Air Quality Assessment

Varley Street, Manchester

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Executive Summary

Redmore Environmental Ltd was commissioned by Jigsaw Homes North to undertake an Air Quality Assessment in support of a residential development at Varley Street, Manchester.

An Air Quality Assessment was undertaken to:

- Assess potential impacts associated with fugitive dust emissions during the construction phase of the proposed development;
- Assess potential impacts associated with road transport emissions during the operational phase of the proposed development;
- Assess risk of future resident exposure to any existing air quality issues; and,
- Identify any requirement for relevant mitigation measures.

Potential construction phase air quality impacts from fugitive dust emissions were assessed as a result of demolition, earthworks, construction and trackout activities. It is considered that the use of the identified site-specific control measures would provide suitable mitigation for a development of this size and nature and reduce potential impacts to an acceptable level.

Potential impacts during the operational phase of the proposals may occur due to road traffic exhaust emissions associated with vehicles travelling to and from the development. These were assessed using standard screening criteria. Due to the scale of the proposed development, road traffic exhaust emission impacts were not predicted to be significant.

The potential for exposure of future residents to elevated pollution levels was assessed based on the findings of a desk top study. This indicated that pollutant concentrations are likely to be below the relevant criteria at the development location. As such, the site is considered suitable for the proposed use from an air quality perspective.

Based on the assessment results, air quality factors are not considered a constraint to the development.

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1.0 INTRODUCTION

1.1 Instruction

1.1.1 Redmore Environmental Ltd was commissioned by Jigsaw Homes North to undertake an Air Quality Assessment in support of a residential development at Varley Street, Manchester.

1.2 Site Location and Context

1.2.1 The site is located at land off Varley Street, Manchester, at approximate National Grid Reference (NGR): 385814, 399617. The relevant Local Authority (LA) is Manchester City Council (MCC). Reference should be made to Figure 1 for a map of the site and surrounding area.

1.2.2 The proposals include the demolition of the existing structure onsite and development of 32 residential apartments, with associated parking.

1.3 Assessment Scope

1.3.1 The proposals have the potential to cause air quality impacts during construction and operation. As such, an Air Quality Assessment was undertaken to:

- Assess potential impacts associated with fugitive dust emissions during the construction phase of the development;
- Assess potential impacts associated with road transport emissions during the operational phase of the development;
- Assess risk of future resident exposure to any existing air quality issues; and,
- Identify any requirement for relevant mitigation measures.

1.3.2 This is detailed in the following report.

2.0 LEGISLATION AND POLICY

2.1 Legislation

2.1.1 The Air Quality Standards Regulations (2010) and subsequent amendments include Air Quality Limit Values (AQLVs) for the following pollutants:

- Nitrogen dioxide (NO_2);
- Sulphur dioxide;
- Lead;
- Particulate matter with an aerodynamic diameter of less than 10µm (PM_{10});
- Particulate matter with an aerodynamic diameter of less than 2.5µm ($PM_{2.5}$);
- Benzene; and,
- Carbon monoxide.

2.1.2 Air Quality Target Values were also provided for several additional pollutants. It should be noted that the AQLV for $PM_{2.5}$ stated in the Air Quality Standards Regulations (2010) was amended in the Environment (Miscellaneous Amendments) (EU Exit) Regulations (2020).

2.1.3 The Air Quality Strategy (AQS) was produced by the Department for Environment, Food and Rural Affairs (DEFRA) and published on 28th April 2023[1]. The document contains standards, objectives and measures for improving ambient air quality, including a number of Air Quality Objectives (AQOs). These are maximum ambient pollutant concentrations that are not to be exceeded either without exception or with a permitted number of exceedences over a specified timescale. These are generally in line with the AQLVs, although the requirements for the determination of compliance vary.

2.1.4 The Environmental Improvement Plan 2023[2] was published in January 2023, providing long term and Interim Targets in order to reduce population exposure to $PM_{2.5}$. The Concentration Target for 2040 was subsequently adopted in the Environmental Targets (Fine Particulate Matter) (England) Regulations (2023).

[1] The AQS: Framework for Local Authority Delivery, DEFRA, 2023.

[2] Environmental Improvement Plan 2023, DEFRA, 2023.

2.1.5 Table 1 presents the AQOs, Interim Target and Concentration Target for pollutants considered within this assessment.

Table 1 Air Quality Objectives/ Interim Target/ Concentration Target

Pollutant	Air Quality Objective/Interim Target/Concentration Target	
	Concentration (µg/m³)	Averaging Period
NO_2	40	Annual mean
	200	1-hour mean, not to be exceeded on more than 18 occasions per annum
PM_{10}	40	Annual mean
	50	24-hour mean, not to be exceeded on more than 35 occasions per annum
$PM_{2.5}$	12(a)	Annual mean
	10(b)	Annual mean

Note: (a) Interim Target to be achieved by end of January 2028.
(b) Concentration Target to be achieved by 2040.

2.1.6 Table 2 summarises the advice provided in DEFRA guidance[3] on where the AQOs for pollutants considered within this report apply.

Table 2 Examples of Where the Air Quality Objectives Apply

Averaging Period	Objective Should Apply At	Objective Should Not Apply At
Annual mean	All locations where members of the public might be regularly exposed Building façades of residential properties, schools, hospitals, care homes etc.	Building façades of offices or other places of work where members of the public do not have regular access Hotels, unless people live there as their permanent residence Gardens of residential properties Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term

3 Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

Averaging Period	Objective Should Apply At	Objective Should Not Apply At
24-hour mean	All locations where the annual mean objective would apply, together with hotels Gardens of residential properties	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term
1-hour mean	All locations where the annual mean and 24 and 8-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets) Those parts of car parks, bus stations and railway stations etc which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer	Kerbside sites where the public would not be expected to have regular access

2.2 Local Air Quality Management

2.2.1 LAs are required to periodically review and assess air quality within their area of jurisdiction under the system of Local Air Quality Management (LAQM). This review and assessment of air quality involves comparing present and likely future pollutant concentrations against the AQOs. If it is predicted that levels at locations of relevant exposure, as summarised in Table 2, are likely to be exceeded, the LA is required to declare an Air Quality Management Area (AQMA). For each AQMA the LA is required to produce an Air Quality Action Plan, the objective of which is to reduce pollutant concentrations in pursuit of the AQOs.

2.3 Dust

2.3.1 The main requirements with respect to dust control from industrial or trade premises not regulated under the Environmental Permitting (England and Wales) Regulations (2016) and subsequent amendments, such as construction sites, is that provided in Section 79 of Part III of the Environmental Protection Act (1990). The Act defines nuisance as:

> "any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance."

2.3.2 Enforcement of the Act, in regard to nuisance, is currently under the jurisdiction of the local Environmental Health Department, whose officers are deemed to provide an independent evaluation of nuisance. If the LA is satisfied that a statutory nuisance exists, or is likely to occur or happen again, it must serve an Abatement Notice under Part III of the Environmental Protection Act (1990). The only defence is to show that the process to which the nuisance has been attributed and its operation are being controlled according to best practicable means.

2.4 National Planning Policy

2.4.1 The revised National Planning Policy Framework[4] (NPPF) was published in December 2024 and sets out the Government's planning policies for England and how these are expected to be applied.

2.4.2 The purpose of the planning system is to contribute to the achievement of sustainable development. In order to ensure this, the NPPF recognises three overarching objectives including the following of relevance to air quality:

> "8. c) an environmental objective - to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."

2.4.3 Chapter 15 of the NPPF details objectives in relation to conserving and enhancing the natural environment. It states that:

> "187. Planning policies and decisions should contribute to and enhance the natural and local environment by:
>
> […]
>
> e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of

[4] NPPF, Ministry of Housing, Communities and Local Government, 2024.

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 […]."

2.4.4 The NPPF specifically recognises air quality as part of delivering sustainable development and states that:

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

2.4.5 The implications of the NPPF have been considered throughout this assessment.

2.5 National Planning Practice Guidance

2.5.1 The National Planning Practice Guidance[5] (NPPG) web-based resource was launched by the Department for Communities and Local Government to support the NPPF and make it more accessible. The air quality pages are summarised under the following headings:

1. What air quality considerations does planning need to address?
2. What is the role of plan-making with regard to air quality?
3. Are air quality concerns relevant to neighbourhood planning?
4. What information is available about air quality?
5. When could air quality considerations be relevant to the development management process?
6. What specific issues may need to be considered when assessing air quality impacts?

[5] https://www.gov.uk/guidance/air-quality--3.

7. How detailed does an air quality assessment need to be?
8. How can an impact on air quality be mitigated?

2.5.2 These were reviewed and the relevant guidance considered as necessary throughout the undertaking of this assessment.

2.6 Regional Planning Policy

2.6.1 The Greater Manchester Combined Authority (GMCA) 'Places for Everyone Joint Development Plan Document'[6] was adopted by MCC and became part of the development plan on 21st March 2024. Review of the document indicated the following policy of relevance to this assessment:

> "Policy JP-S5: Clean Air
>
> A comprehensive range of measures will be taken to support improvements in air quality, focusing particularly on locations where people live, where children learn and play, where there are impacts on the green infrastructure network and where air quality targets are not being met, including:
>
> 1. Locating and designing development, and focusing transport investment, so as to reduce reliance on forms of transport that generate air pollution;
> 2. Determining planning applications having regard to the most recent development and planning control guidance published jointly by the Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK), and the most recent IAQM Guidance on the Assessment of Dust from Demolition and Construction, or relevant successor guidance, including the requirement for developers to submit construction management plans as appropriate;
> 3. Requiring applications for developments that could have an adverse impact on air quality to submit relevant air pollution data so that adverse impacts on air quality can be fully assessed and development only permitted where they are acceptable and/or suitable mitigation can be provided;
> 4. Restricting developments that would generate significant point source pollution such as some types of industrial activity and energy generation;

6 Places for Everyone Joint Development Plan Document, GMCA, 2024.

5. Significantly expanding the existing commercial network of electric vehicle charging points, both for public and private use, including as part of new developments;
6. Implementing the Clean Air Plan and associated measures;
7. Facilitating the more sustainable distribution of goods within the urban area, including through accommodating urban consolidation centres and urban distribution centres that use ultra-low-emission vehicles, and local delivery facilities to reduce repeat delivery attempts;
8. Designing streets to avoid trapping air pollution at ground level, including through the appropriate location and scale of buildings and trees;
9. Controlling traffic and parking within and around schools, early years sites and other locations that are particularly sensitive to air quality;
10. Promoting actions that help remove pollutants from the air, such as enhancing the green infrastructure network and using innovative building materials that capture air pollutants; and
11. Development should be located in areas that maximise the use of sustainable travel modes and be designed to minimise exposure to high levels of air pollution, particularly for vulnerable users."

"Policy JP-P1 Sustainable Places

We aim to become one of the most liveable city regions in the world, consisting of a series of beautiful, healthy and varied places, each having the following key attributes that all development, wherever appropriate, should be consistent with:

[…]

15. Comfortable and inviting, with indoor and outdoor environments:
A. Offering a high level of amenity that minimises exposure to pollution; and
B. Addressing microclimate issues such as sunlight, indoor air quality, overheating, shade, wind and shelter

[…]"

2.6.2 The above policies have been considered as necessary throughout the undertaking of this assessment.

2.7 Local Planning Policy

2.7.1 The Core Strategy[7] was adopted by MCC on 11th July 2012 and provides policies which guide the determination of planning applications with the city.

2.7.2 A review of the Core Strategy identified Policy EN 16 Air Quality which is relevant to this assessment. This states:

> "The Council will seek to improve the air quality within Manchester. Developers will be expected to take measures to minimise and mitigate the local effect of emissions from traffic generated by the development, as well as emissions created by the use of the development itself, including from Combined Heat and Power and biomass plant.
>
> When assessing the appropriateness of locations for new development the Council will consider the effects on air quality, alongside other plan objectives. This includes cumulative effects, particularly in Air Quality Management Areas."

2.7.3 The above policy has been considered as necessary throughout the undertaking of this assessment.

2.8 Greater Manchester Clean Air Plan

2.8.1 The UK Government has instructed a number of LAs to take rapid action to reduce harmful roadside levels of NO_2 within their areas of jurisdiction in the quickest possible timeframe. The GMCA and Transport for Greater Manchester (TfGM) have collaborated to develop a Clean Air Plan (CAP) to ensure Greater Manchester achieves compliance with the relevant AQOs for NO_2 by 2026 at the latest. The initial CAP proposal included implementation of a Class C charging Clean Air Zone. The GMCA has subsequently updated the CAP proposals[8] to comprise an investment-led, non-charging approach. This was approved by the UK Government on 23rd January 2025. The implications of the CAP were taken into account during the undertaking of this assessment.

7 Core Strategy, MCC, 2012.

8 Case for a New GM Clean Air Plan, GMCA and TfGM, 2022.

2.9 Manchester City Council Air Quality and Planning Technical Guidance

2.9.1 MCC adopted the Air Quality and Planning Technical Guidance[9] document in February 2022. This aims to provide help and advice in relation to air quality in a planning context to encourage good practice and mitigation of impacts. The guidance was considered as necessary throughout the assessment.

[9] Air Quality and Planning Technical Guidance, MCC, 2022.

3.0 METHODOLOGY

3.1 Introduction

3.1.1 The proposed development has the potential to cause air quality impacts during the construction and operational phases. These factors have therefore been assessed in accordance with the following methodology.

3.2 Construction Phase Assessment

3.2.1 There is the potential for fugitive dust emissions to occur as a result of construction phase activities. These have been assessed in accordance with the methodology outlined within the Institute of Air Quality Management (IAQM) document 'Guidance on the Assessment of Dust from Demolition and Construction V2.2'[10].

3.2.2 Activities on the proposed construction site have been divided into two types to reflect their different potential impacts. These are:

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

3.2.3 The potential for dust emissions was assessed for each activity that is likely to take place and considered three separate dust effects:

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

3.2.4 The assessment steps are detailed below.

[10] Guidance on the Assessment of Dust from Demolition and Construction V2.2, IAQM, 2024.

Step 1 - Screen the Need for an Assessment

3.2.5 Step 1 screens the requirement for a more detailed assessment. Should human receptors be identified within 250m from the boundary or 50m from the construction vehicle route up to 250m from the site entrance, then the assessment proceeds to Step 2. Additionally, should ecological receptors be identified within 50m of the site or the construction vehicle route up to 250m from the site entrance, then the assessment also proceeds to Step 2.

3.2.6 Should sensitive receptors not be present within the relevant distances then **negligible** impacts would be expected and further assessment is not necessary.

Step 2 - Assess the Risk of Dust Impacts

3.2.7 Step 2 assesses the risk of potential dust impacts. A site is allocated a risk category based on two factors:

- The scale and nature of the works, which determines the magnitude of dust arising as: small, medium or large (Step 2A); and,
- The sensitivity of the area to dust impacts, which can be defined as low, medium or high sensitivity (Step 2B).

3.2.8 The two factors are combined in Step 2C to determine the risk of dust impacts without mitigation applied.

3.2.9 Step 2A defines the potential magnitude of dust emission during the construction phase. The relevant criteria are summarised in Table 3.

Table 3 Construction Dust - Magnitude of Emission

Magnitude	Activity	Criteria
Large	Demolition	• Total building volume greater than 75,000m^3 • Potentially dusty construction material (e.g. concrete) • On site crushing and screening • Demolition activities greater than 12m above ground level

Magnitude	Activity	Criteria
	Earthworks	• Total site area greater than 110,000m^2 • Potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size) • More than 10 heavy earth moving vehicles active at any one time • Formation of bunds greater than 6m in height
	Construction	• Total building volume greater than 75,000m^3 • On site concrete batching • Sandblasting
	Trackout	• More than 50 Heavy Duty Vehicle (HDV) trips per day • Potentially dusty surface material (e.g. high clay content) • Unpaved road length greater than 100m
Medium	Demolition	• Total building volume 12,000m^3 to 75,000m^3 • Potentially dusty construction material • Demolition activities 6m to 12m above ground level
	Earthworks	• Total site area 18,000m^2 to 110,000m^2 • Moderately dusty soil type (e.g. silt) • 5 to 10 heavy earth moving vehicles active at any one time • Formation of bunds 3m to 6m in height
	Construction	• Total building volume 12,000m^3 to 75,000m^3 • Potentially dusty construction material (e.g. concrete) • On site concrete batching
	Trackout	• 20 to 50 HDV trips per day • Moderately dusty surface material (e.g. high clay content) • Unpaved road length 50m to 100m
Small	Demolition	• Total building volume less than 12,000m^3 • Construction material with low potential for dust release (e.g. metal cladding or timber) • Demolition activities less than 6m above ground levels • Demolition during wetter months
	Earthworks	• Total site area less than 18,000m^2 • Soil type with large grain size (e.g. sand) • Less than 5 heavy earth moving vehicles active at any one time • Formation of bunds less than 3m in height

Magnitude	Activity	Criteria
	Construction	• Total building volume less than 12,000m^3 • Construction material with low potential for dust release (e.g. metal cladding or timber)
	Trackout	• Less than 20 HDV trips per day • Surface material with low potential for dust release • Unpaved road length less than 50m

3.2.10 Step 2B defines the sensitivity of the area around the development to potential dust impacts. The sensitivities of specific receptors are shown in Table 4.

Table 4 Construction Dust - Sensitivities of People and Ecological Receptors

Receptor Sensitivity	Examples	
	Human Receptors	Ecological Receptors
High	• Users expect high levels of amenity • High aesthetic or value property • People expected to be present continuously for extended periods of time • Locations where members of the public are exposed over a time period relevant to the AQO for PM_{10}. e.g. residential properties, hospitals, schools and residential care homes	• Internationally or nationally designated site e.g. Special Area of Conservation
Medium	• Users would expect to enjoy a reasonable level of amenity • Aesthetics or value of their property could be diminished by soiling • People or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land e.g. parks and places of work	• Nationally designated site e.g. Sites of Special Scientific Interest
Low	• Enjoyment of amenity would not reasonably be expected • Property would not be expected to be diminished in appearance • Transient exposure, where people would only be expected to be present for limited periods. e.g. public footpaths, playing fields, shopping streets, farmland, short term car parks and roads	• Locally designated site e.g. Local Nature Reserve

3.2.11 The criteria for determining the sensitivity of the area to dust soiling effects on people and property is summarised in Table 5.

Table 5 Construction Dust - Sensitivity of the Area to Dust Soiling Effects on People and Property

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

3.2.12 Table 6 outlines the criteria for determining the sensitivity of the area to human health impacts.

Table 6 Construction Dust - Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Background Annual Mean PM_{10} Concentration	Number of Receptors	Distance from the Source (m)			
			Less than 20	Less than 50	Less than 100	Less than 250
High	Greater than 32µg/m^3	More than 100	High	High	High	Medium
		10 - 100	High	High	Medium	Low
		1 - 10	High	Medium	Low	Low
	28 - 32µg/m^3	More than 100	High	High	Medium	Low
		10 - 100	High	Medium	Low	Low
		1 - 10	High	Medium	Low	Low
	24 - 28µg/m^3	More than 100	High	Medium	Low	Low
		10 - 100	High	Medium	Low	Low
		1 - 10	Medium	Low	Low	Low
	Less than 24µg/m^3	More than 100	Medium	Low	Low	Low
		10 - 100	Low	Low	Low	Low

Receptor Sensitivity	Background Annual Mean PM_{10} Concentration	Number of Receptors	Distance from the Source (m)			
			Less than 20	Less than 50	Less than 100	Less than 250
		1 - 10	Low	Low	Low	Low
Medium	Greater than 32µg/m³	More than 10	High	Medium	Low	Low
		1 - 10	Medium	Low	Low	Low
	28 - 32µg/m³	More than 10	Medium	Low	Low	Low
		1 - 10	Low	Low	Low	Low
	24 - 28µg/m³	More than 10	Low	Low	Low	Low
		1 -10	Low	Low	Low	Low
	Less than 24µg/m³	More than 10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Low	-	1 or more	Low	Low	Low	Low

3.2.13 Table 7 outlines the criteria for determining the sensitivity of the area to ecological impacts.

Table 7 Construction Dust - Sensitivity of the Area to Ecological Impacts

Receptor Sensitivity	Distance from the Source (m)	
	Less than 20	Less than 50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

3.2.14 Step 2C combines the dust emission magnitude with the sensitivity of the area to determine the risk of unmitigated impacts.

3.2.15 Table 8 outlines the risk category from demolition activities.

Table 8 Construction Dust - Dust Risk Category from Demolition

Receptor Sensitivity	Dust Emission Magnitude		
	Large	Medium	Small
High	High	Medium	Medium
Medium	High	Medium	Low
Low	Medium	Low	Negligible

3.2.16 Table 9 outlines the risk category from demolition, earthworks, construction and trackout activities.

Table 9 Construction Dust - Dust Risk Category from Earthworks, Construction and Trackout Activities

Receptor Sensitivity	Dust Emission Magnitude		
	Large	Medium	Small
High	High	Medium	Low
Medium	Medium	Medium	Low
Low	Low	Low	Negligible

Step 3 - Site-specific Mitigation

3.2.17 Step 3 requires the identification of site-specific mitigation measures within the IAQM guidance[11] to reduce potential dust impacts based upon the relevant risk categories identified in Step 2. For sites with **negligible** risk, mitigation measures beyond those required by legislation are not required. However, additional controls may be applied as part of good practice.

Step 4 - Determine Significance

3.2.18 Once the risk of dust impacts has been determined and the appropriate mitigation measures identified, the final step is to determine the significance of any residual impacts. For almost all construction activity, the aim should be to control effects through the use of

[11] Guidance on the Assessment of Dust from Demolition and Construction V2.2, IAQM, 2024.

effective mitigation. Experience shows that this is normally possible. Hence the residual effect will normally be **not significant**.

3.2.19 The determination of significance relies on professional judgement and reasoning should be provided as far as practicable. The IAQM guidance suggests the provision of details of the assessor's qualifications and experience. These are provided in Appendix 2.

3.3 Operational Phase Assessment

Potential Development Impacts

3.3.1 The development has the potential to increase concentrations of NO_2, PM_{10} and $PM_{2.5}$ as a result of road traffic exhaust emissions associated with vehicles travelling to and from the site during the operational phase. An assessment was therefore undertaken using the criteria contained within the IAQM 'Land-Use Planning & Development Control: Planning for Air Quality'[12] guidance to determine the potential for trips generated by the development to affect local air quality.

3.3.2 The following criteria are provided to help establish when an assessment of potential impacts on the local area is likely to be considered necessary:

A. If any of the following apply:

- 10 or more residential units or a site area of more than 0.5ha; or,
- More than 1,000m^2 of floor space for all other uses or a site area greater than 1ha.

B. Coupled with any of the following:

- The development has more than 10 parking spaces; or,
- The development will have a centralised energy facility or other centralised combustion process.

[12] Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

3.3.3 Should these criteria not be met, then the IAQM guidance[13] considers air quality impacts associated with a scheme to be **not significant** and no further assessment is required.

3.3.4 Where the above criteria are met, then the assessor should proceed to assess the development proposals against the following Stage 2 screening criteria:

- The development leads to a change of Light Duty Vehicle (LDV) flows of:
  - More than 100 Annual Average Daily Traffic (AADT) within an AQMA;
  - More than 500 AADT outside of an AQMA;
- The development leads to a change of HDV flows of:
  - More than 25 AADT within an AQMA;
  - More than 100 AADT outside of an AQMA;
- Introduce a new junction that would cause traffic flow to change behaviour with respect to acceleration/deceleration or introduce queueing traffic where there previously wasn't any (such as a roundabout or traffic lights); and,
- Introduce one or more significant combustion processes where there is a risk of impact to relevant receptors.

3.3.5 Should these criteria not be met, then the IAQM guidance[14] considers air quality impacts associated with a scheme to be **not significant** and no further assessment is required. Where the screening criteria is met, further assessment including atmospheric dispersion modelling of impacts may be required.

Potential Future Exposure

3.3.6 The proposed development comprises residential land use. This is considered a location of relevant exposure for long and short term AQOs in accordance with DEFRA guidance[15], as shown in Table 2. Existing air quality conditions at the site were therefore assessed through consideration of local monitoring results and background concentrations. The findings were subsequently used to determine the potential for exceedences of the relevant AQOs and Concentration Target at the development and determine location suitability for the proposed land use.

13 Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

14 Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

15 Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

4.0 BASELINE

4.1 Introduction

4.1.1 Existing air quality conditions in the vicinity of the proposed development site were identified in order to provide a baseline for assessment. These are detailed in the following Sections.

4.2 Local Air Quality Management

4.2.1 As required by the Environment Act (1995), as amended by the Environment Act (2021), MCC has undertaken Review and Assessment of air quality within its area of jurisdiction. This process has indicated that annual mean concentrations of NO_2 are above the AQO within the city. As such, a number of roads within Manchester have been included within the GMCA AQMA. This is described as follows:

> "This is the part of the Greater Manchester Combined Authority AQMA located within the Manchester City Council area."

4.2.2 The development is not located within the GMCA AQMA. The closest section of the AQMA to the site is approximately 66m north. As such, there is the potential for vehicles travelling to and from the site to increase pollution levels in this sensitive area, as well as the exposure of future residents to elevated pollution concentrations. This has been considered throughout the assessment.

4.2.3 MCC has concluded that concentrations of all other pollutants considered within the AQS are currently below the relevant AQOs. As such, no further AQMAs have been designated.

4.3 Air Quality Monitoring

4.3.1 Monitoring of pollutant levels is undertaken by MCC throughout its area of jurisdiction. Recent NO_2 concentrations recorded in the vicinity of the development, as provided in

the 'Greater Manchester LAQM and CAP NO_2 diffusion tube monitoring results 2011-2023'[16], are shown in Table 10.

Table 10 Monitoring Results

Monitoring Site		Monitored Annual Mean NO_2 Concentration (µg/m³)			
		2020	2021	2022	2023
MA99BNO	A62 Oldham Road	26.9	32.9	32.7	31.3
MA36NO	A664 Rochdale Road	24.3	26.7	27.4	28.0

4.3.2 As shown in Table 10, annual mean NO_2 concentrations were below the AQO of 40µg/m³ in recent years at the monitoring locations in the vicinity of the site. Reference should be made to Figure 2 for a map of the survey positions. These are all 'roadside' locations and are within 3m of the nearest kerb.

4.3.3 It is noted that pollutant concentrations recorded during 2020 and 2021 were affected by changes to travel patterns associated with the COVID-19 pandemic. The results should therefore be viewed with caution. However, data for 2022 and beyond is now considered representative of post-pandemic conditions. This is supported by the IAQM[17], who have adopted the following position:

> "ambient air quality monitoring data for the year 2022 and beyond is generally considered to represent the current post-pandemic baseline."

4.3.4 MCC does not undertake monitoring of PM_{10} or $PM_{2.5}$ concentrations within the vicinity of the site.

4.4 Background Pollutant Concentrations

4.4.1 Predictions of background pollutant concentrations on a 1km by 1km grid basis have been produced by DEFRA for the entire of the UK to assist LAs in their Review and Assessment of air quality. The proposed development site is located in grid square NGR:

16 2023 Greater Manchester Local Air Quality Management and Clean Air Plan NO2 Diffusion Tube Results 2011-2023, GMCA, 2024.

17 Use of 2020 and 2021 Monitoring Datasets - IAQM Position Statement V1.1, IAQM, 2023.

385500, 399500. Data for this location was downloaded from the DEFRA website[18] for the purpose of the assessment and is summarised in Table 11.

Table 11 Background Pollutant Concentration Predictions

Pollutant	Predicted 2025 Background Pollutant Concentration (µg/m³)
NO_2	16.71
PM_{10}	13.14
$PM_{2.5}$	7.73

4.4.2 As shown in Table 11, predicted annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations are below the relevant AQOs, Interim Target and Concentration Target at the development site.

4.5 Sensitive Receptors

4.5.1 A sensitive receptor is defined as any location which may be affected by changes in air quality as a result of a development. Receptors sensitive to potential dust impacts during demolition, earthworks and construction were identified from a desk-top study of the area up to 250m from the development boundary. These are summarised in Table 12.

Table 12 Demolition, Earthworks and Construction Dust Sensitive Receptors

Distance from Site Boundary (m)	Approximate Number of Human Receptors	Approximate Number of Ecological Receptors
Up to 20	More than 100	0
Up to 50	More than 100	0
Up to 100	More than 100	-
Up to 250	More than 100	-

4.5.2 Receptors sensitive to potential dust impacts from trackout were identified from a desk-top study of the area up to 50m from the road network within 250m of the site access. These are summarised in Table 13.

[18] http://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021.

Table 13 Trackout Dust Sensitive Receptors

Distance from Site Access Route (m)	Approximate Number of Human Receptors	Approximate Number of Ecological Receptors
Up to 20	More than 100	0
Up to 50	More than 100	0

4.5.3 There are no ecological receptors within 50m of the development boundary or the access route within 250m of the site entrance. As such, ecological impacts have not been assessed further within this report.

4.5.4 Based on the criteria shown in Table 4, the sensitivity of the receiving environment to potential dust impacts was determined as **high**. This was because the identified receptors included residential dwellings.

5.0 CONSTRUCTION PHASE ASSESSMENT

5.1 Introduction

5.1.1 There is the potential for air quality impacts as a result of the construction of the proposed development. These are assessed in the following Sections.

5.2 Step 1 - Screen the Need for an Assessment

5.2.1 The undertaking of activities such as demolition, excavation, ground works, cutting, construction, concrete batching and storage of materials has the potential to result in fugitive dust emissions throughout the construction phase. Vehicle movements both on-site and on the local road network also have the potential to result in the re-suspension of dust from haul roads and highway surfaces.

5.2.2 The potential for impacts at sensitive locations depends significantly on local meteorology during the undertaking of dust generating activities, with the most significant effects likely to occur during dry and windy conditions.

5.2.3 The desk-study undertaken to inform the baseline identified a number of sensitive receptors within 250m of the site boundary and 50m of routes to be used by construction vehicles to access the site. As such, a detailed assessment of potential dust impacts was required.

5.3 Step 2a - Define the Potential Dust Emission Magnitude

Demolition

5.3.1 Demolition will be undertaken at the start of the construction phase and will involve the removal of existing structures onsite. The total building volume to be demolished is less than 12,000m^3. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from demolition is therefore **small**.

Earthworks

5.3.2 Earthworks will primarily involve excavating material, haulage, tipping and stockpiling, as

well as site levelling and landscaping. The area of the proposed development site is less than 18,000m^2. In accordance with the criteria outlined in

5.3.3 Table 3, the magnitude of potential dust emissions from earthworks is therefore **small**.

Construction

5.3.4 Due to the size of the development, the total building volume is estimated to be less than 12,000m^3. In accordance with the criteria outlined in

5.3.5 Table 3, the magnitude of potential dust emissions from construction is therefore **small**.

Trackout

5.3.6 Based on the site area, it is anticipated that the unpaved road length will be less than 50m. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from trackout, onto both access roads, is therefore **small**.

5.4 Step 2b - Define the Sensitivity of the Area

Dust Soiling

5.4.1 Table 12 shows that there are more than 100 **high** sensitive receptors within 20m of the site boundary. The sensitivity of the area with respect to dust soiling from demolition, earthworks and construction, as defined using the criteria summarised in Table 5, is therefore considered to be **high**.

5.4.2 Table 13 shows that there are more than 100 **high** sensitive receptors within 20m of the road network within 250m of the site access. The sensitivity of the area with respect to dust soiling from trackout, as defined using the criteria summarised in Table 5, is therefore considered **high**.

Human Health

5.4.3 Table 11 shows the annual mean PM_{10} background concentration at the site is 13.14µg/m^3. As shown in Table 6, where the background annual mean PM_{10} concentration is below 24µg/m^3 and there are more than 100 **high** sensitivity receptors

within 20m of the site boundary, the sensitivity of the area with respect to human health from demolition, earthworks and construction is considered to be **medium**.

5.4.4 There are more than 100 **high** sensitivity receptors within 20m of the road network within 250m of the site access. The sensitivity of the area with respect to human health from trackout, as defined using the criteria summarised in Table 6, is therefore considered to be **medium**.

5.5 Step 2c - Define the Risk of Dust Impacts

5.5.1 The derived dust emission magnitude for each activity was combined with the sensitivity of the area to determine the risk of unmitigated impacts in line with the methodology set out in Table 8 and Table 9. A summary of the risk from each dust generating activity is provided in Table 14.

Table 14 Summary of Potential Unmitigated Dust Risks

Potential Impact	Activity	Step 2A - Dust Emission Magnitude	Step 2B - Sensitivity of the Area	Step 2C - Risk
Dust Soiling	Demolition	Small	High	Medium
	Earthworks	Small	High	Low
	Construction	Small	High	Low
	Trackout	Small	High	Low
Human Health	Demolition	Small	Medium	Low
	Earthworks	Small	Medium	Low
	Construction	Small	Medium	Low
	Trackout	Small	Medium	Low

5.5.2 As indicated in Table 14, the potential risk of dust soiling impacts is **medium** from demolition and **low** from earthworks, construction and trackout. The potential risk of human health impacts is **low** from all activities.

5.5.3 It should be noted that the potential for impacts depends significantly on the distance between the dust generating activity and receptor location. Risk was predicted based on

a worst-case scenario of works being undertaken at the site boundary closest to each sensitive area. Therefore, actual risk is likely to be lower than that predicted during the majority of the construction phase.

5.6 Step 3 - Site-specific Mitigation

5.6.1 The IAQM guidance[19] provides potential mitigation measures to reduce impacts as a result of fugitive dust emissions during the construction phase. These have been adapted for the development site as summarised in Table 15. These may be reviewed prior to the commencement of construction works and incorporated into a Construction Environmental Management Plan or similar if required by the LA.

Table 15 Fugitive Dust Emission Mitigation Measures

Issue	Control Measure
Communications	• Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager • Display the head or regional office contact information
Site management	• Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken • Make the complaints log available to the LA upon request • Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book
Monitoring	• Carry out regular site inspections, record inspection results, and make an inspection log available to the LA upon request • Increase the frequency of site inspections when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions

[19] Guidance on the Assessment of Dust from Demolition and Construction V2.2, IAQM, 2024.

Issue	Control Measure
Site preparation	• Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible • Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site • Avoid site runoff of water or mud • Keep site barriers, fencing and scaffolding clean using wet methods • Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site • Cover, seed or fence stockpiles to prevent wind whipping
Operating vehicle/machinery and sustainable travel	• Ensure all vehicles switch off engines when stationary - no idling vehicles • Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable
Operations	• Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques • Ensure an adequate water supply on the site for effective dust suppression, using non-potable water where possible and appropriate • Use enclosed chutes and conveyors and covered skips • Minimise drop heights and use fine water sprays wherever appropriate
Waste management	• Avoid bonfires or burning of waste materials
Demolition	• Ensure effective water suppression is used during demolition operations • Avoid explosive blasting • Bag and remove biological debris or damp down such material before demolition

5.7 Step 4 - Determine Significance

5.7.1 Assuming the relevant mitigation measures outlined in Table 15 are implemented, the residual impacts from all dust generating activities is predicted to be **not significant**, in accordance with the IAQM guidance[20].

[20] Guidance on the Assessment of Dust from Demolition and Construction V2.2, IAQM, 2024.

6.0 OPERATIONAL PHASE ASSESSMENT

6.1 Introduction

6.1.1 The proposed development has the potential to cause air quality impacts as a result of road traffic exhaust emissions associated with vehicles travelling to and from the site during operation, as well as expose future residents to any existing air quality issues. These factors have been assessed in the following Sections.

6.2 Potential Development Impacts

Stage 1 Screening Criteria

6.2.1 The development has the potential to increase concentrations of NO_2, PM_{10} and $PM_{2.5}$, including within the identified AQMA, as a result of road traffic exhaust emissions associated with vehicles travelling to and from the site during the operational phase.. The proposals have therefore been assessed against the IAQM Stage 1[21] screening criteria detailed in Section 3.3. The development comprises more than ten residential dwellings coupled with more than ten car parking spaces. As such, the Stage 2 criteria have been considered below.

Stage 2 Screening Criteria

6.2.2 Traffic data for the development was provided by Sutcliffe, the Transport Consultants for the scheme. This indicated that the development will generate 108 vehicles, as a 24-hour Annual Average Daily Traffic (AADT) flow per day. When distributed onto the local road network the development is not predicted to result in an increase in LDV flow of more than 100 AADT on any individual road link within the AQMA or 500 AADT elsewhere. Additionally, there will not be a requirement for more than 25 HDV deliveries per day. As such, potential air quality impacts associated with the operational phase road vehicle exhaust emissions are predicted to be **not significant**, in accordance with the IAQM[22] criteria shown in Section 3.3.

[21] Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

[22] Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017

6.3 Potential Future Exposure

6.3.1 The proposed development includes land use sensitive to short and long-term pollutant concentrations. As such, there is the potential for new receptors to be introduced into an area of poor air quality. Existing conditions at the site have therefore been considered below.

Local Monitoring Results

6.3.2 As shown in Table 10 and Figure 2, monitoring was undertaken at two locations in the vicinity of the site during 2023. The closest of these to the development is MA99BNO, which is approximately 530m south west of the site boundary. The monitored annual mean NO_2 concentration was 31.3µg/m^3 at MA99BNO in 2023.

6.3.3 The MA99BNO monitor is located approximately 3m from the westbound carriageway of the A62 Oldham Road, within the GMCA AQMA. The site boundary is located approximately 90m south of the A62 Oldham Road and is located off Varley Street, which is a minor residential road. The site is located within an existing residential area which is not within the GMCA AQMA designation. Therefore, pollutant concentrations at the site are anticipated to be lower than at the monitoring location. Exceedences of the annual mean AQO are therefore considered unlikely.

6.3.4 Monitoring of 1-hour mean NO_2 concentrations was not undertaken at MA99BNO. However, as stated in DEFRA guidance[23], if annual mean NO_2 concentrations are below 60µg/m^3, then it is unlikely that the 1-hour mean AQO will be exceeded. As NO_2 levels recorded at MA99BNO was 31.3µg/m^3 in 2023, exceedences of the 1-hour mean AQO is considered unlikely at the site.

Background Concentrations

6.3.5 As shown in Table 11, predicted background NO_2, PM_{10} and $PM_{2.5}$ concentrations for the site were below the AQOs and Concentration Target during 2025.

[23] Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

6.3.6 Based on the predicted background concentrations, exceedences of the AQOs and Concentration Target are considered unlikely at the development location during operation.

Summary

6.3.7 Pollutant concentrations are anticipated to be below the relevant AQOs and Concentration Target at the proposed development site for the following reasons:

- Analysis of local monitoring results in the context of the site indicated compliance with the annual and 1-hour mean AQO for NO_2; and,
- Predicted background NO_2, PM_{10} and $PM_{2.5}$ concentrations are below the relevant AQOs and Concentration Target.

6.3.8 Based on the assessment results, future residents are not predicted to be exposed to exceedences of the AQOs and Concentration Target at the development location. The site is therefore considered suitable for the proposed end use from an air quality perspective.

6.4 MCC Technical Guidance

6.4.1 A number of mitigation measures have been included within the development to encourage the use of sustainable transport modes, manage vehicle flow and reduce pollution around the site. These are in accordance with MCC's 'Air Quality and Planning Technical Guidance'[24], which is based upon the Good Practice Design Principles outlined in the IAQM document 'Land-Use Planning & Development Control: Planning for Air Quality'[25]. Table 16 describes the good practice principles along with how each has been addressed with regards to the proposals.

[24] Air Quality & Planning Technical Guidance, MCC, 2022.

[25] Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

Table 16 Good Practice Design Principles for Operational Phase Air Quality Impacts

Phase	Principle	Action
Design Phase	New developments should not contravene the Council's AQAP[26], or render any of the measures unworkable	It is confirmed that the proposals will not contravene MCC's AQAP, or render any of the measures unworkable
	Wherever possible, new developments should not create a new "street canyon", or a building configuration that inhibits effective pollution dispersion	The development will not create a new street canyon
	Delivering sustainable development should be the key theme of any application	The proposals have been designed to encourage sustainable behaviours, such as active and public transport due to its proximity to public transport and amenities
Operational Phase	The provision of at least 1 EV "rapid charge" point per 10 residential dwellings and/or 1,000m^2 of commercial floor space. Where on-site parking is provided for residential dwellings, EV charging points for each parking space should be made	EV charging provision will be provided in accordance with Building Regulations
	Where development generates significant additional traffic, provision of a detailed Travel Plan (with provision to measure its implementation and effect) which sets out measures to encourage sustainable means of transport (public, cycling and walking) via subsidised or free-ticketing, improved links to bus stops, improved infrastructure and layouts to improve accessibility and safety	The development will not generate significant additional traffic. However the development is located close to local amenities and public transport links

[26] Greater Manchester AQAP 2016-2021, GMCA, 2016.

Phase	Principle	Action
	All gas-fired boilers to meet a minimum standard of <40mgNO_x/kWh. All gas-fired CHP plant to meet a minimum emissions standard of: • Spark ignition engine: 250mgNO_x/Nm^3; • Compression ignition engine: 400mgNO_x/Nm^3; • Gas turbine: 50mgNO_x/Nm^3. A presumption should be to use natural gas-fired installations. Where biomass is proposed within an urban area it is to meet minimum emissions standards of: • Solid biomass boiler: 275mgNO_x/Nm^3 and 25mgPM/Nm^3	Any plant to be included in the development will be provisioned in accordance with the relevant requirements

6.4.2 It is considered the above methods would further reduce potential impacts associated with the scheme. Specific mitigation suited to the proposals may be stipulated as a planning condition if deemed necessary by the LA.

6.5 Interim Planning Guidance for $PM_{2.5}$

6.5.1 Interim Planning Guidance[27] on the consideration of the $PM_{2.5}$ targets identified in the Environment Act (2021) in planning decisions has been produced by DEFRA. This requires evidence that the key sources of air pollution within a development have been identified and appropriate action to minimise emissions of $PM_{2.5}$ and its precursors as far as is reasonably practicable be provided in support of planning applications. To assist the process, two questions and associated considerations are provided. These are summarised in Table 17, along with the development response.

27 https://uk-air.defra.gov.uk/pm25targets/planning.

Table 17 Interim Planning Guidance Questions

Question	Response
How has exposure to $PM_{2.5}$ been considered when selecting the development site? Factors to consider include: • Site proximity to people (particularly large populations and/or vulnerable groups, e.g. schools, hospitals, care homes, areas of deprivation) and the impact of the development on these • Site proximity to pollution sources and the impact of these on users of the development • Exposure and emissions during both construction and in-use	The site is located within Manchester but is set back from the strategic road network including the A62. There are no hospitals or care homes located in the vicinity of the site and the development does not lead to a significant increase in vehicle movements on the local road network. Associated emissions are therefore unlikely to have a significant impact on existing air quality conditions. This is supported by the assessment results summarised in Sections 6.2 and 6.3 Due to the distance between the proposals and pollution sources, and existing air quality conditions, it is considered unlikely that users of the development would be exposed to elevated pollutant concentrations As outlined in Table 15, a number of mitigation measures will be used throughout the construction phase in order to reduce fugitive dust emissions as far as practicable. This will control potential exposure at off-site locations
What actions and/or mitigations have been considered to reduce $PM_{2.5}$ exposure for development users and nearby receptors and to reduce emissions of $PM_{2.5}$ and its precursors? Factors to consider include: • Site layout • The development's design • Technology used in the construction or installed for use in the development • Construction and future use of the development	The scheme is located away from significant sources of air pollution including the A62 and EV charging provision will be provided in accordance with Building Regulations Further to the above, in order to reduce emissions during the construction phase, a number of mitigation measures will be used to minimise dust generation from associated activities

6.5.2 Based on the responses provided in Table 17 and the results of the assessment, as outlined in Sections 5.0 and 6.0, it is considered that the development has identified key sources of air pollution and taken appropriate action to minimise emissions of $PM_{2.5}$.

7.0 CONCLUSION

7.1.1 Redmore Environmental Ltd was commissioned by Jigsaw Homes North to undertake an Air Quality Assessment in support of a residential development at Varley Street, Manchester.

7.1.2 The proposals have the potential to cause air quality impacts at sensitive locations during the construction and operational phases, as well as expose future residents to any existing air quality issues at the site. As such, an Air Quality Assessment was undertaken in order to determine baseline conditions, consider location suitability for the proposed end-use and assess potential effects as a result of the scheme.

7.1.3 During the construction phase of the development there is the potential for air quality impacts as a result of fugitive dust emissions from the site. These were assessed in accordance with the IAQM methodology. Site-specific dust control measures were subsequently determined based on the identified risk ratings. Subject to implementation, potential air quality impacts from dust generated by demolition, earthworks, construction and trackout activities are predicted to be **not significant**.

7.1.4 During the operational phase of the proposed development there is the potential for road traffic exhaust emission impacts associated with vehicles travelling to and from the site. These were assessed using the IAQM screening criteria. Due to the scale of the development, impacts were predicted to be **not significant**.

7.1.5 The potential for exposure of future residents to exceedences of the AQOs was assessed based on LA monitoring data and background pollutant concentrations. This indicated that concentrations of NO_2, PM_{10} and $PM_{2.5}$ are likely to be below the relevant AQOs and Concentration Target at the development location. As such, the site is considered suitable for the proposed use from an air quality perspective.

7.1.6 Consideration was made to the 'Air Quality and Planning Technical Guidance[28] provided by MCC. Mitigation was subsequently identified for inclusion within the scheme in order to minimise air quality impacts.

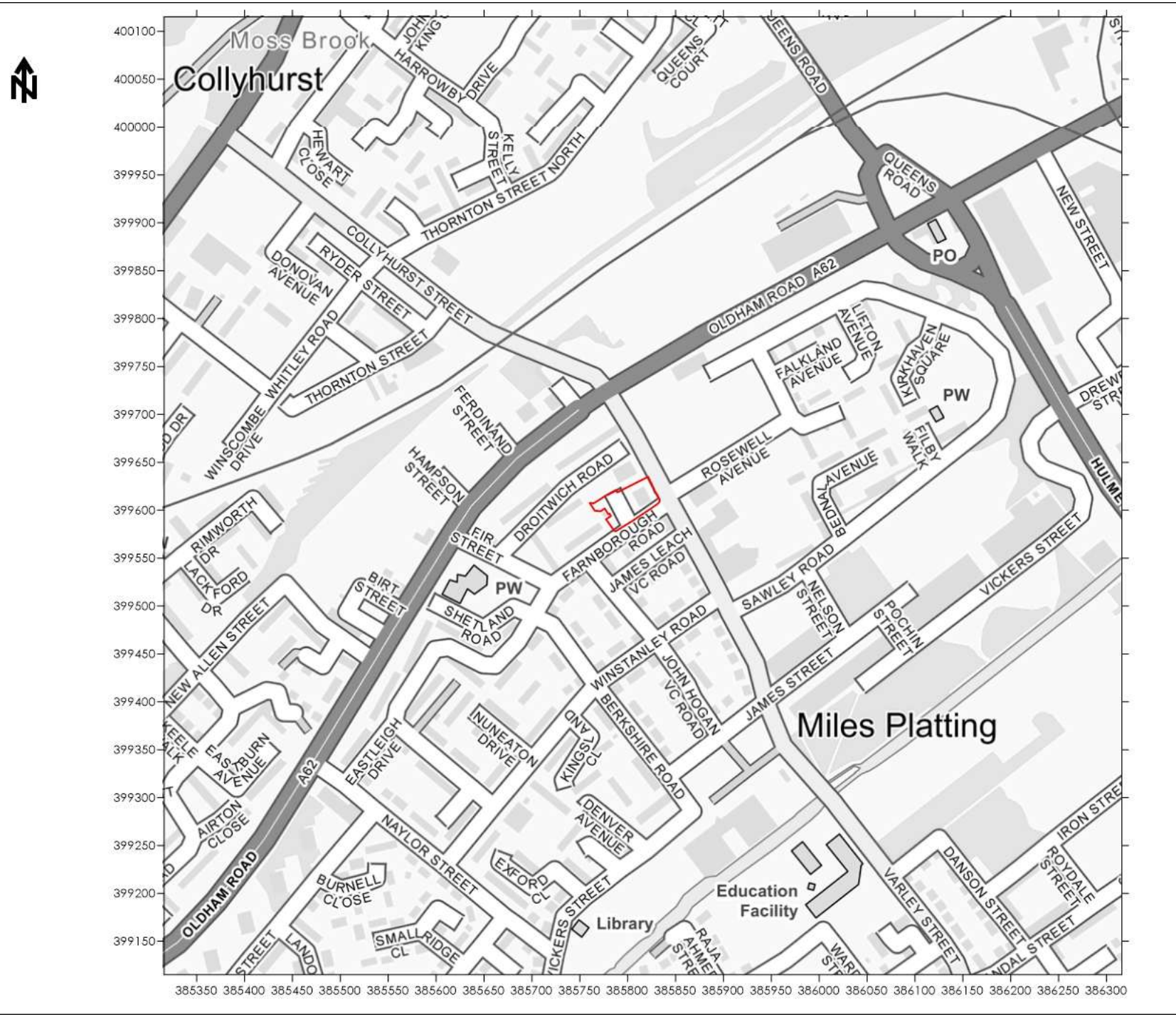
[28] Air Quality & Planning Technical Guidance, MCC, 2022.

7.1.7 Based on the assessment results, air quality factors are not considered a constraint to planning consent for the development.

8.0 ABBREVIATIONS

AADT	Annual Average Daily Traffic
ADM	Atmospheric Dispersion Modelling
AQLV	Air Quality Limit Value
AQMA	Air Quality Management Area
AQO	Air Quality Objective
AQS	Air Quality Strategy
ASR	Annual Status Report
CAP	Clean Air Plan
CERC	Cambridge Environmental Research Consultants
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DMP	Dust Management Plan
DPD	Development Plan Document
EV	Electric Vehicle
GMCA	Greater Manchester Combined Authority
HDV	Heavy Duty Vehicle
IAQM	Institute of Air Quality Management
LA	Local Authority
LAQM	Local Air Quality Management
MCC	Manchester City Council
NGR	National Grid Reference
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
NPPF	National Planning Policy Framework
NPPG	National Planning Policy Guidance
PM_{10}	Particulate matter with an aerodynamic diameter of less than 10µm
$PM_{2.5}$	Particulate matter with an aerodynamic diameter of less than 2.5µm
TfGM	Transport for Greater Manchester

Figures



Legend

Site Location

Title
Figure 1 - Site Location

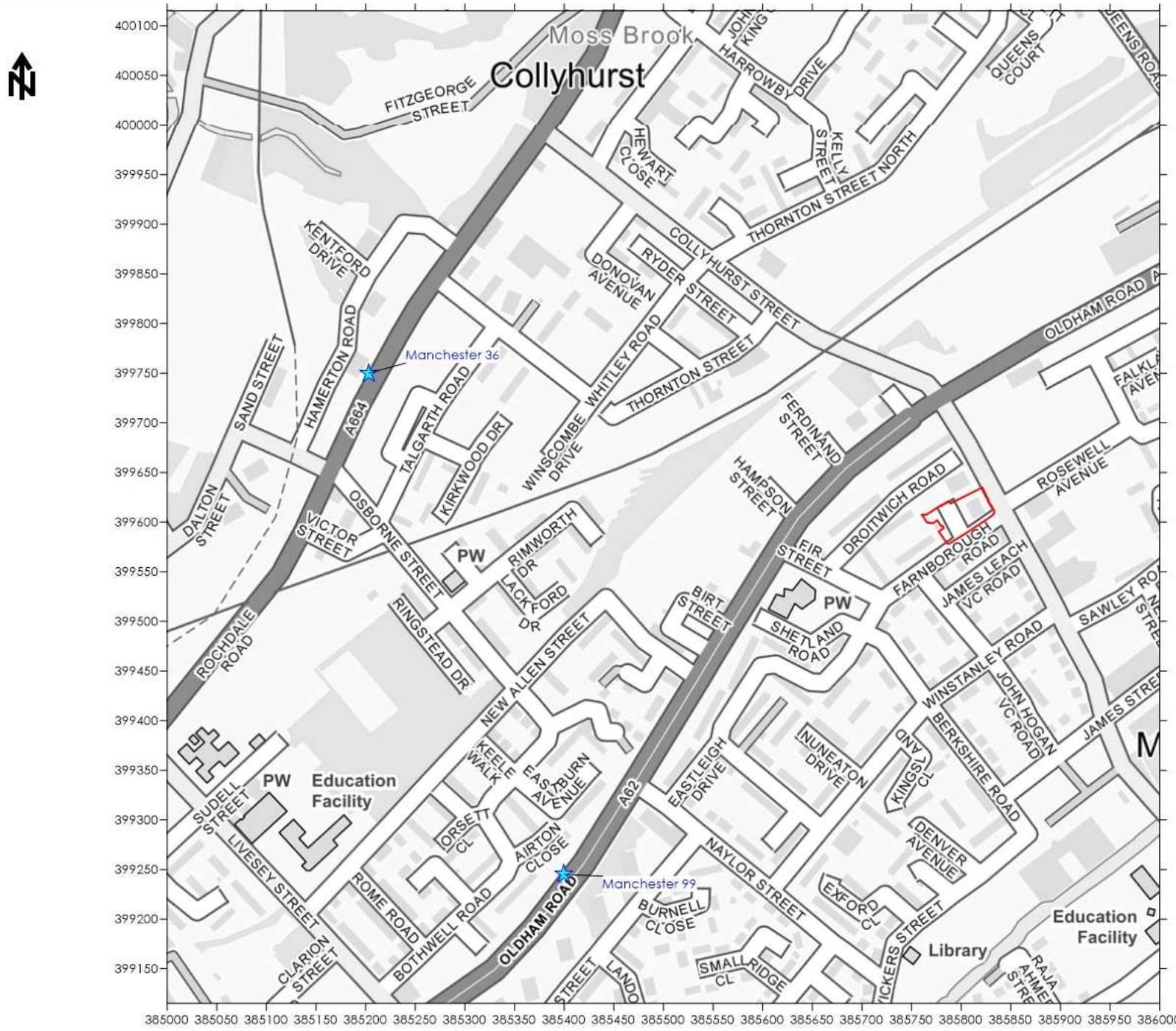
Project
Air Quality Assessment
Varley Street, Manchester

Project Reference
9155

Client
Jigsaw Homes North

Contains Ordnance Survey Data
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Legend

Site Location

Monitor

Title
Figure 2 - Monitoring Locations

Project
Air Quality Assessment
Varley Street, Manchester

Project Reference
9155

Client
Jigsaw Homes North

Contains Ordnance Survey Data
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Appendix 1 - Curricula Vitae

CLAIRE MEDDINGS

Director

MSc, BSc (Hons), CSci, MIAQM, MIEnvSc

Tel: 0161 706 0075 | Email: Claire.Meddings@red-env.co.uk

KEY EXPERIENCE:

Claire is a Director with specialist experience in the air quality sector Her key capabilities include:

- Production and management of Air Quality, Dust and Odour Assessments for a wide range of clients from the residential, retail, commercial, leisure and industrial and infrastructure sectors.
- Detailed dispersion modelling of road vehicle and industrial emissions using ADMS-Roads, ADMS-6 and AERMOD. Studies have included impact assessment of ground level pollutant and odour concentrations and assessment of suitability of development sites for proposed end-use.
- Project management and co-ordination of Environmental Impact Assessments and scoping reports for developments throughout the UK.
- Assessment of fugitive dust impacts from a range of waste and industrial developments.
- Co-ordination and management of large-scale multi-disciplinary projects and submissions.
- Overseeing pollutant monitoring campaigns.
- Provision of expert advice and attendance at DCO examination process.

SELECT PROJECTS SUMMARY:

Residential

Victoria Riverside, Manchester - Air Quality Assessment for the proposed residential development within Manchester City Centre. Construction phase dust emissions were considered and mitigation recommended accordingly. The suitability of the site for the residential use was assessed using air dispersion modelling and mitigation recommended to minimise exposure of future residents to elevated pollutant concentrations.

Air Quality Assessment, Widnes - Air Quality Assessment was undertaken in support of a residential-led development on land near Widnes. Development included residential, commercial and retail land uses. Construction phase dust emissions and operational phase road traffic emissions were considered in the assessment. The suitability of the site for the proposed uses was considered with regard to the air quality objectives.

Air Quality Assessments, Birmingham - Air Quality Assessments and overseeing air quality monitoring campaigns for a number of sites within Birmingham. Air dispersion modelling was undertaken and air quality monitoring utilising NO_2 diffusion tubes was carried out for use in verification of the dispersion model. Mitigation was recommended where appropriate to reduced exposure to elevated pollutant concentrations.

Commercial and Retail

Foodstores across the UK - Air quality assessments for a number of proposed foodstores across the UK. Consideration was given to construction phase dust emissions and vehicle emissions generated by the foodstore operations.

Commercial development, Worksop - Air quality assessment and input into the EIA for a proposed large scale commercial development near Worksop. Assessments of construction phase dust and operational phase road traffic emissions were undertaken and consideration was given to both human and ecological receptors.

Industrial and Infrastructure

Greater Manchester Waste PFI Contract - Air Quality Assessments were undertaken as part of the Planning Applications and Environmental Permit applications for a number of proposed waste facilities in Greater Manchester.

Energy from Waste Development, Scotland - Air Quality Assessment and coordination of the EIA and Environmental Permit Application for a proposed Energy from Waste development in Scotland. Considered industrial emissions from flue stacks as well as additional road traffic movements generated by the development

Strategic Rail Freight Interchange, Hinckley - oversaw the Air Quality Assessment for the proposed Rail Freight Interchange and acted as expert witness as part of the Development Consent Order (DCO) examination process.

ALEX CRAYTON

Associate Director

BSc (Hons), CEnv, MIEnvSc, MIAQM

KEY EXPERIENCE:

Alex is an Associate Director within Redmore Environmental with specialist experience in the air quality and odour sectors. His key capabilities include:

- Production of Air Quality Chapters to support large scale EIA developments for residential, mixed use and commercial land uses.
- Detailed dispersion modelling of road vehicle exhaust emissions using ADMS-Roads. Studies have included assessment of road traffic exhaust emissions on sensitive receptors and exposure of new residents to poor air quality.
- Undertaken dispersion modelling utilising ADMS and BREEZE AERMOD to assess air quality impacts of peak power plants and various industrial processes for planning and permit applications.
- Advanced canyon modelling to evaluate the impact of altered urban topography on air quality in built up areas.
- Production of site-specific construction environmental management plans.
- Production of air quality mitigation strategies specifically tailored to address issues at individual sites.
- Provided technical advice during a public debate on an odour nuisance issue.
- Qualitative and quantitative odour impact assessments determining the impact of odorous emissions on sensitive receptors
- Odour surveys to assess amenity and suitability of sites for potential future development for residential use.

SELECT PROJECTS SUMMARY:

Washingley Farm, Huntingdon

Air Quality Assessment forming part of an EIA for a proposed 500 residential unit development in Huntingdon. The assessment involved a construction impact assessment of fugitive dust emissions and an impact assessment of the operation of the development; this included increases in road traffic volume potentially impacting on local air quality. A cumulative impact assessment of relevant large scale committed developments in the area was key to the chapter.

Freightmaster Estate, Rainham

Air Quality Assessment for redevelopment of an industrial/storage park including the assessment of road transport emissions on an adjacent ecological designated site. Following a request from the local authority, a detailed review of the predicted impacts on the ecological site was provided.

Braintree Waste Transfer Station

Odour Impact Assessment compiled following comments from the Waste Planning Authority for a Waste Transfer Centre in Braintree. Odour concentrations were predicted at local sensitive receptors through a dispersion modelling assessment.

A46 Binley junction Improvement

Project managing a multi-disciplinary due diligence assessment of the A46 Binley Junction. Undertook passive air quality monitoring survey to support findings of Environmental Assessment Report (EAR).

Medway Industrial Estate

An Air Quality Assessment was required to determine the impacts of a proposed gas-fired engine Short Term Operating Reserve (STOR) site, located within an industrial estate. An iterative modelling process was undertaken in order to establish and agree a stack height with the Local Planning Authority. The industrial estate was located within a former quarry, thus meaning the ground level of the site was significantly below ground level (~9-16m). Through consultation with the engineers for the development several designs were discussed and modelled until a suitable solution was found.

Green Lanes, Haringey

A detailed Air Quality Assessment including dispersion modelling of both road transport emissions and energy centre emissions was provided. The energy centre included a fan assisted flue dilution system emitting at a low level in comparison with the adjacent residential blocks as part of the development. Calculations determined the relevant discharge velocity required in order to not produce significant effects on the residential receptors.

Fulham Town Hall, London

An Air Quality Assessment was provided for the proposed development converting Fulham Town Hall from the current usage into a hotel with business and leisure functions. Street canyon modelling was undertaken and input into the ventilation strategy and design provided in order to satisfy planning criteria due to high levels of air pollutant concentrations predicted.