) then consideration will need to be given to potential impacts at much lower emission rates. Conversely, where existing NO₂ concentrations are low, and where the dispersion conditions are favourable, a much higher emission rate may be acceptable.

Table D-2: Indicative Criteria for Requiring an Air Quality Assessment

Impact Descriptors for Individual Receptors

The EPUK/IAQM guidance contains a two Stage process for determining the likely significant effects of the impacts on air quality:

- A qualitative or quantitative description of the impacts on local air quality arising from the development; and
- A judgement on the overall significance of the effects of any impacts.

A framework for describing the impacts is set out in EPUK/IAQM guidance and summarised in Table D-3 below.

Long-term average concentration at receptor in assessment year	% Change in concentration relative to Air Quality Assessment Level (AQAL)			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76 – 94% of AQAL	Negligible	Slight	Moderate	Moderate
95 – 102% of AQAL	Slight	Moderate	Moderate	Substantial
103 – 109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

Table D-3: Indicative Criteria for Requiring an Air Quality Assessment

For air quality impacts arising from surrounding sources on new occupants of a development, then the impacts are best described in relation to whether an air quality objective will not be met or is at risk of not being met. 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 provisions is made to reduce their exposure by some means.

Changes of less than 0.5%, will be described as Negligible.

Appendix E – Results of Screening Assessment

Where the Development will:	Indicative Criteria to Proceed to an Air Quality Assessment	Information Relevant to the Proposed Development
1. Cause a significant change in Light Duty Vehicle (LDV) traffic slows on local roads with relevant receptors.	EPUK/IAQM Guidance states a change of LDV flows of: - More than 100 AADT within or adjacent to an Air Quality Management Area (AQMA) - More than 500 AADT elsewhere.	The development will generate less than 500 daily vehicle trips, therefore further assessment of increased transport emissions on nearby receptors was scoped out.
2. Cause a significant change in Heavy Duty Vehicle (HDV) flows on local roads with relevant receptors.	A Change of HDV flows of: - More than 25 AADT within or adjacent to an AQMA - More than 100 AADT elsewhere.	No increase in HDV flows is predicted.
3. Realign roads, i.e. changing the proximity of receptors to traffic lanes.	Where the change is 5m or more and the road is within an AQMA	No realignment of >5m proposed
4. Introduce a new junction or remove an existing junction near to relevant receptors.	Applies to junctions that cause traffic to significantly change vehicle accelerate/decelerate, e.g. Traffic lights, or roundabouts.	No new junctions proposed
5. Introduce or change a bus station.	Where bus flows will change by: - More than 25 AADT within or adjacent to an AQMA - More than 100 AADT elsewhere.	No bus station proposed
6. Have an underground car park with extraction system.	The ventilation extract for the car park will be within 20 m of a relevant receptor. Coupled with the car park having more than 100 movements per day (total in and out).	No underground car parking proposed
7. Have one or more substantial combustion processes, where there is a risk of impacts at relevant receptors.	Typically, any combustion plant where the single or combined NO _x emission rate is less than 5 mg/sec is unlikely to give rise to impacts, provided that the emissions are released from a vent or stack in a location and at a height that provides adequate dispersion.	Heating and cooling provision for the development will be electrically sourced and it is understood that there will be no requirement for any standby/back-up generators. Therefore, there are not anticipated to be any emissions associated with combustion plant.

Table E-1: Indicative Criteria for Requiring a Detailed Air Quality Assessment

Appendix F – Carbon Reduction Opportunities

In order to support of commitment to strive to achieve net zero carbon, the following tables highlight the recommended approaches to be considered on the project, focussing on construction and operation phases. This includes numerous opportunities for carbon reduction. It is strongly encouraged that the project team consider incorporating as many of the applicable measures as possible, with the aim of advancing towards the net zero carbon goal.

Construction phase

Component	Initiative	Impact / Benefit
Site management	Production of carbon management plans where applicable, including an outlined approach for the monitoring and reporting of site activities that contribute to carbon emissions.	Increases awareness and focus on management with a view to reduce emissions
Construction vehicles emissions	- Consider geographic proximity when sourcing materials to reduce distance needed to be travelled. - Advocate water delivery where feasible (such as Rover Thames London schemes) - Advocate freight consolidation centres where practicable.	Reduce emission from construction vehicles
Emissions from non-road mobile machinery (NRMM)	- Promote requirements for more sustainable non road mobile machinery (NRMM) - Ensure NRMM comply with regulatory requirements as a minimum. - Consider use of alternative fuel or fully electric plant	Reduce emissions from NRMM
Energy use	- Identify measures to reduce carbon emissions and energy use during the construction phase. - Identify renewable/low emission sources of energy for construction buildings/compounds .	Reduce emission from construction site
Construction materials	Promote reuse of materials used during the construction phase	Reduced carbon footprint associated with materials
On-site emissions	Encourage use of prefabricated materials to minimise on site processes	Potential to reduce emissions from on-site processes
Utilities installation	Selection of cable routing based on lowest carbon impacts	Potential to reduce carbon emissions and earthworks/installation area.

Operation phase

Component	Initiative	Impact / Benefit
Heating and cooling strategy	All electric strategy, such as ground source (GSHP) or air source heat pumps (ASHP) and/or photovoltaics	Reduce GHG emissions as well as particulates and nitrogen oxides
	Where standby generators are required: - Low NOx solutions for where combustion plant is needed, such as permanent standby or life safety generators. - Look at cleaner technologies (e.g HS2 – Clean air gas engines. Developed by OakTec, LPG is used instead of diesel) Other option includes hydrogenated vegetable oil as fuel. - Innovative combination of renewables and Battery Energy Storage Systems (BESS). https://electricalreview.co.uk/2023/05/03/goodbye-to-diesel-generators-its-time-for-clean-backup-power/	Reduce GHG emissions as well as particulates and nitrogen oxides
Ventilation	Increased natural ventilation where feasible or option to revert to natural ventilation as ambient air quality improves	Potential to reduce operation energy usage via reduced mechanical ventilation needs
Green infrastructure	- Promoting green buffer zones to help separate receptors from sources of air pollution. - Needs to be informed addition as inappropriate placement of GI could result in worst case local air quality	- Reduced exposure to pollutants as result of increase separation between sources and receptors - Potential for carbon capture through photosynthesis of GI
Access to public transport	- Development to be well linked to public transport. - Site specific travel plans	Potential to reduce traffic emissions by promoting/enabling use of public transport
Car parking	- Promote requirements for electric charging infrastructure and compliance. - Ensure compliance with regulatory requirements, such as local policy relating to sustainable masterplanning.	Potential to reduce traffic emissions by promoting/enabling use of electric vehicles
Cycle / walking infrastructure	Promoting the need for cycle and walking infrastructure, including powered two wheelers -	Potential to reduce traffic emissions by promoting/enabling cycling
Connectivity	- Incorporation of broadband networks for supporting home working - Inclusion of community workspaces with internet connectivity	Potential to reduce air quality/carbon emissions by reducing commuter journeys.
Materials and finishes	Explore products made from recyclable materials, recyclable, requiring low maintenance which have low or minimal volatile organic compound (VOC) content.	Reduced carbon footprint associated with materials, as well as low toxicity.
Indoor plants	Inclusion of indoor plants in the finished furnished building	Potential to reduce cooling demands though cooling impact of plants

Appendix G – Mitigation Measures for Construction

Key to tables:

H Highly recommended

D Desirable

N Not required

Mitigation for all sites: Communications	Low Risk	Medium Risk	High Risk
1. Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.	N	H	H
2. 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.	H	H	H
3. Display the head or regional office contact information.	H	H	H
4. Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. In London additional measures may be required to ensure compliance with the Mayor of London's guidance. The DMP may include monitoring of dust deposition, dust flux, realtime PM ₁₀ continuous monitoring and/or visual inspections.	D	H	H
Site Management			
5. 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.	H	H	H
6. Make the complaints log available to the local authority when asked.	H	H	H
7. Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book.	H	H	H
8. Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.	N	N	H
Monitoring			
9. 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 100 m of site boundary, with cleaning to be provided if necessary.	D	D	H
10. Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.	H	H	H
11. 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.	H	H	H
12. Agree dust deposition, dust flux, or real-time PM ₁₀ continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.	H	H	H

Mitigation for all sites: Communications	Low Risk	Medium Risk	High Risk
Preparing and maintaining the site			
13. Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.	H	H	H
14. Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.	H	H	H
15. Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.	D	H	H
16. Avoid site runoff of water or mud.	H	H	H
17. Keep site fencing, barriers and scaffolding clean using wet methods.	D	H	H
18. 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.	D	H	H
19. Cover, seed or fence stockpiles to prevent wind whipping.	D	H	H
Operating vehicle/machinery and sustainable travel			
21. Ensure all vehicles switch off engines when stationary - no idling vehicles.	H	H	H
22. Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.	H	H	H
23. Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph 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).	D	D	H
24. Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.	N	N	H
25. Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).	N	D	H
Operations			
26. 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.	H	H	H
27. Ensure an adequate water supply on the site for effective dust/particulate matter suppression/ mitigation, using non-potable water where possible and appropriate	H	H	H
28. Use enclosed chutes and conveyors and covered skips.	H	H	H
29. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.	H	H	H
30. 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.	D	H	H
Waste management			
31. Avoid bonfires and burning of waste materials.	H	H	H

Table G-1: Mitigation for all sites: Communication

Measures specific to demolition	Low Risk	Medium Risk	High Risk
32. Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).	D	D	H
33. 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.	H	H	H
34. Avoid explosive blasting, using appropriate manual or mechanical alternatives.	H	H	H
35. Bag and remove any biological debris or damp down such material before demolition.	H	H	H

Table G-2: Measures specific to demolition

Measures specific to earthworks	Low Risk	Medium Risk	High Risk
36. Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.	N	D	H
37. Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.	N	D	H
38. Only remove the cover in small areas during work and not all at once.	N	D	H

Table G-3: Measures specific to earthworks

Measures specific to construction	Low Risk	Medium Risk	High Risk
39. Avoid scabbling (roughening of concrete surfaces) if possible.	D	D	H
40. 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.	D	H	H
41. 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.	N	D	H
42. For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.	N	D	D

Table G-4: Measures specific to construction

Measures specific to trackout	Low Risk	Medium Risk	High Risk
43. 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.	D	H	H
44. Avoid dry sweeping of large areas.	D	H	H
45. Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.	D	H	H
46. Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.	N	H	H
47. Record all inspections of haul routes and any subsequent action in a site log book.	D	H	H
48. Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.	N	H	H

Measures specific to trackout	Low Risk	Medium Risk	High Risk
49. Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	D	H	H
50. 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.	N	H	H
51. Access gates to be located at least 10 m from receptors where possible.	N	H	H

Table G-5: Measures specific to trackout

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