

Air Quality Assessment
Greenfield Lane, Rochdale

Client: MCI Developments Limited

Reference: 10420r1

Date: 11th May 2026



Report Issue

Report Title: Air Quality Assessment - Greenfield Lane, Rochdale

Report Reference: 10420

Field	Report Version			
	1	2	3	4
Prepared by	Natasha Jones			
Position	Air Quality Consultant			
Reviewed by	Lauren Massingham			
Position	Associate Air Quality Consultant			
Authorised by	Claire Meddings			
Position	Director			
Date of Issue	11 th May 2026			
Comment	-			

Serendipity Labs, Building 7, Exchange Quay, Salford, M5 3EP

info@red-env.co.uk | 0117 251 0595 | www.red-env.co.uk

This report has been prepared by Redmore Environmental Ltd in accordance with the agreed terms and conditions of appointment. Redmore Environmental Ltd cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

Executive Summary

Redmore Environmental Ltd was commissioned by MCI Developments Limited to undertake an Air Quality Assessment in support of a planning application for a residential development on land off Greenfield Lane, Rochdale.

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; and,
- Identify any requirement for relevant mitigation measures.

Potential construction phase air quality impacts from fugitive dust emissions were assessed as a result of 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 site. Dispersion modelling was therefore undertaken in order to predict pollutant concentrations at sensitive locations as a result of emissions from the highway network both with and without the development in place. Results were subsequently verified using local monitoring data.

Review of the dispersion modelling results indicated that air quality impacts as a result of traffic generated by the development were not predicted to be significant at any sensitive location in the vicinity of the site.

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

Table of Contents

1.0	INTRODUCTION	1
1.1	Instruction	1
1.2	Site Location and Context	1
1.3	Assessment Scope	1
2.0	LEGISLATION AND POLICY	2
2.1	Legislation	2
2.2	Local Air Quality Management	4
2.3	Dust	4
2.4	National Planning Policy	5
2.5	National Planning Practice Guidance	6
2.6	Regional Planning Policy	7
2.7	Local Planning Policy	9
2.8	Greater Manchester Clean Air Plan	11
3.0	METHODOLOGY	12
3.1	Introduction	12
3.2	Construction Phase Assessment	12
	Step 1 - Screen the Need for an Assessment	12
	Step 2 - Assess the Risk of Dust Impacts	13
	Step 3 - Site-specific Mitigation	18
	Step 4 - Determine Significant Effects	18
3.3	Operational Phase Assessment	18
4.0	BASELINE	21
4.1	Introduction	21
4.2	Local Air Quality Management	21
4.3	Air Quality Monitoring	21
4.4	Background Pollutant Concentrations	22
4.5	Sensitive Receptors	23
	Construction Phase Sensitive Receptors	23
	Operational Phase Sensitive Receptors	24
5.0	CONSTRUCTION PHASE ASSESSMENT	26
5.1	Introduction	26
5.2	Step 1 - Screen the Need for an Assessment	26
5.3	Step 2a - Define the Potential Dust Emission Magnitude	26
	Earthworks	26

Construction	26
Trackout	27
5.4 Step 2b - Define the Sensitivity of the Area	27
Dust Soiling	27
Human Health	27
Ecological	28
5.5 Step 2c - Define the Risk of Dust Impacts	28
5.6 Step 3 - Site-specific Mitigation	29
5.7 Step 4 - Determine Significant Effects	30
6.0 OPERATIONAL PHASE ASSESSMENT	31
6.1 Introduction	31
6.2 Predicted Concentrations	31
6.3 Predicted Impacts	34
6.4 Overall Impact Significance	36
6.5 Interim Planning Guidance for PM _{2.5}	37
7.0 CONCLUSION	39
8.0 ABBREVIATIONS	40

Appendices

Appendix 1 - Assessment Input Data

Appendix 2 - Curricula Vitae

1.0 INTRODUCTION

1.1 Instruction

- 1.1.1 Redmore Environmental Ltd was commissioned by MCI Developments Limited to undertake an Air Quality Assessment in support of a planning application for a residential development on land off Greenfield Lane, Rochdale.

1.2 Site Location and Context

- 1.2.1 The site is located on land off Greenfield Lane, Rochdale, at approximate National Grid Reference (NGR): 390054, 411895. The relevant Local Authority (LA) is Rochdale Borough Council (RBC). Reference should be made to Figure 1 for a map of the site and surrounding area.
- 1.2.2 The proposals comprise the erection of 44 residential dwellings, alongside associated infrastructure and landscaping.

1.3 Assessment Scope

- 1.3.1 The proposals have the potential to cause air quality impacts at sensitive locations. 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; 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 (NO₂);
- Sulphur dioxide;
- Lead;
- Particulate matter with an aerodynamic diameter of less than 10µm (PM₁₀);
- 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 2023¹. 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 2025² was published in December 2025, providing long term and Interim Targets in order to reduce population exposure to PM_{2.5}. The Concentration Target for 2040 was adopted in the Environmental Targets (Fine Particulate Matter) (England) Regulations (2023).

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

² Environmental Improvement Plan 2025, DEFRA, 2025.

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 ($\mu\text{g}/\text{m}^3$)	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}	10 ^(a)	Annual mean
	10 ^(b)	Annual mean

Note: (a) Interim Target to be achieved by 2030.

(b) Concentration Target to be achieved by 2040.

2.1.6 Table 2 summarises the advice provided in DEFRA guidance³ 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 Framework⁴ (NPPF) was published in December 2024 and amended in February 2025. The document 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 achievements of sustainable development. In order to ensure this, the NPPF recognises three overarching objectives including the following of relevance to air quality:

"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:

"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:

"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 Guidance⁵ (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 Places for Everyone Plan (PfEP)⁶ was produced by the Greater Manchester Combined Authority (GMCA) and became part of the statutory development plan for each of the relevant LAs on 21st March 2024.

2.6.2 A review of the PfEP indicated the following policies of relevance to air quality that have been considered throughout 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

⁶ PfEP, GMCA, 2024.

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;

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,

[...]."

2.6.3 The above policies were taken into consideration throughout the undertaking of the assessment.

2.7 Local Planning Policy

2.7.1 The Rochdale Local Plan: Core Strategy⁷ was adopted by RBC in October 2016. Review of the document indicated the following policies of relevance to the assessment:

"Policy G9 - Reducing the Impact of Pollution, Contamination and Land Stability

We will reduce all forms of pollution, contamination and land instability in the borough, by:

a. Focusing on measures that reduce air pollution in Air Quality Management Areas, and other areas where pollution levels are unacceptable, particularly around motorways and main roads;

b. Requiring that development does not have impacts that lead to an unacceptable increase in air, water, noise, light or other pollution;

c. Ensuring sensitive new developments such as housing, schools and hospitals are not adversely affected by existing sources of pollution such as roads and certain types of industry;

d. Requiring a Low Emissions Strategy (LES) where development requires a Transport Assessment, and in other circumstances as appropriate;

⁷ Rochdale Local Plan: Core Strategy, RBC, 2016.

[...]

g. Using planning conditions or obligations to control pollution from new development, or the impact of pollution on new development."

"Policy DM1 - General Development Requirements

All development proposals, including changes of use of land and buildings, extensions and alterations, will be expected to demonstrate that they:

[...]

d. Mitigate against any impacts due to noise, air, dust, light and odour pollution, traffic generation or inadequate access, where such mitigation is identified as being necessary;

[...]

f. Do not have an adverse impact on health, through its impact or the effect of existing problems e.g. land contamination, or poor air quality;

[...]"

"DM2 - Delivering planning contributions and infrastructure

[...]

For all types of development, including housing, we will seek contributions for any infrastructure or other measures necessary to mitigate any on site or off-site impacts from the development.

These contributions may cover, dependent on need:

[...]

e. Mitigation or compensation against environmental impacts e.g. noise, air quality (particularly in Air Quality Management Areas);

[...]."

2.7.2 The above policies were taken into consideration throughout the 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 NO₂ 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 NO₂ 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 proposals⁸ 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.

⁸ Case for a New GM Clean Air Plan, GMCA and TfGM, 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 have 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 IAQM document 'Guidance on the Assessment of Dust from Demolition and Construction V2.2'⁹.

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

- 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 PM₁₀.

3.2.4 The assessment steps are detailed below.

Step 1 - Screen the Need for an Assessment

3.2.5 Step 1 screens the requirement for a more detailed assessment. Should human receptors

⁹ Guidance on the Assessment of Dust from Demolition and Construction V2.2, IAQM, 2024.

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 through the construction phase. The relevant criteria are summarised in Table 3.

Table 3 Construction Dust - Magnitude of Emission

Magnitude	Activity	Criteria
Large	Earthworks	• Total site area greater than 110,000m² • 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 75,000m³ • On site concrete batching • Sandblasting

Magnitude	Activity	Criteria
	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	Earthworks	• Total site area 18,000m² to 110,000m² • 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 12,000m³ to 75,000m³ • 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	Earthworks	• Total site area less than 18,000m² • 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
	Construction	• Total building volume less than 12,000m³ • 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 PM₁₀. e.g. residential properties, hospitals, schools and residential care homes	Internationally or nationally designated site e.g. Special Area of Conservation (SAC)
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 (SSSI)
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

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		Less than 20	Less than 50	Less than 100	Less than 250
	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
		1 - 10	Low	Low	Low	Low
Medium	Greater than 32µg/m ³	More than 10	High	Medium	Low	Low
		1 - 10	Medium	Low	Low	Low
	28 - 32µg/m ³	More than 10	Medium	Low	Low	Low
		1 - 10	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
	24 - 28µg/m ³	More than 10	Low	Low	Low	Low
		1 -10	Low	Low	Low	Low
	Less than 24µg/m ³	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 earthworks, construction and trackout activities.

Table 8 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

3.2.16 Step 3 requires the identification of site-specific mitigation measures within the IAQM guidance¹⁰ 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 Significant Effects

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

3.2.18 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

3.3.1 The development has the potential to affect existing air quality as a result of road traffic exhaust emissions associated with vehicles travelling to and from the site. Potential impacts have therefore been defined by predicting pollutant concentrations at sensitive locations using dispersion modelling for the following scenarios:

- 2024 - Verification;
- Opening year Do-Minimum (DM) (predicted traffic flows in 2027 should the proposals not proceed); and,
- Opening year Do-Something (DS) (predicted traffic flows in 2027 should the proposals be completed).

3.3.2 Reference should be made to Appendix 1 for assessment input data and details of the

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

verification process.

3.3.3 Locations sensitive to potential changes in off-site pollutant concentrations were identified within 200m of the highway network in accordance with National Highways guidance¹¹ on the likely limits of pollutant dispersion from road sources. The criteria provided within DEFRA guidance¹² on where the AQOs apply, as summarised in Table 2, was utilised to determine worst-case receptor positions in the vicinity of links likely to be affected by changes in traffic flows as a result of the development.

3.3.4 The significance of predicted air quality impacts was determined in accordance with the guidance provided within the IAQM document 'Land-Use Planning & Development Control: Planning for Air Quality'¹³. Using this methodology impacts were defined based on the interaction between the predicted pollutant concentration from the DS scenario and the magnitude of change between the DM and DS scenarios, as outlined in Table 9.

Table 9 Significance of Operational Phase Road Vehicle Exhaust Emissions Impact

Concentration at Receptor in Assessment Year	Predicted Concentration Change as Proportion of AQO/ Concentration Target (%)			
	1	2 - 5	6 - 10	> 10
75% or less of AQO/ Concentration Target	Negligible	Negligible	Slight	Moderate
76 - 94% of AQO/ Concentration Target	Negligible	Slight	Moderate	Moderate
95 - 102% of AQO/ Concentration Target	Slight	Moderate	Moderate	Substantial
103 - 109% of AQO/ Concentration Target	Moderate	Moderate	Substantial	Substantial
110% or more of AQO/ Concentration Target	Moderate	Substantial	Substantial	Substantial

3.3.5 The matrix shown in Table 9 is intended to be used by rounding the change in percentage pollutant concentration to whole numbers, which makes it clearer which cell the impact falls within. It should be noted that changes of 0%, i.e. less than 0.5%, are described as **negligible**.

¹¹ LA 105: Air Quality, National Highways, 2024.

¹² Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

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

3.3.6 Following the prediction of impacts at discrete receptor locations, the IAQM document¹⁴ provides guidance on determining the overall air quality impact significance of the operation of a development. The following factors are identified for consideration by the assessor:

- The existing and future air quality in the absence of the development;
- The extent of current and future population exposure to the impacts; and,
- The influence and validity of any assumptions adopted when undertaking the prediction of impacts.

3.3.7 The IAQM guidance states that an assessment must reach a conclusion on the likely significance of the predicted impact. Where the overall effect is **moderate** or **substantial**, the effect is likely to be considered **significant**, whilst if the impact is **slight** or **negligible**, the impact is likely to be considered **not significant**. It should be noted that this is a binary judgement of either it is **significant** or it is **not significant**.

3.3.8 The determination of significance relies on professional judgement and reasoning has been provided as far as practicable. The IAQM guidance¹⁵ suggests the provision of details of the assessor's qualifications and experience. These are provided in Appendix 2.

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

¹⁵ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

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), RBC has undertaken Review and Assessment of air quality within its area of jurisdiction. This process has indicated that annual mean concentrations of NO₂ are above the AQO within the borough. As such, a number of roads within Rochdale 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 Rochdale Borough Council area."

- 4.2.2 Proposed dwellings are distanced approximately 40m north of the AQMA. As such, there is the potential for vehicles travelling to and from the development to increase pollution levels in this sensitive area. This has been considered throughout the assessment.
- 4.2.3 RBC has concluded that concentrations of all other pollutants considered within the AQS are currently below the relevant AQOs. As such, no further AQMA's have been designated.

4.3 Air Quality Monitoring

- 4.3.1 Monitoring of pollutant concentrations is undertaken by RBC throughout its area of jurisdiction. Data has also been collected by the GMCA to inform the CAP. Recent NO₂ results recorded in the vicinity of the development, as provided in GMCA's 2024 Air Quality Annual Status Report (ASR)¹⁶ and 'CAP NO₂ Diffusion Tube Results 2011-2024'¹⁷, are

¹⁶ GMCA 2024 Air Quality ASR, GMCA, 2024.

¹⁷ Greater Manchester LAQM and CAP NO₂ Diffusion Tube Results 2011-2024, GMCA, 2024.

shown in Table 10.

Table 10 Monitoring Results

Monitoring Site		Monitored Annual Mean NO ₂ Concentration (µg/m ³)		
		2022	2023	2024
RO17ANO	Kingsway, Rochdale	24.5	17.3	14.5
RO22ANO	19 Kingsway, Rochdale	32.2	30.2	26.5
RO23ANO	174 Oldham Road, Rochdale	31.7	29.8	26.1

4.3.2 As shown in Table 10, annual mean NO₂ concentrations were below the AQO of 40µg/m³ at all monitoring locations in recent years. Reference should be made to Figure 2 for a map of the survey positions.

4.3.3 RBC does not undertake monitoring of PM₁₀ and PM_{2.5} 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 across two grid squares. Data for these locations was downloaded from the DEFRA website¹⁸ for the purpose of the assessment and is summarised in Table 11.

Table 11 Background Pollutant Concentration Predictions

NGR (m)	Pollutant	Predicted Background Pollutant Concentration (µg/m ³)		
		2024	2026	2027
389500, 411500	NO ₂	12.52	11.49	11.00
	PM ₁₀	12.33	12.23	12.18
	PM _{2.5}	7.07	6.96	6.91
390500, 411500	NO ₂	12.07	11.11	10.65

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

NGR (m)	Pollutant	Predicted Background Pollutant Concentration (µg/m ³)		
		2024	2026	2027
	PM ₁₀	12.16	12.05	12.00
	PM _{2.5}	7.07	6.96	6.91

4.4.2 As shown in Table 11, predicted background NO₂, PM₁₀ and PM_{2.5} concentrations are below the relevant AQOs 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. These have been defined for construction dust and road vehicle exhaust emission impacts in the following Sections.

Construction Phase Sensitive Receptors

4.5.2 Receptors sensitive to potential dust impacts during 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 Earthworks and Construction Dust Sensitive Receptors

Distance from Site Boundary (m)	Approximate Number of Human Receptors	Approximate Number of Ecological Receptors
Up to 20	10 - 100	2
Up to 50	10 - 100	2
Up to 100	More than 100	-
Up to 250	More than 100	-

4.5.3 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.

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

4.5.4 The two ecological receptors identified in Table 12 are Rochdale Canal SAC and Rochdale Canal SSSI. In accordance with the criteria shown in Table 4, these are considered to be of **high** and **medium** sensitivity, respectively. It should be noted that a **high** sensitivity was utilised throughout the construction phase for ecological receptors in order to provide a conservative assessment.

4.5.5 Based on the criteria shown in Table 4, the sensitivity of human receptors to potential dust impacts was determined as **high**. This was because the identified receptors included residential properties.

Operational Phase Sensitive Receptors

4.5.6 Locations sensitive to potential operational phase road vehicle exhaust emission impacts were identified from a desk-top study. These are summarised in Table 14. Receptor heights were selected based on the location of residential units to allow for less sensitive land uses, such as retail, at ground level.

Table 14 Operational Phase Road Vehicle Exhaust Emission Sensitive Receptor Locations

Receptor		NGR (m)		Height (m)
		X	Y	
R1	Lowerplace Primary School	390509.82	411951.36	1.5
R2	Residential - Kingsway	390456.11	411976.73	1.5
R3	Residential - Oldham Road	390400.53	411884.31	4.5
R4	Residential - Oldham Road	390376.96	411994.17	1.5
R5	Residential - Queensway	390341.54	411935.28	1.5
R6	Residential - Queensway	390154.64	411866.26	1.5
R7	Residential - Queensway	389966.86	411729.06	1.5

Receptor		NGR (m)		Height (m)
		X	Y	
R8	Residential - Queensway	389695.37	411567.81	1.5
R9	Residential - Queensway	389441.07	411486.21	1.5
R10	Sandbrook Community Primary School	389444.64	411426.41	1.5

4.5.7 Reference should be made to Figure 3 for a graphical representation of road vehicle exhaust emissions sensitive receptor locations.

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 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. As such, a detailed assessment of potential dust impacts was required.

5.3 Step 2a - Define the Potential Dust Emission Magnitude

Earthworks

- 5.3.1 Earthworks will primarily involve excavating material, haulage, tipping and stockpiling, as well as site levelling and landscaping. The area of the proposed site is less than 18,000m². In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from earthworks is therefore **small**.

Construction

- 5.3.2 Due to the size of the development, the total building volume is likely to be between 12,000m³ and 75,000m³. In accordance with the criteria outlined in Table 3, the

magnitude of potential dust emissions from construction is therefore **medium**.

Trackout

- 5.3.3 Based on the site area and provision of existing hard standing, it is anticipated that the unpaved road length will be less than 50m during construction. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from trackout is therefore **small**.

5.4 Step 2b - Define the Sensitivity of the Area

Dust Soiling

- 5.4.1 Table 12 shows that there are between 10 and 100 **high** sensitivity receptors within 20m of the site boundary. The sensitivity of the area with respect to dust soiling from 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** sensitivity 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 to be **high**.

Human Health

- 5.4.3 As shown in Table 11, the highest 2026 annual mean PM₁₀ background concentration at the site is 12.23µg/m³. As shown in Table 6, where the background annual mean PM₁₀ concentration is below 24µg/m³ and there are between 10 and 100 **high** sensitivity receptors within 20m of the site boundary, the sensitivity of the area to potential human health impacts from earthworks and construction is **low**.
- 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 in Table 6, is therefore considered to be **medium**.

Ecological

- 5.4.5 There are two ecological receptors within 20m of the site boundary. The sensitivity of these receptors with respect to ecological impacts from earthworks and construction as defined using the criteria in Table 7, is therefore considered to be **high**.
- 5.4.6 There are no ecological receptors within 50m of site access route up to 250m of the site entrance, therefore ecological impacts from trackout have not been considered.

5.5 Step 2c - Define the Risk of Dust Impacts

- 5.5.1 The derived dust emission magnitude for each activity has been combined with the sensitivity of the area to determine the risk of unmitigated impacts in line with the methodology set out in Table 8. A summary of the risk from each dust generating activity is provided in Table 15.

Table 15 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	Earthworks	Small	High	Low
	Construction	Medium	High	Medium
	Trackout	Small	High	Low
Human Health	Earthworks	Small	Low	Negligible
	Construction	Medium	Low	Low
	Trackout	Small	Medium	Low
Ecological	Earthworks	Small	High	Low
	Construction	Medium	High	Medium

- 5.5.2 As indicated in Table 15, the potential risk of dust soiling is **medium** from construction and **low** from earthworks and trackout. The potential risk of human health impacts is **low** from construction and trackout and **negligible** from earthworks. The potential risk of ecological impacts is **medium** from construction and **low** from earthworks.

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 guidance¹⁹ 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 16. These may be reviewed prior to the commencement of construction works and incorporated into a Construction Environmental Management Plan if required by the LA.

Table 16 Fugitive Dust Emission Mitigation Measures

Issue	Control Measure
Communications	• Develop and implement a stakeholder communications plan that includes community engagement before work commences on site • Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager • Display the head or regional office contact information • Develop and implement a Dust Management Plan, which may include measures to control other emissions, approved by the LA
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 - Fully enclose site or specific operations where there is a high potential for dust production and they are active for an extensive period - Avoid site runoff of water or mud - Keep site fencing, barriers and scaffolding clean using wet methods - Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used - 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 - Ensure equipment is available to clean any dry spillages, and clean up spillages as soon as reasonably practicable using wet cleaning methods
Waste management	Avoid bonfires or burning of waste materials
Construction	- Avoid scabbling (roughening of concrete surfaces) if possible - Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out
Trackout	- Use water-assisted dust sweeper on access and local roads, if required - Avoid dry sweeping of large areas - Ensure vehicles entering and leaving site are covered to prevent escape of materials during transport

5.7 **Step 4 - Determine Significant Effects**

5.7.1 Assuming the relevant mitigation measures outlined in Table 16 are implemented, the residual impacts from all dust generating activities is predicted to be **not significant**, in accordance with the IAQM guidance²⁰.

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 development has the potential to increase concentrations of NO₂, PM₁₀ 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 dispersion modelling in order to quantify potential changes in pollutant concentrations at sensitive locations in the vicinity of the site.

6.1.2 The assessment considered the following scenarios:

- 2024 - Verification;
- 2027 - DM; and,
- 2027 - DS.

6.1.3 The DM scenario (i.e. without development) included baseline traffic data, inclusive of anticipated growth for the opening year. The DS scenario (i.e. with development) included baseline traffic data, inclusive of anticipated growth for the opening year, in addition to predicted vehicle trips associated with the operation of the proposals.

6.1.4 For the purpose of the assessment traffic data for 2027 was utilised as the development opening year. Air quality is predicted to improve in the future. However, in order to provide a robust assessment, emission factors for 2024 were utilised within the dispersion model. The use of 2027 traffic data and 2024 emission factors is considered to provide a conservative scenario and therefore a sufficient level of confidence can be placed within the predicted pollution concentrations.

6.1.5 Reference should be made to Appendix 1 for full assessment input details.

6.2 Predicted Concentrations

6.2.1 Annual mean NO₂ concentrations were predicted at the sensitive receptor locations for the DM and DS scenarios. These are summarised in Table 17.

Table 17 Predicted Annual Mean NO₂ Concentrations

Receptor		Predicted Annual Mean NO ₂ Concentration (µg/m ³)		
		DM	DS	Change
R1	Lowerplace Primary School	17.22	17.23	0.01
R2	Residential - Kingsway	25.20	25.24	0.04
R3	Residential - Oldham Road	18.39	18.41	0.02
R4	Residential - Oldham Road	22.90	22.95	0.05
R5	Residential - Queensway	24.85	24.99	0.14
R6	Residential - Queensway	21.77	21.83	0.06
R7	Residential - Queensway	18.39	18.42	0.03
R8	Residential - Queensway	18.12	18.14	0.02
R9	Residential - Queensway	20.60	20.64	0.04
R10	Sandbrook Community Primary School	16.01	16.02	0.01

6.2.2 As indicated in Table 17, predicted annual mean NO₂ concentrations were below the AQO of 40µg/m³ at all receptor locations in both scenarios.

6.2.3 Reference should be made to Figures 4 and 5 for graphical representations of annual mean NO₂ concentrations across the assessment area for the DM and DS scenarios, respectively.

6.2.4 Annual mean PM₁₀ concentrations were predicted at the sensitive receptor locations for the DM and DS scenarios. These are summarised in Table 18.

Table 18 Predicted Annual Mean PM₁₀ Concentrations

Receptor		Predicted Annual Mean PM ₁₀ Concentration (µg/m ³)		
		DM	DS	Change
R1	Lowerplace Primary School	12.17	12.17	0.00
R2	Residential - Kingsway	14.25	14.26	0.01
R3	Residential - Oldham Road	12.43	12.43	0.01

Receptor		Predicted Annual Mean PM ₁₀ Concentration (µg/m ³)		
		DM	DS	Change
R4	Residential - Oldham Road	13.61	13.63	0.01
R5	Residential - Queensway	14.48	14.53	0.05
R6	Residential - Queensway	13.73	13.76	0.02
R7	Residential - Queensway	12.62	12.63	0.01
R8	Residential - Queensway	12.54	12.55	0.01
R9	Residential - Queensway	13.35	13.36	0.01
R10	Sandbrook Community Primary School	11.87	11.88	0.00

6.2.5 As indicated in Table 18, predicted annual mean PM₁₀ concentrations were below the AQO of 40µg/m³ at all receptor locations in both scenarios.

6.2.6 Reference should be made to Figures 6 and 7 for graphical representations of annual mean PM₁₀ concentrations across the assessment area for the DM and DS scenarios, respectively.

6.2.7 Annual mean PM_{2.5} concentrations were predicted at the sensitive receptor locations for the DM and DS scenarios. These are summarised in Table 19.

Table 19 Predicted Annual Mean PM_{2.5} Concentrations

Receptor		Predicted Annual Mean PM _{2.5} Concentration (µg/m ³)		
		DM	DS	Change
R1	Lowerplace Primary School	7.25	7.25	0.00
R2	Residential - Kingsway	8.63	8.64	0.01
R3	Residential - Oldham Road	7.42	7.43	0.00
R4	Residential - Oldham Road	8.21	8.22	0.01
R5	Residential - Queensway	8.78	8.81	0.03
R6	Residential - Queensway	8.28	8.29	0.01

Receptor		Predicted Annual Mean PM _{2.5} Concentration (µg/m ³)		
		DM	DS	Change
R7	Residential - Queensway	7.55	7.55	0.01
R8	Residential - Queensway	7.49	7.50	0.01
R9	Residential - Queensway	8.02	8.03	0.01
R10	Sandbrook Community Primary School	7.05	7.06	0.00

6.2.8 As indicated in Table 19, predicted annual mean PM_{2.5} concentrations were below the Concentration Target of 10µg/m³ at all receptor locations in both scenarios.

6.2.9 Reference should be made to Figures 8 and 9 for graphical representations of annual mean PM_{2.5} concentrations across the assessment area for the DM and DS scenarios, respectively.

6.3 Predicted Impacts

6.3.1 Predicted impacts on annual mean NO₂ concentrations at the sensitive receptor locations are summarised in Table 20.

Table 20 Predicted Impacts - Annual Mean NO₂

Receptor		Predicted Annual Mean NO ₂ Concentration	Predicted Concentration Change as Proportion of AQO (%)	Impact Significance
R1	Lowerplace Primary School	Below 75% of AQO	0	Negligible
R2	Residential - Kingsway	Below 75% of AQO	0	Negligible
R3	Residential - Oldham Road	Below 75% of AQO	0	Negligible
R4	Residential - Oldham Road	Below 75% of AQO	0	Negligible
R5	Residential - Queensway	Below 75% of AQO	0	Negligible
R6	Residential - Queensway	Below 75% of AQO	0	Negligible
R7	Residential - Queensway	Below 75% of AQO	0	Negligible
R8	Residential - Queensway	Below 75% of AQO	0	Negligible

Receptor		Predicted Annual Mean NO ₂ Concentration	Predicted Concentration Change as Proportion of AQO (%)	Impact Significance
R9	Residential - Queensway	Below 75% of AQO	0	Negligible
R10	Sandbrook Community Primary School	Below 75% of AQO	0	Negligible

6.3.2 As indicated in Table 20, impacts on annual mean NO₂ concentrations as a result of the proposed development were predicted to be **negligible** at all receptors.

6.3.3 Predicted impacts on annual mean PM₁₀ concentrations at the sensitive receptor locations are summarised in Table 21.

Table 21 Predicted Impacts - Annual Mean PM₁₀

Receptor		Predicted Annual Mean PM ₁₀ Concentration	Predicted Concentration Change as Proportion of AQO (%)	Impact Significance
R1	Lowerplace Primary School	Below 75% of AQO	0	Negligible
R2	Residential - Kingsway	Below 75% of AQO	0	Negligible
R3	Residential - Oldham Road	Below 75% of AQO	0	Negligible
R4	Residential - Oldham Road	Below 75% of AQO	0	Negligible
R5	Residential - Queensway	Below 75% of AQO	0	Negligible
R6	Residential - Queensway	Below 75% of AQO	0	Negligible
R7	Residential - Queensway	Below 75% of AQO	0	Negligible
R8	Residential - Queensway	Below 75% of AQO	0	Negligible
R9	Residential - Queensway	Below 75% of AQO	0	Negligible
R10	Sandbrook Community Primary School	Below 75% of AQO	0	Negligible

6.3.4 As indicated in Table 21, impacts on annual mean PM₁₀ concentrations as a result of the proposed development were predicted to be **negligible** at all receptors.

6.3.5 Predicted impacts on annual mean PM_{2.5} concentrations at the sensitive receptor locations are summarised in Table 22.

Table 22 Predicted Impacts - Annual Mean PM_{2.5}

Receptor		Predicted Annual Mean PM _{2.5} Concentration	Predicted Concentration Change as Proportion of Concentration Target (%)	Impact Significance
R1	Lowerplace Primary School	Below 75% of Concentration Target	0	Negligible
R2	Residential - Kingsway	76 - 94% of Concentration Target	0	Negligible
R3	Residential - Oldham Road	Below 75% of Concentration Target	0	Negligible
R4	Residential - Oldham Road	76 - 94% of Concentration Target	0	Negligible
R5	Residential - Queensway	76 - 94% of Concentration Target	0	Negligible
R6	Residential - Queensway	76 - 94% of Concentration Target	0	Negligible
R7	Residential - Queensway	76 - 94% of Concentration Target	0	Negligible
R8	Residential - Queensway	Below 75% of Concentration Target	0	Negligible
R9	Residential - Queensway	76 - 94% of Concentration Target	0	Negligible
R10	Sandbrook Community Primary School	Below 75% of Concentration Target	0	Negligible

6.3.6 As indicated in Table 22, impacts on annual mean PM_{2.5} concentrations as a result of the proposed development were predicted to be **negligible** at all receptors.

6.4 Overall Impact Significance

6.4.1 The overall impact of operational phase road traffic emission impacts was determined as **negligible**. This was based on the overall predicted impact at discrete receptor locations and the considerations outlined previously. Further justification is provided in Table 23.

Table 23 Overall Significance of Operational Phase Road Vehicle Exhaust Emission Impacts

Guidance	Comment
The existing and future air quality in the absence of the development	Predicted annual mean NO₂, PM₁₀ and PM_{2.5} concentrations were below the relevant AQOs and Concentration Target at all locations in the DM and DS scenarios It is considered unlikely that future air quality conditions will change significantly in the absence of the development given the relatively established nature of the area
The extent of current and future population exposure to the impacts	The development is not predicted to affect the population exposed to exceedences of the AQOs and Concentration Target
The influence and validity of any assumptions adopted when undertaking the prediction of impacts	It was assumed that vehicle exhaust emission rates and background concentrations will not reduce in future years. This provides conservative results when compared with DEFRA and National Highways methodologies Due to the adopted assumptions it is considered the presented results are sufficiently robust for an assessment of this nature

6.4.2 The IAQM guidance²¹ states that only if the impact is greater than **slight**, the effect is considered **significant**. As impacts were predicted to be **negligible**, overall effects are considered **not significant**, in accordance with the stated methodology.

6.5 Interim Planning Guidance for PM_{2.5}

6.5.1 Interim Planning Guidance²² 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 24, along with the development response.

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

²² <https://uk-air.defra.gov.uk/pm25targets/planning>.

Table 24 Interim Planning Guidance

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 Rochdale, in the vicinity of residential properties and schools. As such, local receptors have the potential to be affected by road vehicle exhaust emissions associated with vehicles travelling to and from the site. However, air quality impacts associated with the development are predicted to be not significant, as shown in Section 6.3 The proposed residential dwellings are set back from the A664 Queensway by approximately 40m, with existing residential units located between the site and the A664. As such, the site is distanced from any major pollution sources and vehicle exhaust emissions, and future residents are not predicted to be exposed to elevated pollution levels As outlined in Table 16, 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 has been designed to ensure future residents will be set back from the A664 Queensway and associated road vehicle exhaust emissions by approximately 40m In order to reduce emissions of PM_{2.5} with associated impacts at nearby receptors, the following measures have been included within the scheme: • Provision of secure cycle storage to encourage the use of alternative transport modes • Provision of Electric Vehicle charging points to encourage the use of low emission vehicles • Inclusion of Air Source Heat Pumps and Photovoltaics The site is also located approximately 140m north-west of Well I'th Lane bus stop. This will encourage sustainable modes of transport 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 24 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

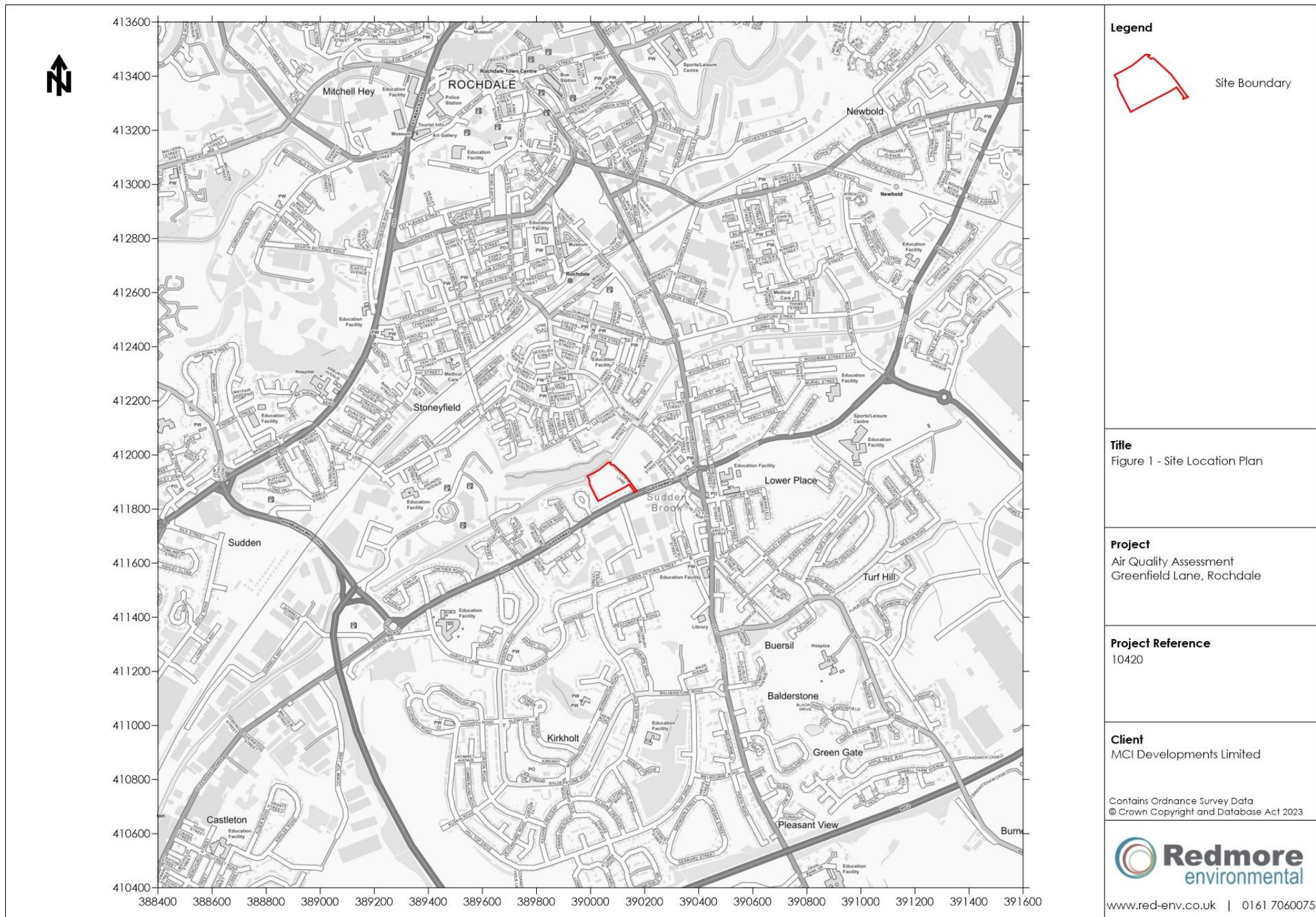
- 7.1.1 Redmore Environmental Ltd was commissioned by MCI Developments Limited to undertake an Air Quality Assessment in support of a planning application for a residential development on land off Greenfield Lane, Rochdale.
- 7.1.2 The development has the potential to cause air quality impacts at sensitive locations during the construction and operational phases. As such, an Air Quality Assessment was undertaken in order to determine baseline conditions and assess potential effects as a result of the construction and operation of the proposals.
- 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. Following implementation, the residual significance of potential air quality impacts from dust generated by earthworks, construction and trackout activities are predicted to be **not significant**.
- 7.1.4 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 site. Dispersion modelling was therefore undertaken in order to predict pollutant concentrations at sensitive locations as a result of emissions from the highway network both with and without the development in place. Results were subsequently verified using local monitoring data.
- 7.1.5 Review of the dispersion modelling results indicated that impacts on annual mean NO₂, PM₁₀ and PM_{2.5} concentrations as a result of traffic exhaust emissions associated with the development were predicted to be **negligible** at all receptor locations. Following consideration of the relevant issues, residual impacts as a result of the operation of the development were considered to be **not significant**, in accordance with the IAQM guidance.
- 7.1.6 Based on the assessment results, air quality factors are not considered a constraint to the development.

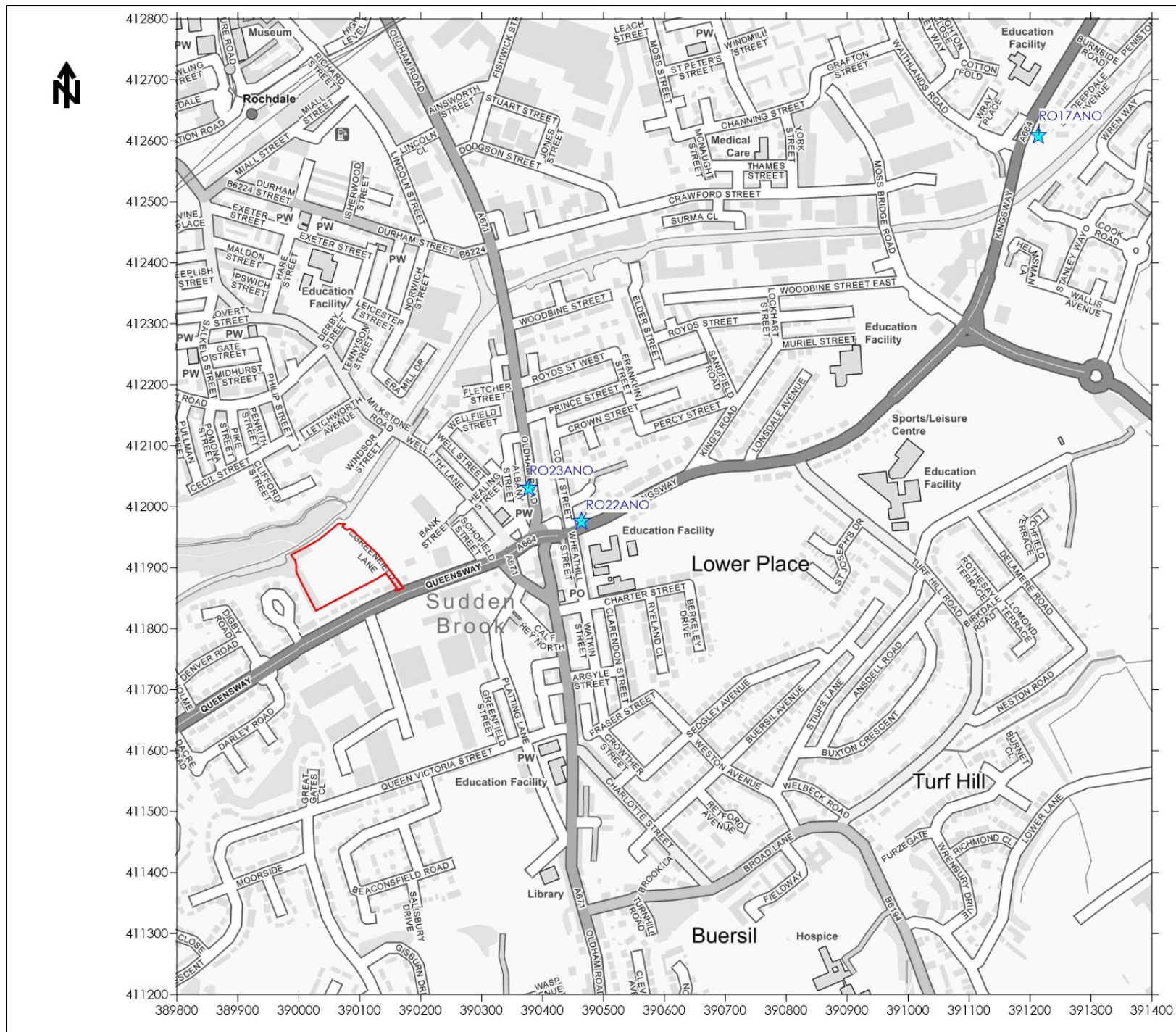
8.0 **ABBREVIATIONS**

AADT	Annual Average Daily Traffic
ADM	Atmospheric Dispersion Modelling
AQMA	Air Quality Management Area
AQLV	Air Quality Limit Value
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
DM	Do-Minimum
DS	Do-Something
EB	Eastbound
EFT	Emissions Factor Toolkit
EPUK	Environmental Protection UK
HDV	Heavy Duty Vehicle
GMCA	Greater Manchester Combined Authority
IAQM	Institute of Air Quality Management
LA	Local Authority
LAQM	Local Air Quality Management
LES	Low Emission Strategy
NGR	National Grid Reference
NO ₂	Nitrogen dioxide
NO _x	Oxides of nitrogen
NPPF	National Planning Policy Framework
NPPG	National Planning Practice Guidance
PfEP	Places for Everyone Plan
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
RBC	Rochdale Borough Council
SAC	Special Area of Conservation
SP	Slow Phase
SSSI	Site of Special Scientific Interest

WB	Westbound
Z0	Roughness length

Figures





Legend



Site Boundary



Monitor

Title

Figure 2 - Monitoring Locations

Project

Air Quality Assessment
Greenfield Lane, Rochdale

Project Reference

10420

Client

MCI Developments Limited

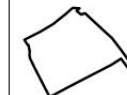
Contains Ordnance Survey Data
© Crown Copyright and Database Act 2023



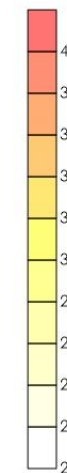
www.red-env.co.uk | 0161 7060075



Legend



Site Boundary



Annual Mean
NO₂
Concentration
(µg/m³)

Title

Figure 4 - Predicted Annual
Mean NO₂ Concentrations (µg/m³)
Do-Minimum

Project

Air Quality Assessment
Greenfield Lane, Rochdale

Project Reference

10420

Client

MCI Developments Limited

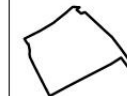
Contains Ordnance Survey Data
© Crown Copyright and Database Act 2023



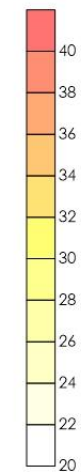
www.red-env.co.uk | 0161 7060075



Legend



Site Boundary



Annual Mean
NO₂
Concentration
(µg/m³)

Title

Figure 5 - Predicted Annual
Mean NO₂ Concentrations (µg/m³)
Do-Something

Project

Air Quality Assessment
Greenfield Lane, Rochdale

Project Reference

10420

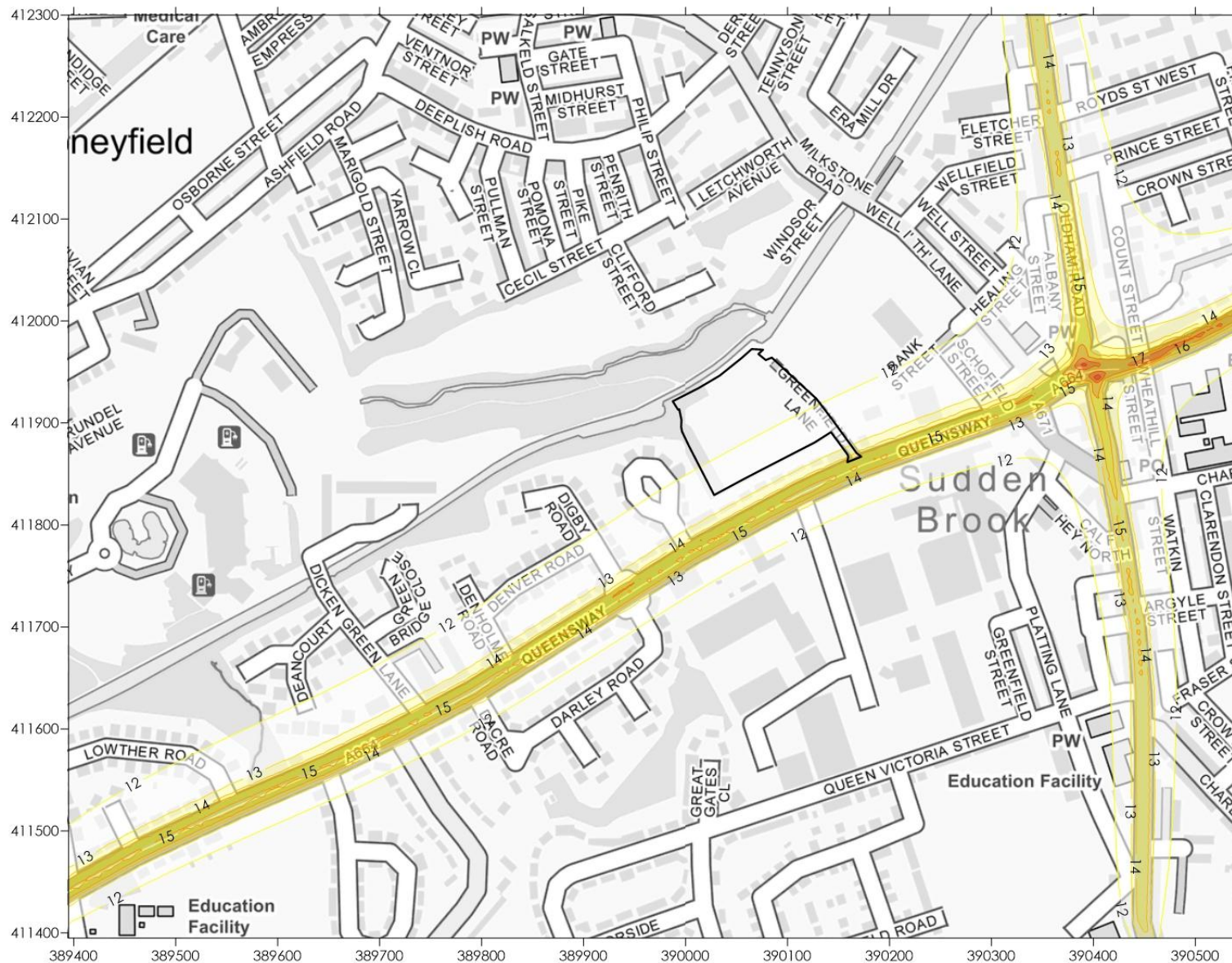
Client

MCI Developments Limited

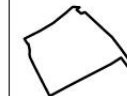
Contains Ordnance Survey Data
© Crown Copyright and Database Act 2023



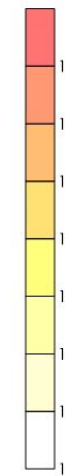
www.red-env.co.uk | 0161 7060075



Legend



Site Boundary



Annual Mean
PM₁₀
Concentration
(µg/m³)

Title

Figure 6 - Predicted Annual
Mean PM₁₀ Concentrations (µg/m³)
Do-Minimum

Project

Air Quality Assessment
Greenfield Lane, Rochdale

Project Reference

10420

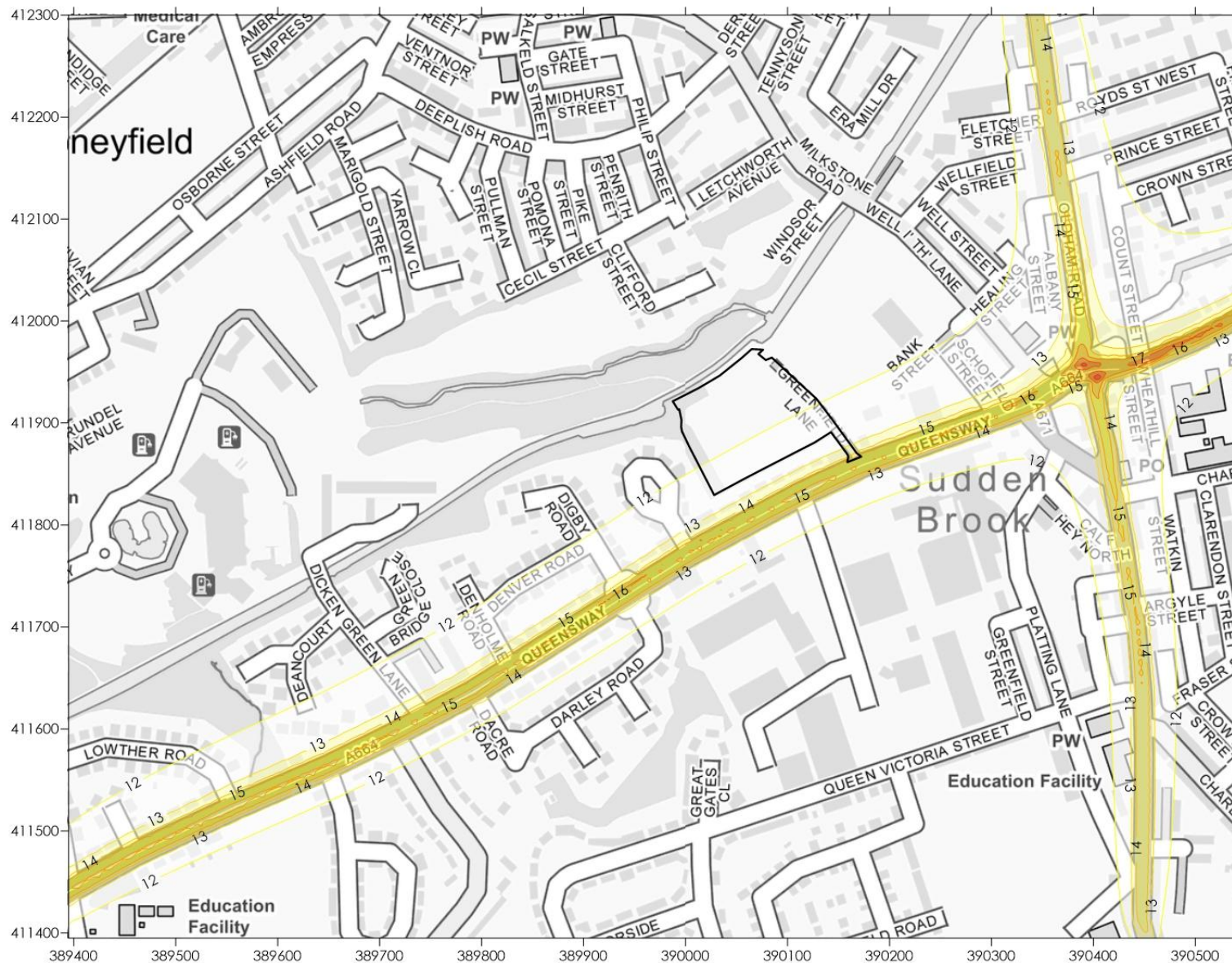
Client

MCI Developments Limited

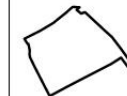
Contains Ordnance Survey Data
© Crown Copyright and Database Act 2023



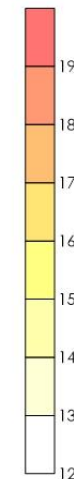
www.red-env.co.uk | 0161 7060075



Legend



Site Boundary



Annual Mean
PM₁₀
Concentration
(µg/m³)

Title

Figure 7 - Predicted Annual
Mean PM₁₀ Concentrations (µg/m³)
Do-Something

Project

Air Quality Assessment
Greenfield Lane, Rochdale

Project Reference

10420

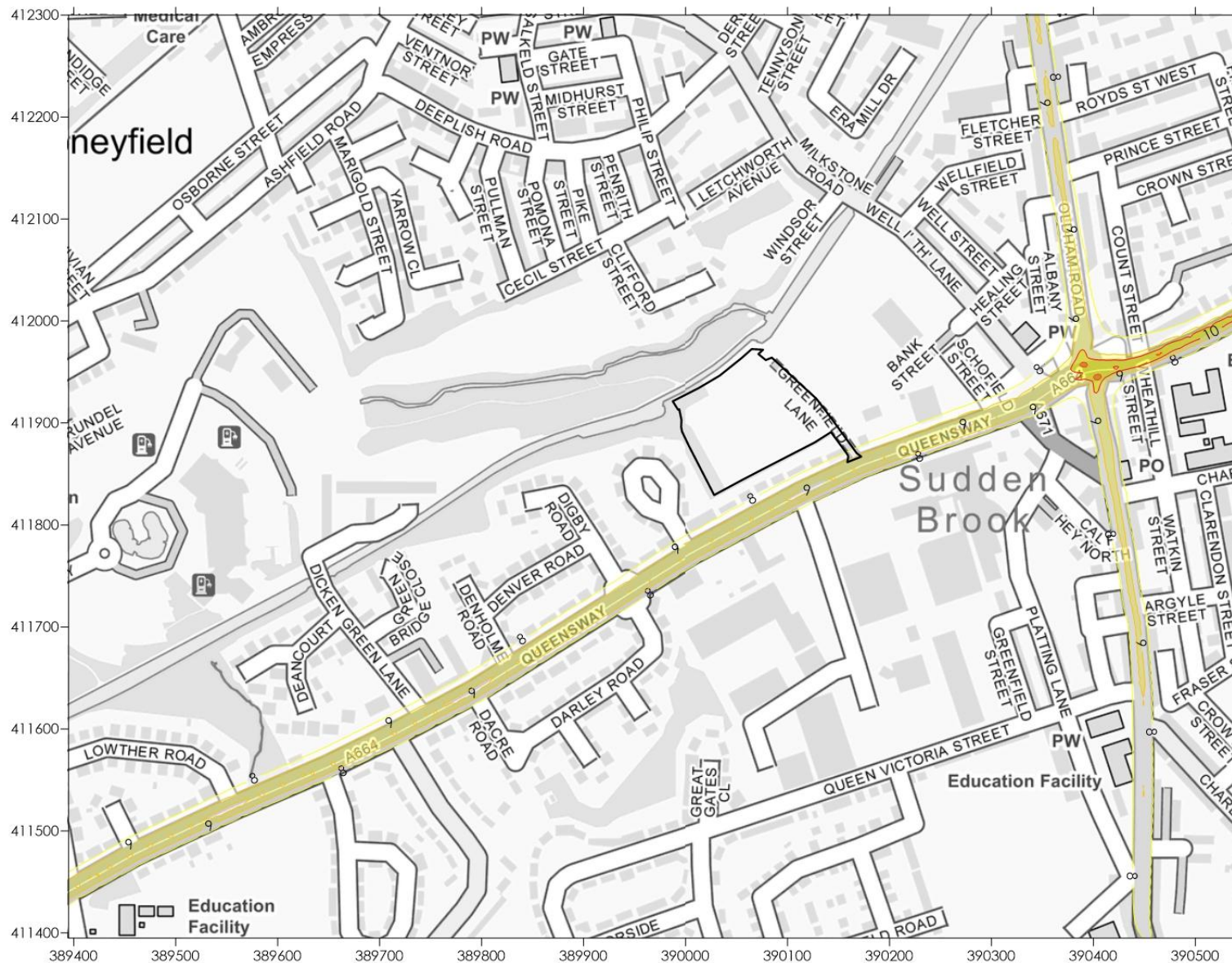
Client

MCI Developments Limited

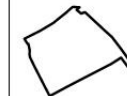
Contains Ordnance Survey Data
© Crown Copyright and Database Act 2023



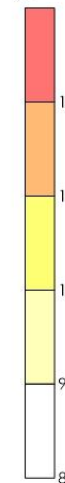
www.red-env.co.uk | 0161 7060075



Legend



Site Boundary



Annual Mean
PM_{2.5}
Concentration
(µg/m³)

Title

Figure 8 - Predicted Annual
Mean PM_{2.5} Concentrations (µg/m³)
Do-Minimum

Project

Air Quality Assessment
Greenfield Lane, Rochdale

Project Reference

10420

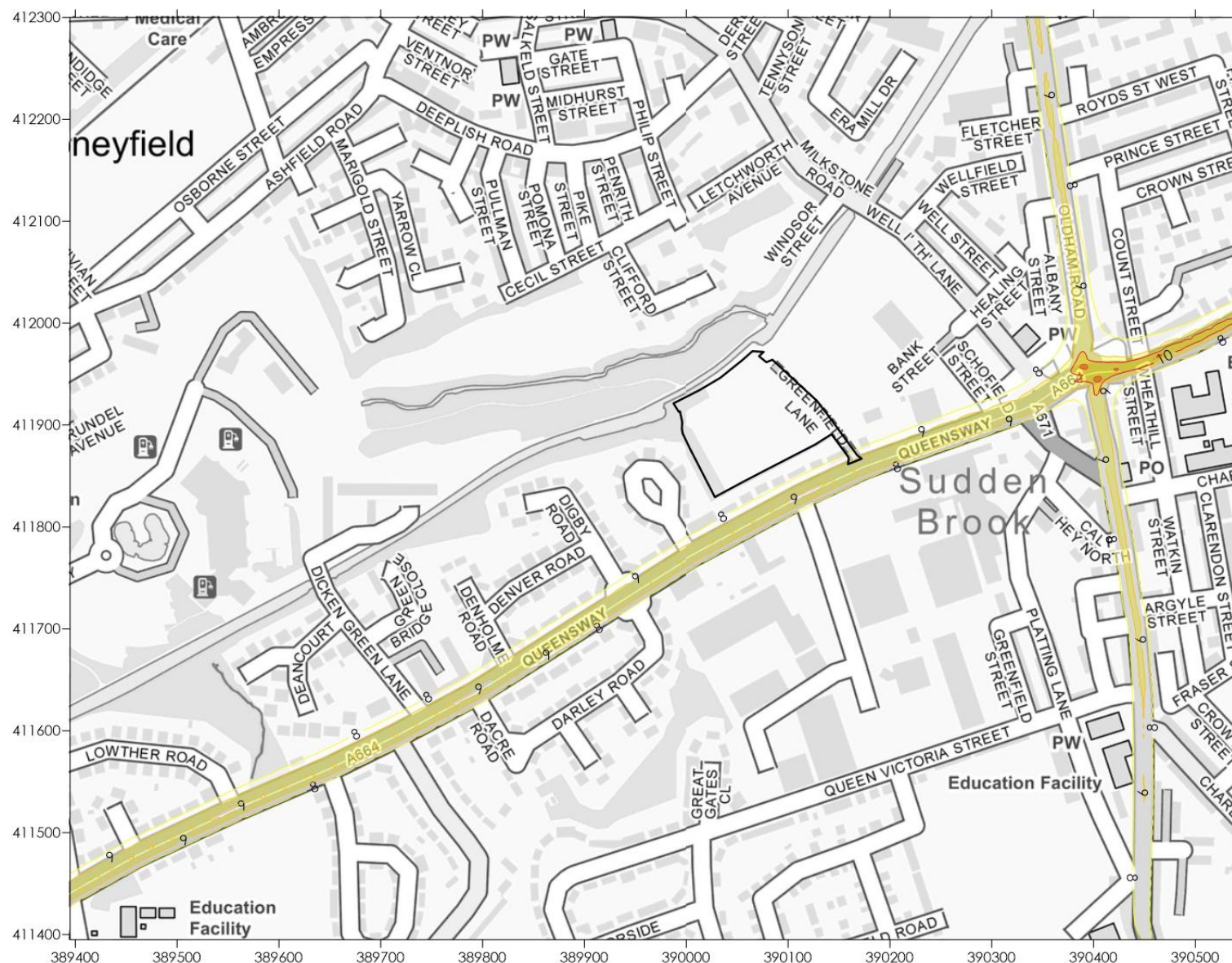
Client

MCI Developments Limited

Contains Ordnance Survey Data
© Crown Copyright and Database Act 2023



www.red-env.co.uk | 0161 7060075



12

9

Figure 9 - Predicted Annual Mean PM_{2.5} Concentrations (µg/m³) Do-Nothing

Air Quality Assessment
Greenfield Lane, Rochdale

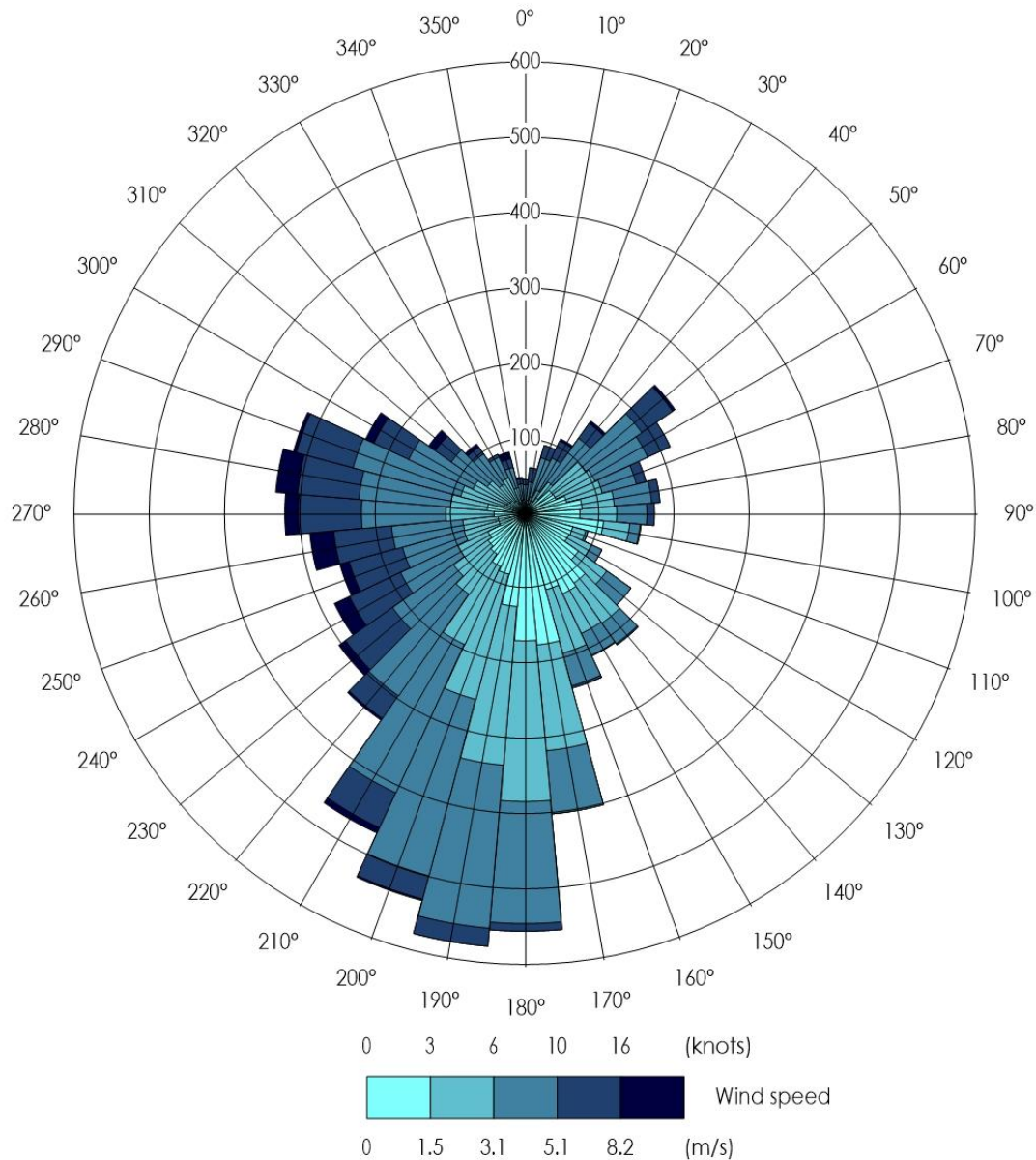
10420

MCI Developments Limited



www.red-env.co.uk | 0161 7060075





Legend

Title
Figure 11 - Wind Rose of 2024
Manchester Airport Meteorological
Data

Project
Air Quality Assessment
Greenfield Lane, Rochdale

Project Reference
10420

Client
MCI Developments Limited

Appendix 1 - Assessment Input Data

Introduction

The proposed development has the potential to cause air quality impacts as a result of emissions associated with vehicles travelling to and from the site. In order to assess changes in NO₂, PM₁₀ and PM_{2.5} concentrations at sensitive locations, detailed dispersion modelling was undertaken in accordance with the following methodology.

Dispersion Model

Dispersion modelling was undertaken using the ADMS-Roads dispersion model (version 5.1.0.2). ADMS-Roads is developed by Cambridge Environmental Research Consultants (CERC) and is routinely used throughout the world for the prediction of pollutant dispersion from road sources. Modelling predictions from this software package are accepted within the UK by the Environment Agency and DEFRA.

The model requires input data that details the following parameters:

- Assessment area;
- Traffic flow data;
- Vehicle emission factors;
- Spatial co-ordinates of emissions;
- Street width;
- Meteorological data;
- Roughness length (z_0); and,
- Monin-Obukhov length.

The relevant inputs are detailed in the following Sections.

Assessment Area

Ambient concentrations were predicted over the area NGR: 389395, 411395 to 390545, 412355. One Cartesian grid was included within the model to produce data suitable for contour plotting using the Surfer software package. The default intelligent grid spacing option was selected within ADMS-Roads in order to improve contour resolution within the vicinity of sources.

Receptors sensitive to potential changes in pollutant concentrations were included in the

assessment as outlined in the main report text.

Reference should be made to Figure 10 for a graphical representation of the assessment grid extents.

Traffic Flow Data

Baseline traffic data for use in the assessment, including 24-hour Annual Average Daily Traffic (AADT) flows and fleet composition as HDV proportion, was obtained from the Department for Transport (DfT)²³. The DfT web tool enables the user to view and download traffic flows on every link of the 'A' road and motorway network, as well as selected minor roads, in Great Britain for the years 2000 to 2024. It should be noted that the DfT web tool is referenced in DEFRA guidance²⁴ as being a suitable source of data for air quality assessments and it is therefore considered to provide a reasonable estimate of traffic flows in the vicinity of the site.

The baseline traffic data was converted to the site opening year utilising a factor obtained from TEMPro (version 8.1). This software package has been developed by the DfT to calculate future traffic growth throughout the UK.

Vehicle movements associated with the development were provided by Eddison's, the Transport Consultants for the project. These were added to the relevant links in order to determine future flows with the development in place.

Road parameters for input into the model were based on the following:

- Road widths were estimated from aerial photography and UK highway design standards;
- Vehicle speeds were estimated as an average for the relevant road link over the course of a 24-hour period;
- Vehicle speeds were determined following review of speed limits within the study extents, as well as congestion data available from GoogleMaps;
- Vehicle speeds specific to slow phases were determined using the methodology outlined in the DEFRA guidance²⁵;

²³ <https://roadtraffic.dft.gov.uk/#6/55.254/-11.107/basemap-regions-countpoints>.

²⁴ Local Air Quality Management (TG22) Technical Guidance, DEFRA, 2022.

²⁵ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

- Necessary adjustments to slow phase vehicle speeds were based upon congestion data available from GoogleMaps; and,
- The length for slow phases was derived using the approaching distance of 25m outlined in the DEFRA guidance²⁶, and adjusted accordingly based on aerial photography and congestion data available from GoogleMaps.

A summary of the traffic flow data is provided in Table A1.1.

Table A1.1 Traffic Data

Link		24-hour AADT Flow			HDV Prop. of Fleet (%)	Road Width (m)	Avg. Vehicle Speed (km/h)
		2024 Verif.	2027 DM	2027 DS			
L1	A664 Queensway Eastbound (EB), West of Site	12,467	12,674	12,762	2.48	4.8	45
L2	A664 Queensway Westbound (WB), West of Site	12,002	12,201	12,289	2.69	4.8	45
L3	A664 Queensway EB, East of Site	12,467	12,674	13,113	2.48	6.2	45
L4	A664 Queensway EB Slow Phase (SP), East of Site	12,467	12,674	12,718	2.48	10.7	20
L5	A664 Queensway WB, East of Site	12,002	12,201	12,245	2.69	4.9	45
L6	A664 Queensway WB SP, East of Site	2,002	12,201	12,245	2.69	6.9	20
L7	A664 Queensway WB SP, East of Oldham Road	12,002	12,201	12,245	2.69	6.2	20
L8	A664 Queensway EB SP, East of Oldham Road	12,467	12,674	12,718	2.48	7.5	20
L9	Kingsway, East of Count Street	24,469	24,875	24,963	2.58	8.0	45
L10	Oldham Road SP, North of Queensway	15,792	16,054	16,142	4.07	13.1	20
L11	Oldham Road, North of Queensway	15,792	16,054	16,142	4.07	10.1	45
L12	Oldham Road SP, South of Queensway	15,792	16,054	16,142	4.07	8.5	20
L13	Oldham Road, South of Queensway	15,792	16,054	16,142	4.07	8.5	45

Reference should be made to Figure 10 for a graphical representation of the road link locations.

²⁶ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

Emission Factors

Emission factors for each link were calculated using the relevant traffic flows and the Emissions Factor Toolkit (EFT) (version 14.0). This has been produced by DEFRA and incorporates COPERT 5.9.1 vehicle emission factors and fleet information.

There is current uncertainty over NO₂ concentrations within the UK, with the implementation of new vehicle emission standards not resulting in the previously expected reduction in roadside levels. Therefore, 2024 emission factors were utilised in preference to the scheme opening year in order to provide robust model outputs. As predictions for 2024 were verified, it is considered the results are a robust indication of conservative concentrations for the future year.

Meteorological Data

Meteorological data used in the assessment was taken from Manchester Airport meteorological station over the period 1st January 2024 to 31st December 2024 (inclusive). Manchester Airport is located at NGR: 381792, 384116, which is approximately 28.8km south-west of the development. It is anticipated that conditions would be reasonably similar over a distance of this magnitude. The data was therefore considered suitable for an assessment of this nature.

All meteorological records used in the assessment were provided by Atmospheric Dispersion Modelling (ADM) Ltd, which is an established distributor of data within the UK. Reference should be made to Figure 11 for a wind rose of utilised meteorological data.

Roughness Length

The z_0 is a modelling parameter applied to allow consideration of surface height roughness elements. A z_0 of 0.5m was used to describe the modelling extents. This value is considered appropriate for the morphology of the area and is suggested within ADMS-Roads as being suitable for 'parkland, open suburbia'.

A z_0 of 0.2m was used to describe the meteorological site. This value is considered appropriate for the morphology of the area due to the large expanse of surrounding flat land use, such as runways and grassland, and is suggested within ADMS-Roads as being suitable for 'agricultural areas (min)'.

Monin-Obukhov Length

The Monin-Obukhov length provides a measure of the stability of the atmosphere. A minimum Monin-Obukhov length of 30m was used to describe the modelling extents and meteorological site. This value is considered appropriate for the nature of both areas and is suggested within ADMS-Roads as being suitable for 'cities and large towns'.

Background Concentrations

A review of DEFRA data²⁷ and local monitoring results^{28,29} was undertaken in order to identify an appropriate background value for use in the assessment. This indicated the annual mean NO₂ concentration recorded at the RO17ANO urban background diffusion tube during 2024 was 14.5µg/m³, higher than the DEFRA background for the grid square containing the site, as shown in Table 11. As such, the monitoring result was used in order to provide conservative predictions.

Annual mean PM₁₀ and PM_{2.5} concentrations were taken from the grid square containing the RO17ANO monitor, NGR: 391500, 412500, in order to provide continuity. These are shown in Table A1.2.

Table A1.2 PM₁₀ and PM_{2.5} Background Pollutant Concentrations - Modelling Extents

Pollutant	Predicted 2024 Background Pollutant Concentration (µg/m ³)
PM ₁₀	11.41
PM _{2.5}	6.75

NO_x to NO₂ Conversion

Predicted annual mean NO_x concentrations were converted to NO₂ concentrations using the spreadsheet (version 9.1) provided by DEFRA, which is the method detailed within DEFRA guidance³⁰.

²⁷ <http://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021>.

²⁸ GMCA 2024 Air Quality ASR, GMCA, 2024.

²⁹ Greater Manchester LAQM and CAP NO₂ Diffusion Tube Results 2011-2024, GMCA, 2024.

³⁰ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

Verification

The results from a dispersion model may differ from measured concentrations for a large number of reasons, including:

- Estimates of background concentrations;
- Uncertainties in source activity data such as traffic flows and emission factors;
- Variations in meteorological conditions;
- Overall model limitations; and,
- Uncertainties associated with monitoring data, including locations.

Model verification is the process by which these and other uncertainties are investigated and where possible minimised. In reality, the differences between modelled and monitored results are likely to be a combination of all of these aspects.

For the purpose of the assessment, model verification was undertaken for 2024 using traffic data, meteorological data and monitoring results from this year.

Monitoring of NO₂ concentration was undertaken at two locations within the vicinity of roads included in the model during 2024. The results were obtained and the road contributions to total NO_x concentrations were calculated following the methodology contained within DEFRA guidance³¹. The monitored annual mean NO₂ concentrations and calculated road NO_x concentrations are summarised in Table A1.3.

Table A1.3 NO_x Verification - Monitoring Results

Monitoring Location		Monitored NO ₂ Concentration (µg/m ³)	Calculated Road NO _x Concentration (µg/m ³)
RO22ANO	19 Kingsway Rochdale	26.5	28.0
RO23ANO	174 Oldham Road Rochdale	26.1	27.0

The annual mean road NO_x concentrations predicted from the dispersion model and the 2024 road NO_x concentrations calculated from the monitoring results are summarised in Table A1.4.

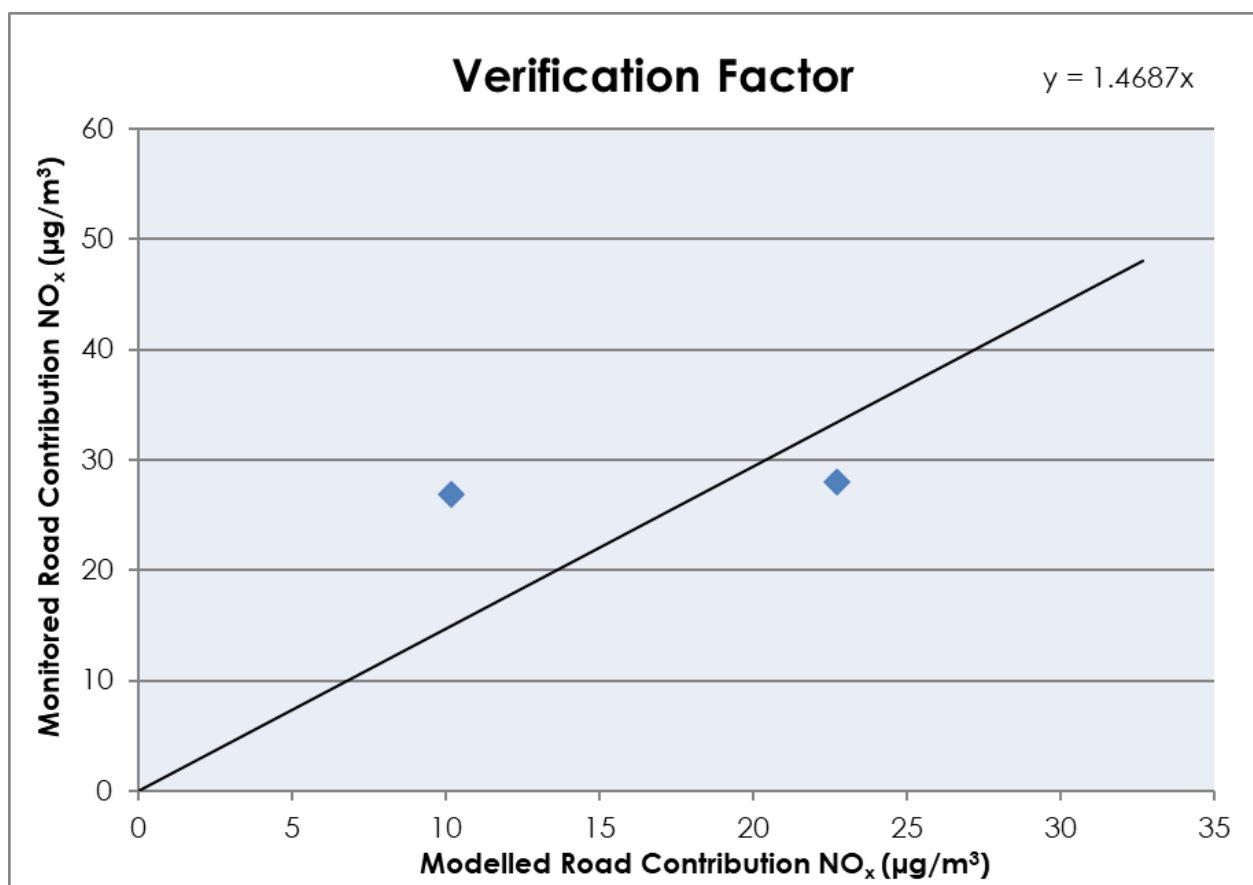
³¹ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

Table A1.4 NO_x Verification - Modelling Results

Monitoring Location		Calculated Road NO _x Concentration (µg/m ³)	Modelled Road NO _x Concentration (µg/m ³)
RO22ANO	19 Kingsway Rochdale	28.0	22.7
RO23ANO	174 Oldham Road Rochdale	27.0	10.2

The monitored and modelled road NO_x concentrations were graphed and the equation of the trendline based on linear progression through zero calculated. This indicated that a verification factor 1.4687 was required to be applied to all road NO_x modelling results, as shown in Graph 1.

Graph 1 NO_x Verification Factor



Monitoring of PM₁₀ or PM_{2.5} concentrations was not undertaken within the assessment extents. The NO_x verification factor was therefore used to adjust model predictions of these species in lieu of more accurate data in accordance with DEFRA guidance³².

³² Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

Appendix 2 - Curricula Vitae

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.
- Undertaken and overseeing pollutant monitoring campaigns.
- Provision of expert advice and attendance at DCO examination process.

SELECT PROJECTS SUMMARY:

Residential and Educational

Air Quality Assessments for a large number of proposed residential and educational developments across the UK. The assessments included consideration of construction phase dust emissions and mitigation was recommended to minimise fugitive dust emissions accordingly. The suitability of the sites for the proposed residential and educational uses was also assessed. The assessment utilised a range of assessment tools including relevant screening criteria, air dispersion modelling using ADMS-Roads, local air quality monitoring and Defra published assessment tools. Where required for sites in London, Air Quality Neutral assessments were also undertaken utilised the Greater London Authority guidance.

Air Quality Monitoring

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 NO₂ diffusion tubes was carried out for use in verification of the dispersion model. Mitigation was recommended where appropriate to reduced the exposure of future uses of the sites to elevated pollutant concentrations.

Odour Assessments

Undertaken to support developments in the UK, including consideration of the impact of existing odour sources on proposed developments or to assess proposed odour releases. A combination of field odour surveys, risk assessments and detailed dispersion modelling were undertaken, with mitigation measures recommended where required.

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. Relevant screening criteria and detailed air dispersion modelling were utilised in the assessment. Mitigation was recommended as required to minimise construction phase dust emissions.

Commercial development,

Workshop - Air quality assessment and input into the EIA for a proposed large scale commercial development near Workshop. 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 and Odour 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.

NATASHA JONES

Air Quality Consultant



BSc (Hons), MSc, AMIEnvSc, AMIAQM

Tel: 0161 706 0075 | Email: natasha.jones@red-env.co.uk

KEY EXPERIENCE:

Natasha is an Environmental Consultant with specialist experience in the air quality sector. Her key capabilities include:

- Production of Air Quality Assessments in accordance with Department for Environment, Food and Rural Affairs (DEFRA) methodologies for a range of residential, commercial and industrial sectors.
- Detailed dispersion modelling of road vehicle exhaust emissions using ADMS-Roads. Studies have included impact assessments on sensitive receptors and exposure of new residents to poor air quality.
- Dispersion modelling of odour from Wastewater Treatment Works to predict the odour footprint and likely effects on amenity of nearby sensitive receptors
- Odour surveys to assess amenity and suitability of sites for potential future development for residential use.
- Production of Air Quality Neutral Assessments in accordance with The London Plan.
- Advanced canyon modelling to evaluate the impact of altered urban topography on air quality in built up areas.
- Measurement and assessment of workplace air quality. This includes monitoring of different parameters in accordance with the EH40/2005 Workplace Exposure Limits (WELS).
- Assessment of construction dust impacts from a range of development sizes.

SELECT PROJECTS SUMMARY:

Redbeck Motel, Crofton

Air Quality Assessment in support of a residential development comprising demolition of the existing motel and construction of up to 90 dwellings on land off Doncaster Road, Crofton. The development had the potential to expose future occupants to any existing air quality issues and cause impacts at sensitive locations. Dispersion modelling was undertaken using ADMS-Roads due to the number of vehicle movements expected to be generated by the development. A construction dust assessment was also performed to provide mitigation for proposed dust generating activities. Results of the study indicated that air quality impacts and fugitive dust emissions were not significant.

Arundel Road, Tangemere

Air Quality Assessment in support of a residential development at Cassons Restaurant, Tangmere. Following concerns from the Local Authority regarding the potential exposure of future residents to poor air quality, dispersion modelling was undertaken in order to predict air quality conditions across the site. Results indicated concentrations did not represent a constraint to planning consent.

Hespin Wood, Carlisle

Monitoring and assessment of Ambient Bioaerosols in support of Environmental Permit compliance for an Open Windrow Compost. The facility has the potential to impact nearby sensitive receptors to *Aspergillus fumigatus* and Mesophilic bacteria. As such, monitoring was undertaken in accordance with the EA M9 guidance to determine conditions within the vicinity of the site. The results indicated both species were below the EA benchmark levels at all positions.

Land off Hayward Gardens, Ashburton South Estate, Putney

Air Quality Neutral Assessment in support of demolition of existing structures and construction of two new buildings to provide 43 dwellings, with a community room. The assessment was carried out in accordance with the London Plan requirements to ensure proposals did not lead to further deterioration of existing air quality. Following discussions and implementation of the identified strategies, compliance with the London Plan was achieved.

Arcade Street, Wigan

Odour Assessment in support of a conversion from existing offices to provide seven apartments. The proposals were located in close proximity to a number of hot food takeaways. As such, the Local Authority raised concerns that odour emissions may cause loss of amenity to future residents. A programme of Field Odour Surveys was undertaken to assess odour impacts from said premises. Results indicated odour effects at the site were not considered significant.

Placefirst, Exchange Quay

Workplace Air Quality Monitoring to investigate concerns that employees may be at risk of exposure to poor air quality as a result of the existing ventilation. Following a previous programme of monitoring, relative humidity levels (RH) were below the Health and Safety Executive guidelines (HSE). As such, an additional programme of monitoring was undertaken. This included monitoring of inhalable and respirable dusts, Volatile Organic Compounds, Carbon monoxide, Carbon dioxide, RH and temperature. Results indicated all parameters were below the relevant WELs and within HSE guidelines.

KEY EXPERIENCE:

Lauren is an Associate with specialist experience in the air quality sector. Her key capabilities include:

- Undertaking and managing a variety of air quality projects in a range of sectors including residential, student accommodation, educational, commercial and industrial projects
- Detailed dispersion modelling of road vehicle and industrial emissions using ADMS-Roads and ADMS-6. 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.
- Co-ordination and management of multi-disciplinary projects and submissions.
- Assessment of fugitive dust impacts from a range of mineral extraction developments.
- Production of air quality mitigation strategies specifically tailored to address issues at individual sites.
- Active STEM Ambassador role, working with local schools to educate about air quality.

SELECT PROJECTS SUMMARY:

Norton Lodge, Malton

An ES Chapter and technical appendix were supplied to support this EIA development. The development comprised a new link road and therefore required multiple assessment scenarios. The Chapter also looked at impacts at ecological designations, impacts with an AQMA, odour from neighbouring facilities and impacts on proposed receptors. The AQMA in Malton was a particular concern for the council. The overall impact was considered to be not significant.

Yorkshire Post Phase 2, Leeds

An Air Quality Assessment to support each of the three proposed towers which form part of the Yorkshire Post Phase 2. These high-rise buildings were proposed for student accommodation and commercial uses. In addition to following LAQM.TG(22) and EPUK&IAQM guidance, the West Yorkshire Low Emissions Strategy (WYLES) Air Quality & Emissions Technical Planning Guidance was followed. Due to the 'Major' development classification in line with the WYLES guidance, damage costs for each tower were calculated. Mitigation measures were suggested. The energy strategy for the development was for a connection to the Leeds PIPES local heating district network. The scheme was approved.

Old Hall Street, Liverpool

An Air Quality Assessment to support a student accommodation development. The scheme is 'car free' and trips generated dispersed to below the threshold once off Old Hall Street. The Site was considered suitable for residential use.

Viadux Phase 2, Manchester

Environmental Impact Assessment to support a high-rise residential led scheme in the city centre. The assessment included both operational and construction phase impacts. Impacts with both phases were considered to be 'not significant'. Additionally, in line with Manchester City Council Air Quality Guidance a Damage Cost calculation was included to ensure that sufficient mitigation was included to reduce air quality impacts as much as possible.

Plot 9b, First Street, Manchester

An ES Chapter to support the EIA development on land off First Street. The assessment included operational and construction phase impacts, in addition to modelling to ensure site suitability. Additionally, in line with Manchester City Council Air Quality Guidance a Damage Cost calculation was included to ensure that sufficient mitigation was included to reduce air quality impacts as much as possible. This included improving footpaths so that the site linked to other Plots within the wider First Street development. The Chapter concluded that impacts were considered not significant.

Winwick Road, Warrington

Air Quality Assessment for the proposed B2/B8 development in Warrington. Changes in pollution levels were considered at sensitive receptors as a result of trips generated and their distribution across the local area. Results of the dispersion modelling study indicated air quality impacts as a result of the scheme were not significant.