Air Quality Assessment

Palatine Road, Didsbury

Client: Marco Living 3 Ltd

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Executive Summary

Redmore Environmental Ltd was commissioned by Marco Living 3 Ltd to undertake an Air Quality Assessment in support of a residential development on land off Palatine Road, Didsbury.

An Air Quality Assessment was undertaken to:

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

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

Potential impacts during the operational phase of the proposals may occur due to road traffic exhaust emissions associated with vehicles travelling to and from the development. Additionally, future residents may be exposed to any existing air quality issues at the site. Dispersion modelling was therefore undertaken in order to predict pollutant concentrations at sensitive locations as a result of emissions from the local 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.

The results of the assessment also demonstrated that predicted pollution levels were below the relevant criteria across the development. As such, the site is considered suitable for the proposed use from an air quality perspective and mitigation is not required.

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

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1.0 INTRODUCTION

1.1 Instruction

1.1.1 Redmore Environmental Ltd was commissioned by Marco Living 3 Ltd to undertake an Air Quality Assessment in support of a residential development on land off Palatine Road, Didsbury.

1.2 Site Location and Context

1.2.1 The site is located on land off Palatine Road, Didsbury, at approximate National Grid Reference (NGR): 383556, 390985. The relevant Local Authority (LA) is Manchester City Council (MCC). Reference should be made to Figure 1 for a map of the site and surrounding area.

1.2.2 The proposals comprise the demolition of existing buildings on site and construction of 83 apartments and 5 townhouses with basement parking. Reference should be made to Figure 2 for a site layout plan.

1.3 Assessment Scope

1.2.3 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;
- Assess risk of future resident exposure to any existing air quality issues; and,
- Identify any requirement for relevant mitigation measures.

1.2.4 This is detailed in the following report.

2.0 LEGISLATION AND POLICY

2.1 Legislation

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

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

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

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

2.1.4 The Environmental Improvement Plan 2025[2] 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 (µg/m³)	Averaging Period
NO_2	40	Annual mean
	200	1-hour mean, not to be exceeded on more than 18 occasions per annum
PM_{10}	40	Annual mean
	50	24-hour mean, not to be exceeded on more than 35 occasions per annum
$PM_{2.5}$	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 guidance[3] on where the AQOs for pollutants considered within this report apply.

Table 2 Examples of Where the Air Quality Objectives Apply

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

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

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

2.2 Local Air Quality Management

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

2.3 Dust

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

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

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

2.4 National Planning Policy

2.4.1 The revised National Planning Policy Framework[4] (NPPF) was published in December 2024 and 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 achievement 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 Guidance[5] (NPPG) web-based resource was launched by the Department for Communities and Local Government to support the NPPF and make it more accessible. The air quality pages are summarised under the following headings:

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

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

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

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

2.6 Regional Planning Policy

2.6.1 The 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 Councils on 21st March 2024. Review of the document indicated the following policies of relevant 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, focussing particularly on locations where people live, where children learn and plat, where there are impacts on the green infrastructure network and where air quality targets are not being met, including:
>
> 1. Locating and designing development, and focusing transport investment, so as to reduce reliance on forms of transport that generate air pollution;
> 2. Determining planning applications having regard to the most recent development and planning control guidance published jointly by the Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK), and the most recent IAQM Guidance on the Assessment of Dust from Demolition and Construction, or relevant successor guidance, including the requirement for developers to submit construction management plans as appropriate;
> 3. Requiring applications for developments that could have an adverse impact on air quality to submit relevant air pollution data so that adverse impacts on air quality can be fully assessed and development only permitted where they are acceptable and/or suitable mitigation can be provided;

6 PfEP, GMCA, 2024.

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 (EV) 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,

[…]"

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

2.7 Local Planning Policy

2.7.1 The Manchester Local Development Framework consists of a series of planning documents of which the Core Strategy Development Plan Document (DPD)[7], is central. This was adopted by MCC on 11th July 2012. Review of the document indicated the following policies of relevance to this report:

> "Policy DM 1
>
> Development Management
>
> All development should have regard to the following specific issues for which more detailed guidance may be given within a supplementary planning document:
>
> […]
>
> Effects on amenity, including privacy, light, noise, vibration, air quality, odours, litter, vermin, birds, road safety and traffic generation. This could also include proposals which would be sensitive to existing environmental conditions, such as noise."
>
> "Policy EN16 Air Quality
>
> The Council will seek to improve the air quality within Manchester."

2.7.2 It should be noted that MCC issued an addendum to the Core Strategy DPD in 2024. This confirms that the remaining text of Policy EN16 has been superseded by PfEP Policy JP-S5, as referenced in Section 2.6.

[7] Core Strategy DPD, MCC, 2012.

2.7.3 MCC has also produced the 'Air Quality & Planning Technical Guidance' Supplementary Planning Document (SPD)[8] which provides guidance on assessing the impact of proposed development in air quality.

2.7.4 The above policies and SPD were taken into consideration throughout the undertaking of 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 NO_2 within their areas of jurisdiction in the quickest possible timeframe. The GMCA and Transport for Greater Manchester (TfGM) have collaborated to develop a Clean Air Plan (CAP) to ensure Greater Manchester achieves compliance with the relevant AQOs for NO_2 by 2026 at the latest. The initial CAP proposal included implementation of a Class C charging Clean Air Zone. The GMCA has subsequently updated the CAP proposals[9] 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] Air Quality & Planning Technical Guidance SPD, MCC, 2022.

[9] Case for a New GM CAP, 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, as well as expose future residents to elevated pollution levels. These factors 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 Institute of Air Quality Management (IAQM) document 'Guidance on the Assessment of Dust from Demolition and Construction V2.2'[10].

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

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

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

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

3.2.4 The assessment steps are detailed below.

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

Step 1 - Screen the Need for an Assessment

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

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

Step 2 - Assess the Risk of Dust Impacts

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

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

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

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

Table 3 Construction Dust - Magnitude of Emission

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

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

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

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

Table 4 Construction Dust - Sensitivities of People and Ecological Receptors

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

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

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

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

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

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

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

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

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

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

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

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

3.2.15 Table 8 outlines the risk category from demolition activities.

Table 8 Construction Dust - Dust Risk Category from Demolition Activities

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

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

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

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

Step 3 - Site-specific Mitigation

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

Step 4 - Determine Significance

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

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

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

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

3.3 Operational Phase Assessment

3.3.1 The development has the potential to affect air quality as a result of road traffic exhaust emissions associated with vehicles travelling to and from the site, as well as expose future residents to any existing air quality issues. 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 2028 should the proposals not proceed); and,
- Opening year Do-Something (DS) (predicted traffic flows in 2028 should the proposals be completed).

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

Potential Development Impacts

3.3.3 Locations sensitive to potential changes in off-site pollutant concentrations were identified within 200m of the highway network in accordance with the guidance provided by National Highways[12] on the likely limits of pollutant dispersion from road sources. The criteria provided within DEFRA guidance[13] 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.

[12] LA 105: Air Quality, Highways England, 2019.

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

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'[14]. 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 10.

Table 10 Significance of Operational Phase Road Vehicle Exhaust Emission Impacts

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 10 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**.

3.3.6 Following the prediction of impacts at discrete receptor locations, the IAQM document[15] 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.

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

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

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 guidance[16] suggests the provision of details of the assessor's qualifications and experience. These are provided in Appendix 2.

Potential Future Exposure

3.3.9 The proposals have the potential to expose future residents to any existing air quality issues. In order to assess NO_2, PM_{10} and $PM_{2.5}$ concentrations across the development site, detailed dispersion modelling was undertaken. The results were subsequently compared with the relevant AQOs and Concentration Target to determine any potential areas of exceedence and associated constraints to the proposed land use. Reference should be made to Appendix 1 for a full description of the assessment input data.

16 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), MCC has undertaken Review and Assessment of air quality within their area of jurisdiction. This process has indicated that annual mean concentrations of NO_2 are above the AQO within the city. As such, a number of roads within Manchester have been included within the GMCA AQMA. This is described as follows:

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

4.2.2 The site is located 20m west of the AQMA. As such, there is the potential for vehicles travelling to and from the site to increase pollution levels in this sensitive area. This has been considered throughout the assessment.

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

4.3 Air Quality Monitoring

4.3.1 Monitoring of pollutant concentrations is undertaken by MCC throughout their area of jurisdiction. Recent NO_2 concentrations recorded in the vicinity of the development, as provided in 'Greater Manchester LAQM and CAP NO_2 Diffusion Tube Results 2011-2024[17], are shown in Table 11. Exceedences of the relevant AQO are shown in **bold**.

[17] Greater Manchester LAQM and CAP NO_2 Diffusion Tube Results 2011-2024, GMCA, 2025.

Table 11 Monitoring Results

Monitoring Site	Monitored NO_2 Concentration (µg/m³)		
	2022	2023	2024
Manchester 37	32.1	28.5	28.6
Manchester 93	34.0	31.0	30.4
CAP_MANC_016	37.5	36.9	34.6
CAP_MANC_017	**41.9**	**41.4**	38.7
CAP_MANC_018	**57.2**	**52.5**	**50.1**
CAP_MANC_026	23.6	22.1	20.6
CAP_MANC_027	**49.2**	**49.1**	**55.3**
CAP_MANC_030	**40.0**	39.7	37.1
CAP_MANC_031[(a)]	27.5	-	-
CAP_MANC_032[(a)]	29.5	-	-
CAP_MANC_033	**41.9**	38.4	34.0
CAP_MANC_035	33.7	31.2	29.8
CAP_MANC_176	**47.0**	**45.6**	**43.8**

Note: (a) Monitor decommissioned in 2022.

4.3.2 As shown in Table 11, annual mean NO_2 concentrations were above the AQO of 40µg/m³ at six locations in recent years. As the monitors are adjacent to the roadside within an AQMA, elevated levels are to be expected. Concentrations were below the AQO at the remaining seven monitors in recent years. Reference should be made to Figure 3 for a map of the survey positions.

4.3.3 Monitoring of PM_{10} or $PM_{2.5}$ concentrations is not undertaken within the vicinity of the site.

4.4 Background Pollutant Concentrations

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

383500, 390500. Data for this location was downloaded from the DEFRA website[18] for the purpose of the assessment and is summarised in Table 12.

Table 12 Background Pollutant Concentration Predictions

Pollutant	Predicted Background Pollutant Concentration (µg/m³)		
	2024	2026	2028
NO_2	14.19	12.99	11.79
PM_{10}	12.38	12.27	12.16
$PM_{2.5}$	7.15	7.04	6.93

4.4.2 As shown in Table 12, predicted background concentrations are below the relevant AQOs, Interim Target and Concentration Target at the development site.

4.5 Sensitive Receptors

4.5.1 A sensitive receptor is defined as any location which may be affected by changes in air quality as a result of a development. These have been defined for 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 demolition, earthworks and construction were identified from a desk-top study of the area up to 250m from the development boundary. These are summarised in Table 13.

Table 13 Demolition, Earthworks and Construction Dust Sensitive Receptors

Distance from Site Boundary (m)	Approximate Number of Human Receptors	Approximate Number of Ecological Receptors
Up to 20	10 - 100	0
Up to 50	More than 100	0
Up to 100	More than 100	-

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

Distance from Site Boundary (m)	Approximate Number of Human Receptors	Approximate Number of Ecological Receptors
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 14.

Table 14 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 There are no ecological receptors within 50m of the development boundary or the access route within 250m of the site entrance. As such, ecological impacts have not been assessed further within this report.

4.5.5 Based on the criteria shown in Table 4, the sensitivity of the receiving environment to potential dust impacts was determined as a **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 and are summarised in Table 15.

Table 15 Operational Phase Road Vehicle Exhaust Emissions Sensitive Receptor Locations

Receptor		NGR (m)	
		X	Y
R1	Residential - Twyford Close	383778.0	391181.8
R2	Residential - Rookery Gardens	383732.5	391154.8
R3	Residential - Riverside Lodge	383693.1	391102.5

Receptor		NGR (m)	
		X	Y
R4	Residential - 242 Palatine Road	383560.3	390921.6
R5	Residential - Palatine Road	383492.6	390850.9
R6	Residential - Ashfield Lodge	383726.8	390962.2
R7	Residential - Hayescroft Gardens	383782.8	391030.2

4.5.7 Reference should be made to Figure 4 for a graphical representation of road vehicle exhaust emission 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 demolition, excavation, groundworks, cutting, construction 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

Demolition

5.3.1 Demolition will be undertaken at the start of the construction phase and will involve clearance of the existing buildings on site. The area of the proposed development site is less than 12,000m^3. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from demolition is therefore **small**.

Earthworks

5.3.2 Earthworks will primarily involve excavating material, haulage, tipping and stockpiling, as well as site levelling and landscaping. The area of the proposed development site is less

than 18,000m^2. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from earthworks is therefore **small**.

Construction

5.3.3 Due to the size of the development, the total building volume is estimated to be between 12,000m^3 and 75,000m^3. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from construction is therefore **medium**.

Trackout

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

5.4 Step 2b - Define the Sensitivity of the Area

Dust Soiling

5.4.1 Table 13 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 demolition, earthworks and construction, as defined using the criteria summarised in Table 5, is therefore considered to be **high**.

5.4.2 Table 14 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 **high**.

Human Health

5.4.3 Table 12 shows the annual mean PM_{10} background concentration at the site is 12.27µg/m^3. As shown in Table 6, where the background annual mean PM_{10} concentration is below 24µg/m^3 and there are between 10 and 100 **high** sensitivity

receptors within 20m of the site boundary, the sensitivity of the area with respect to human health from demolition, earthworks and construction is considered to be **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 summarised in Table 6, is therefore considered to be **medium**.

5.5 Step 2c - Define the Risk of Dust Impacts

5.5.1 The derived dust emission magnitude for each activity was combined with the sensitivity of the area to determine the risk of unmitigated impacts in line with the methodology set out in Table 9. A summary of the risk from each dust generating activity is provided in Table 16.

Table 16 Summary of Potential Unmitigated Dust Risks

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

5.5.2 As indicated in Table 16, the potential risk of dust soiling is **medium** from demolition and construction and **low** from earthworks and trackout. The potential risk of human health impacts is **low** from construction and trackout and **negligible** from demolition and 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 guidance[19] provides potential mitigation measures to reduce impacts as a result of fugitive dust emissions during the construction phase. These have been adapted for the development site as summarised in Table 17. These may be reviewed prior to the commencement of construction works and incorporated into a Construction Environmental Management Plan or similar if required by the LA.

Table 17 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 (DMP), 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
Demolition	• Ensure effective water suppression is used during demolition • Avoid explosive blasting, using appropriate manual or mechanical alternatives • Bag and remove any biological debris or damp down such material before demolition
Earthworks	• Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable • Use Hessian mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil • Only remove the cover in small areas during work and not all at once
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 • Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery

Issue	Control Measure
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 • Implement a wheel washing system, if required

5.7 Step 4 - Determine Significance

5.7.1 Assuming the relevant mitigation measures outlined in Table 17 are implemented, the residual impacts from all dust generating activities is predicted to be **not significant**, in accordance with the IAQM guidance[20].

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

6.0 OPERATIONAL PHASE ASSESSMENT

6.1 Introduction

6.1.1 The development has the potential to increase concentrations of NO_2, PM_{10} and $PM_{2.5}$ as a result of road traffic exhaust emissions associated with vehicles travelling to and from the site during the operational phase. An assessment was therefore undertaken using dispersion modelling in order to quantify potential changes in pollutant concentrations at sensitive locations in the vicinity of the site, as well as consider potential exposure of future residents to AQO and Concentration Target exceedences.

6.1.2 The assessment considered the following scenarios:

- 2024 - Verification;
- 2028 - DM; and,
- 2028 - DS.

6.1.3 The DM scenario (i.e. without development) included baseline traffic data, inclusive of anticipated growth, for the relevant assessment year. The DS scenario (i.e. with development) included baseline traffic data, inclusive of anticipated growth, 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 2028 was utilised as the development opening year. Air quality is predicted to improve in the future. However, in order to provide a robust assessment, emissions factors and background concentrations for 2024 were utilised within the dispersion model. The use of 2028 traffic data and 2024 emission factors is considered to provide a worst-case 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 Potential Development Impacts

Predicted Concentrations

6.2.1 Annual mean NO_2 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 NO_2 Concentrations

Receptor		Predicted Annual Mean NO_2 Concentration (µg/m³)		
		DM	DS	Change
R1	Residential - Twyford Close	20.89	20.92	0.03
R2	Residential - Rookery Gardens	24.01	24.06	0.05
R3	Residential - Riverside Lodge	21.71	21.75	0.04
R4	Residential - 242 Palatine Road	21.70	21.73	0.03
R5	Residential - Palatine Road	23.06	23.09	0.03
R6	Residential - Ashfield Lodge	16.69	16.70	0.01
R7	Residential - Hayescroft Gardens	16.36	16.37	0.01

6.2.2 As indicated in Table 18, predicted annual mean NO_2 concentrations were below the relevant AQO at all sensitive receptors in both scenarios.

6.2.3 Reference should be made to Figures 5 and 6 for graphical representations of annual mean NO_2 concentrations across the assessment area for the DM and DS scenarios, respectively.

6.2.4 Annual mean PM_{10} 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_{10} Concentrations

Receptor		Predicted Annual Mean PM_{10} Concentration (µg/m³)		
		DM	DS	Change
R1	Residential - Twyford Close	14.38	14.39	0.01

Receptor		Predicted Annual Mean PM_{10} Concentration ($\mu g/m^3$)		
		DM	DS	Change
R2	Residential - Rookery Gardens	15.45	15.47	0.02
R3	Residential - Riverside Lodge	14.63	14.64	0.01
R4	Residential - 242 Palatine Road	14.54	14.55	0.01
R5	Residential - Palatine Road	14.94	14.95	0.01
R6	Residential - Ashfield Lodge	12.97	12.97	0.00
R7	Residential - Hayescroft Gardens	12.89	12.89	0.00

6.2.5 As indicated in Table 19, predicted annual mean PM_{10} concentrations were below the relevant AQO at all sensitive receptors in both scenarios.

6.2.6 Reference should be made to Figures 7 and 8 for graphical representations of annual mean PM_{10} 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 20.

Table 20 Predicted Annual Mean $PM_{2.5}$ Concentrations

Receptor		Predicted Annual Mean $PM_{2.5}$ Concentration ($\mu g/m^3$)		
		DM	DS	Change
R1	Residential - Twyford Close	8.47	8.47	0.01
R2	Residential - Rookery Gardens	9.17	9.18	0.01
R3	Residential - Riverside Lodge	8.63	8.64	0.01
R4	Residential - 242 Palatine Road	8.57	8.58	0.01
R5	Residential - Palatine Road	8.83	8.84	0.01
R6	Residential - Ashfield Lodge	7.54	7.54	0.00
R7	Residential - Hayescroft Gardens	7.49	7.49	0.00

6.2.8 As indicated in Table 20, predicted annual mean $PM_{2.5}$ concentrations were below Concentration Target at all sensitive receptors in both the DM and DS scenarios.

6.2.9 Reference should be made to Figures 9 and 10 for graphical representations of annual mean $PM_{2.5}$ concentrations across the assessment area for the DM and DS scenarios, respectively.

Predicted Impacts

6.2.10 Predicted impacts on annual mean NO_2 concentrations at the sensitive receptor locations are summarised in Table 21.

Table 21 Predicted Impacts - NO_2

Receptor		Predicted Annual Mean NO_2 Concentration	Predicted Concentration Change as Proportion of AQO (%)	Impact Significance
R1	Residential - Twyford Close	Below 75% of AQO	0	Negligible
R2	Residential - Rookery Gardens	Below 75% of AQO	0	Negligible
R3	Residential - Riverside Lodge	Below 75% of AQO	0	Negligible
R4	Residential - 242 Palatine Road	Below 75% of AQO	0	Negligible
R5	Residential - Palatine Road	Below 75% of AQO	0	Negligible
R6	Residential - Ashfield Lodge	Below 75% of AQO	0	Negligible
R7	Residential - Hayescroft Gardens	Below 75% of AQO	0	Negligible

6.2.11 As indicated in Table 21, impacts on annual mean NO_2 concentrations as a result of the proposed development were predicted to be **negligible** at all receptor locations.

6.2.12 Predicted impacts on annual mean PM_{10} concentrations at the sensitive receptor locations are summarised in Table 22.

Table 22 Predicted Impacts - PM_{10}

Receptor		Predicted Annual Mean PM_{10} Concentration	Predicted Concentration Change as Proportion of AQO (%)	Impact Significance
R1	Residential - Twyford Close	Below 75% of AQO	0	Negligible
R2	Residential - Rookery Gardens	Below 75% of AQO	0	Negligible
R3	Residential - Riverside Lodge	Below 75% of AQO	0	Negligible
R4	Residential - 242 Palatine Road	Below 75% of AQO	0	Negligible
R5	Residential - Palatine Road	Below 75% of AQO	0	Negligible
R6	Residential - Ashfield Lodge	Below 75% of AQO	0	Negligible
R7	Residential - Hayescroft Gardens	Below 75% of AQO	0	Negligible

6.2.13 As indicated in Table 22, impacts on annual mean PM_{10} concentrations as a result of the proposed development were predicted to be **negligible** at all receptor locations.

6.2.14 Predicted impacts on annual mean $PM_{2.5}$ concentrations at the sensitive receptor locations are summarised in Table 23.

Table 23 Predicted Impacts - $PM_{2.5}$

Receptor		Predicted Annual Mean $PM_{2.5}$ Concentration	Predicted Conc. Change as Proportion of Concentration Target (%)	Impact Significance
R1	Residential - Twyford Close	76 - 94% of Concentration Target	0	Negligible
R2	Residential - Rookery Gardens	76 - 94% of Concentration Target	0	Negligible
R3	Residential - Riverside Lodge	76 - 94% of Concentration Target	0	Negligible
R4	Residential - 242 Palatine Road	76 - 94% of Concentration Target	0	Negligible
R5	Residential - Palatine Road	76 - 94% of Concentration Target	0	Negligible

Receptor		Predicted Annual Mean $PM_{2.5}$ Concentration	Predicted Conc. Change as Proportion of Concentration Target (%)	Impact Significance
R6	Residential - Ashfield Lodge	76 - 94% of Concentration Target	0	Negligible
R7	Residential - Hayescroft Gardens	Below 75% of Concentration Target	0	Negligible

6.2.15 As indicated in Table 23, impacts on annual mean $PM_{2.5}$ concentrations as a result of the proposed development were predicted to be **negligible** at all receptor locations.

6.3 Potential Future Exposure

6.3.1 The proposed development has the potential to cause the exposure of future residents to elevated pollution levels. Dispersion modelling was therefore undertaken with the inputs described in Appendix 1 to quantify air quality conditions at the site. Reference should be made to Figures 6, 8 and 10 for graphical representations of annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations.

6.3.2 As shown in Figure 6, annual mean NO_2 concentrations were predicted to be below the AQO of 40µg/m^3 at the proposed building façade. The maximum level was 22.74µg/m^3.

6.3.3 As shown in Figure 8, annual mean PM_{10} concentrations were predicted to be below the AQO of 40µg/m^3 at the proposed building façade. The maximum level was 14.91µg/m^3.

6.3.4 As shown in Figure 10, annual mean $PM_{2.5}$ concentrations were predicted to be below the Concentration Target of 10µg/m^3 at the proposed building façade. The maximum level was 8.81µg/m^3.

6.3.5 Based on the assessment results, future residents are not predicted to be exposed to pollutant concentrations above the AQOs and Concentration Target. As such, the site is considered suitable for the proposed use from an air quality perspective.

6.4 Overall Impact Significance

6.4.1 The overall significance of operational phase road traffic emission impacts was determined as **negligible**. This was based on the overall predicted impacts at discrete receptor locations and the considerations outlined previously. Further justification is provided in Table 24.

Table 24 Overall Impact Significance of Road Vehicle Exhaust Emission Impacts

Guidance	Comment
The existing and future air quality in the absence of the development	Predicted annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations were below the relevant AQOs and Concentration Target at all locations in the DM scenario 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, IT or CT
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 worst-case 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 guidance[21] 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 Mitigation

6.5.1 As air quality impacts associated with the proposals were predicted to be **not significant**, further mitigation to control effects is not considered necessary. However, a number of measures have been included within the scheme in accordance with the requirements of

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

the IAQM document 'Land-Use Planning & Development Control: Planning for Air Quality'[22] to encourage the use of sustainable transport modes, manage vehicle flows and reduce pollution around the site. Table 25 describes the good practice design principles detailed in the IAQM guidance along with how each has been addressed with regards to the proposals.

Table 25 Good Practice Design Principles

Phase	Principle	Action
Design Phase	New developments should not contravene the Councils AQAP, or render any of the measures unworkable	It is confirmed that the proposals will not contravene MCC's AQAP or render any of the measures unworkable
	Wherever possible, new developments should not create a new "street canyon", or a building configuration that inhibits effective pollution dispersion	The proposals will not lead to the generation of a street canyon
	Delivering sustainable development should be the key theme of any application	The proposals have been designed to encourage sustainable transport behaviours, with the development providing 54 cycle spaces within a dedicated bike store
Operational Phase	The provision of at least 1 Electric Vehicle (EV) "rapid charge" point per 10 residential dwellings and/or 1,000m^2 of commercial floor space. Where on-site parking is provided for residential dwellings, EV charging points for each parking space should be made	The development will provide 40 EV charging points as a minimum
	Where development generates significant traffic, provision of a detailed Travel Plan (with provision to measure its implementation and effect) which sets out measures to encourage sustainable means of transport (public, cycling and walking) via subsidised or free ticketing, improvised links to bus stops, improved infrastructure and layouts to improve accessibility and safety	A Travel Plan will be produced in support of the development

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

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

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

6.6 Interim Planning Guidance for $PM_{2.5}$

6.6.1 Interim Planning Guidance[23] 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 26, along with the development response.

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

Table 26 Interim Planning Guidance Questions

Question	Response
How has exposure to $PM_{2.5}$ been considered when selecting the development site? Factors to consider include: • Site proximity to people (particularly large populations and/or vulnerable groups, e.g. schools, hospitals, care homes, areas of deprivation) and the impact of the development on these • Site proximity to pollution sources and the impact of these on users of the development • Exposure and emissions during both construction and in-use	The site is located on the outskirts of Didsbury, approximately 1km south-west of the centre. As such, the scheme is set back from large populations and vulnerable groups and associated emissions are unlikely to have a significant impact on existing air quality conditions. This is supported by the assessment results summarised previously The main pollution source of concern to the site is the B5167 - Palatine Road, which is adjacent to the development boundary. However, as outlined in Section 6.3, $PM_{2.5}$ concentrations at the building façade were predicted to be below the Concentration Target. The site is therefore considered suitable for the proposed end use As outlined in Table 17, 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	A number of mitigation measures have been incorporated into the design of the scheme in order to reduce $PM_{2.5}$ exposure for future residents. These include the following: • Residential units are set back from the B5167 - Palatine Road and associated vehicle exhaust emissions • Retention of trees along the site boundary fronting the B5167 - Palatine Road to provide screening to vehicle emissions In order to reduce emissions of $PM_{2.5}$ with associated impacts at nearby receptors, the following measures have also been included: • Provision of 38 EV Charging points to reduce reliance on diesel and petrol vehicles • Provision of secure cycle storage to encourage residents to use sustainable transport modes 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

6.6.2 Based on the responses provided in Table 26 and the results of the assessment, as outlined in Sections 5.7 and 6.4, 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 Marco Living 3 Ltd to undertake an Air Quality Assessment in support of a residential development on land off Palatine Road, Didsbury.

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

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

7.1.4 The development has the potential to impact on existing air quality in the vicinity of the site and expose future residents to elevated pollution levels during operation. 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 NO_2, PM_{10} 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.

7.1.6 The results of the dispersion modelling assessment also indicated that predicted annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations were below the relevant AQOs and Concentration Target across the development. The site is therefore considered suitable for the proposed use from an air quality perspective.

7.1.7 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.

7.1.8 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
AQLV	Air Quality Limit Value
AQMA	Air Quality Management Area
AQO	Air Quality Objective
AQS	Air Quality Strategy
ASR	Annual Status Report
CAP	Clean Air Plan
CERC	Cambridge Environmental Research Consultants
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DM	Do-Minimum
DMP	Dust Management Plan
DPD	Development Plan Document
DS	Do-Something
EV	Electric Vehicle
GMCA	Greater Manchester Combined Authority
HDV	Heavy Duty Vehicle
IAQM	Institute of Air Quality Management
LA	Local Authority
LAQM	Local Air Quality Management
MCC	Manchester City Council
NB	Northbound
NGR	National Grid Reference
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
NPPF	National Planning Policy Framework
NPPG	National Planning Policy 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
SB	Southbound
SPD	Supplementary Planning Document
TfGM	Transport for Greater Manchester

z_0	Roughness length

Figures



Legend

Site Boundary

Title
Figure 1 - Site Location

Project
Air Quality Assessment
Palatine Road, Didsbury

Project Reference
8730-1

Client
Marco Living 3 Ltd

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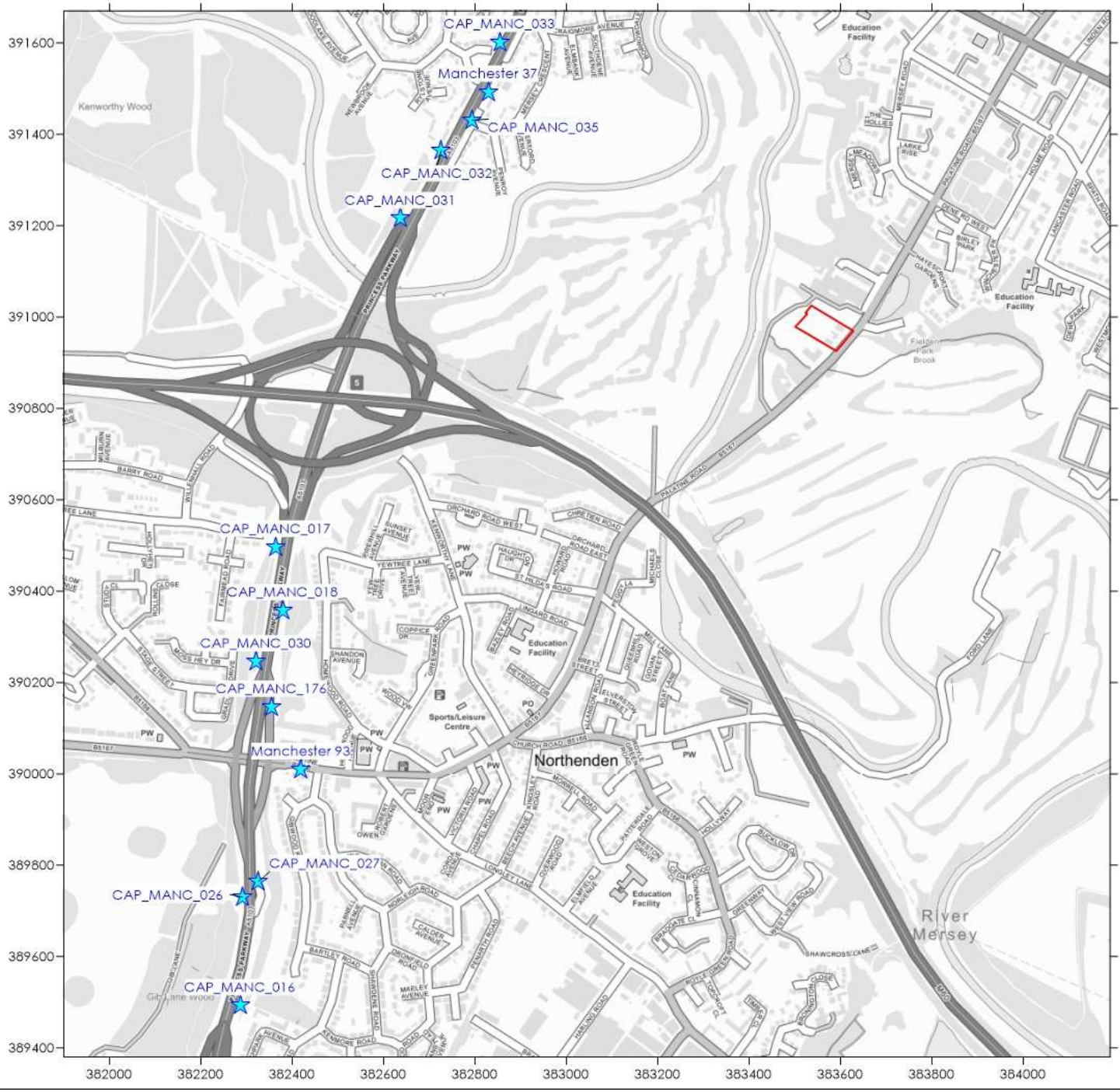
Title
Figure 2 - Site Layout

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Air Quality Assessment
Palatine Road, Didsbury

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Legend

Site Boundary

Monitor

Title
Figure 3 - Monitoring Locations

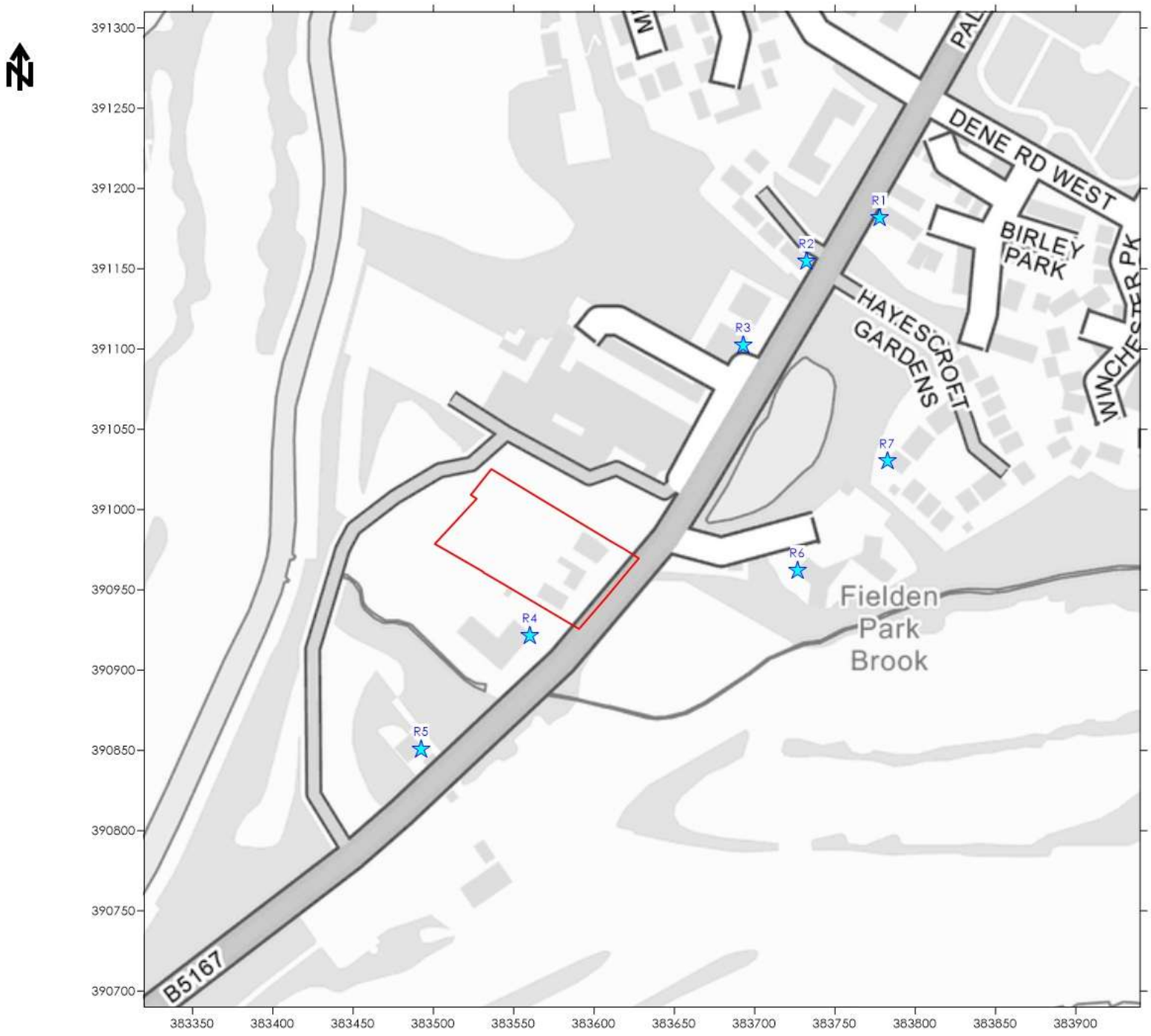
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Legend

Site Boundary

Receptors

Title

Figure 4 - Operational Phase Road Vehicle Exhaust Emission Sensitive Receptor Locations

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Legend

Site Boundary

Annual Mean NO_2 Concentration ($\mu g/m^3$)

36
34
32
30
28
26
24
22
20

Title
Figure 5 - Predicted Annual Mean NO_2 Concentration ($\mu g/m^3$) Do-Minimum

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Air Quality Assessment
Palatine Road, Didsbury

Project Reference
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Site Boundary

Proposed Development

Annual Mean NO_2 Concentration (µg/m³)

36
34
32
30
28
26
24
22
20

Title

Figure 6 - Predicted Annual Mean NO_2 Concentration (µg/m³) Do-Something

Project

Air Quality Assessment
Palatine Road, Didsbury

Project Reference

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Site Boundary

Annual Mean PM_{10} Concentration ($\mu g/m^3$)

20
19
18
17
16
15
14

Title
Figure 7 - Predicted Annual Mean PM_{10} Concentration ($\mu g/m^3$) Do-Minimum

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Legend

Site Boundary

Proposed Development

Annual Mean PM_{10} Concentration ($\mu g/m^3$)

20
19
18
17
16
15
14

Title

Figure 8 - Predicted Annual Mean PM_{10} Concentration ($\mu g/m^3$) Do-Something

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Air Quality Assessment
Palatine Road, Didsbury

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Legend

Site Boundary

Proposed Development

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

12
11.5
11
10.5
10
9.5
9
8.5

Title
Figure 10 - Predicted Annual Mean $PM_{2.5}$ Concentration (µg/m³) Do-Something

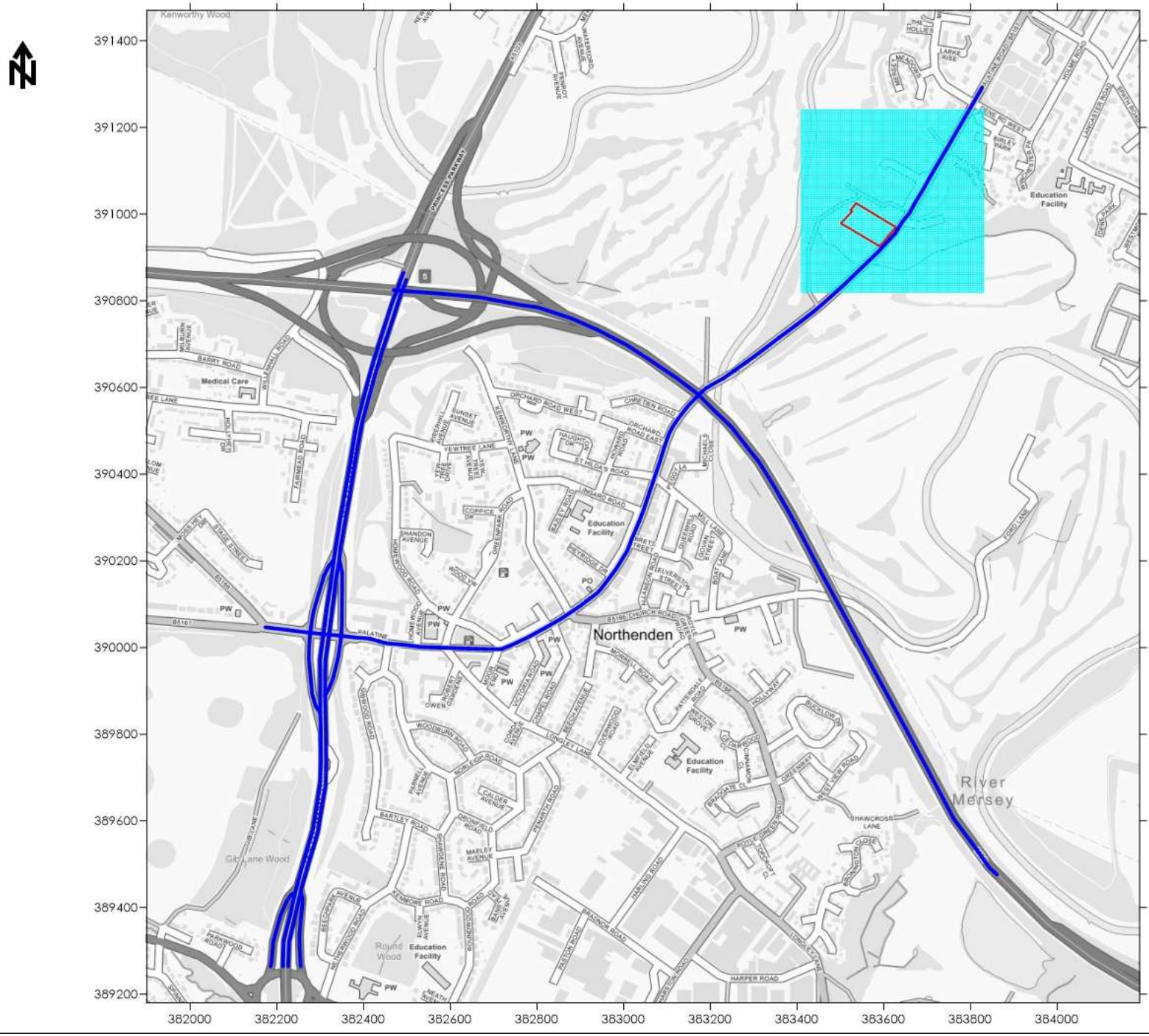
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Legend

Site Boundary

Output Grid

Road Link

Title
Figure 11 - ADMS-Roads Inputs

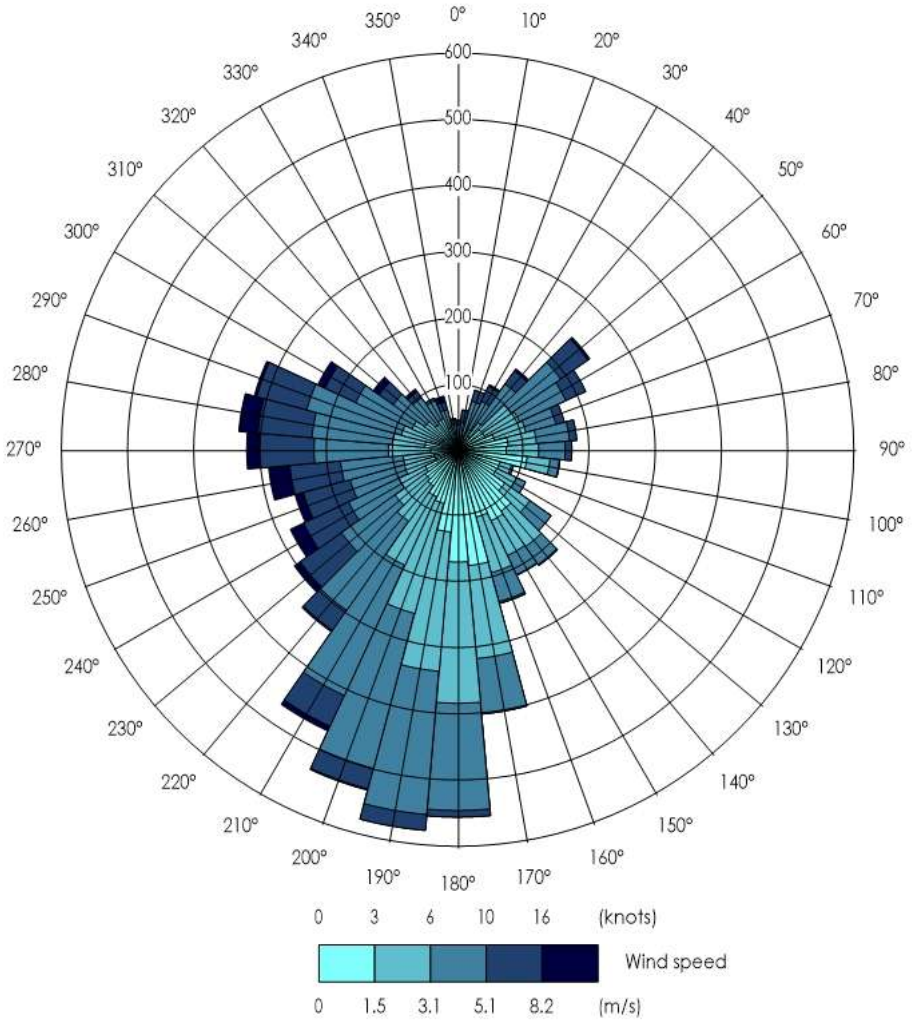
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Title
Figure 12 - Wind Rose of 2024 Manchester Airport Meteorological Data

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Palatine Road, Didsbury

Project Reference
8730-1

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Appendix 1 - Assessment Input Data

Introduction

The proposals have the potential to cause air quality impacts as a result of exhaust emissions associated with vehicles travelling to and from the development, as well as expose future residents to any existing air quality issues at the site. In order to assess NO_2, PM_{10} 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: 383410, 390820 to 383830, 391240. One Cartesian grid was included within the model to produce data suitable for contour plotting using the Surfer software package.

Reference should be made to Figure 11 for a graphical representation of the assessment grid extents.

Receptors potentially sensitive to changes in pollutant concentrations were included in the assessment as outlined in the main report text.

Traffic Flow Data

Traffic data for use in the assessment, including 24-hour Annual Average Daily Traffic (AADT) flows and fleet composition as HDV proportion, was provided by SK Transport Planning Ltd, the Transport Consultants for the project.

Baseline traffic data for a number of roads were not available from the Transport Consultant and was therefore supplemented with information from the Department for Transport (DfT)[24]. 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 1999 to 2024. It should be noted that the DfT web tool is referenced in DEFRA guidance[25] 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.

Road widths and vehicle speeds were estimated from aerial photography and UK highway design standards. 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	2028 DM	2028 DS			
L1	Palatine Road north of Site	14,563	15,892	15,996	2.60	8.5	45
L2	Palatine Road between Site and Norleigh Road	14,563	15,892	15,980	2.60	7.4	45
L3	Palatine Road west of Norleigh Road	15,240	16,632	16,719	2.90	15.1	35

24 https://roadtraffic.dft.gov.uk/#6/55.250/-1.000/basemap-regions-countpoints

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

Link		24-hour AADT Flow			HDV Prop. of Fleet (%)	Road Width (m)	Avg. Vehicle Speed (km/h)
		2024	2028 DM	2028 DS			
L4	M60	93,702	95,876	95,963	2.81	23.3	90
L5	Princess Parkway northbound (NB) south of Palatine Road	60,540	61,945	62,032	3.37	10.5	75
L6	Princess Parkway NB at Palatine Road junction	60,540	61,945	62,032	3.37	10.9	75
L7	Princess Parkway NB north of Palatine Road junction	60,540	61,945	62,032	3.37	14.2	75
L8	Princess Parkway southbound (SB) south of Palatine Road	60,299	61,698	61,785	3.27	10.7	75
L9	Princess Parkway SB at Palatine Road junction	60,299	61,698	61,785	3.27	11.0	75
L10	Princess Parkway SB north of Palatine Road junction	60,299	61,698	61,785	3.27	14.8	75
L11	Slip road to Princess Parkway NB at Junction 3A	9,081	9,292	9,379	3.37	7.2	40
L12	Slip road from Princess Parkway SB at Junction 3A	9,045	9,255	9,342	3.27	6.8	40
L13	Slip road from Princess Parkway NB to Palatine Road	9,081	9,292	9,379	3.37	6.8	40
L14	Slip road from Palatine Road to Princess Parkway NB	9,081	9,292	9,379	3.37	7.4	40
L15	Slip road from Palatine Road to Princess Parkway SB	9,045	9,255	9,342	3.27	9.7	40
L16	Slip road from Princess Parkway SB to Palatine Road	9,045	9,255	9,342	3.27	6.4	40

Reference should be made to Figure 11 for a graphical representation of the road link locations.

Emission Factors

Emission factors for each link were calculated using the relevant traffic flows and the Emissions Factor Toolkit (version 14.1). This has been produced by DEFRA and incorporates COPERT 5.9.1 vehicle emission factors.

There is current uncertainty over NO_2 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 worst case 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 meteorological station is located at NGR: 381792, 384116, which is approximately 7km 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 12 for a wind rose of the 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 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 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

Annual mean NO_2, PM_{10} and $PM_{2.5}$ background concentrations for use in this assessment were obtained from the DEFRA mapping study for the grid square containing the development site, as shown in Table 12.

Similarly to emission factors, background concentrations from 2024 were utilised in preference to the future year. This provided a robust assessment and is likely to overestimate pollutant concentrations during the operation of the proposal.

NO_x to NO_2 Conversion

Predicted annual mean NO_x concentrations were converted to NO_2 concentrations using the spreadsheet (version 8.1) provided by DEFRA, which is the method detailed within DEFRA guidance[26].

Verification

The predicted 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.

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

MCC undertook monitoring of NO_2 concentrations at eight locations within the vicinity of roads included in the dispersion model during 2024. However, as outlined in the 'Greater Manchester LAQM and CAP NO_2 Diffusion Tube Results 2011-2024'[27] report, the monitoring site CAP_MANC_026 was not considered compliant with Limit Value Siting Criteria due to a nearby sign obstructing airflow to the diffusion tube. As such, results from this monitor were removed from the verification process. Results from the remaining positions were obtained and the road contributions to total NO_x concentrations calculated following the methodology contained within DEFRA guidance[28]. The monitored annual mean NO_2 concentrations and calculated road NO_x concentrations are summarised in Table A1.2.

Table A1.2 NO_x Verification - Monitoring Results

Monitoring Location	Monitored NO_2 Concentration ($\mu g/m^3$)	Calculated Road NO_x Concentration ($\mu g/m^3$)
Manchester 93	30.4	39.36
CAP_MANC_016	34.6	51.74
CAP_MANC_030	37.1	59.65
CAP_MANC_017	38.7	64.94
CAP_MANC_176	43.8	83.05
CAP_MANC_027	55.3	130.9
CAP_MANC_018	50.1	108.1

The annual mean road NO_x concentrations predicted from the dispersion model and the road NO_x concentrations calculated from the monitoring results are summarised in Table A1.3.

Table A1.3 NO_x Verification - Modelling Results

Monitoring Location	Calculated Road NO_x Concentration ($\mu g/m^3$)	Modelled Road NO_x Concentration ($\mu g/m^3$)
Manchester 93	39.36	10.68
CAP_MANC_016	51.74	23.56
CAP_MANC_030	59.65	29.61

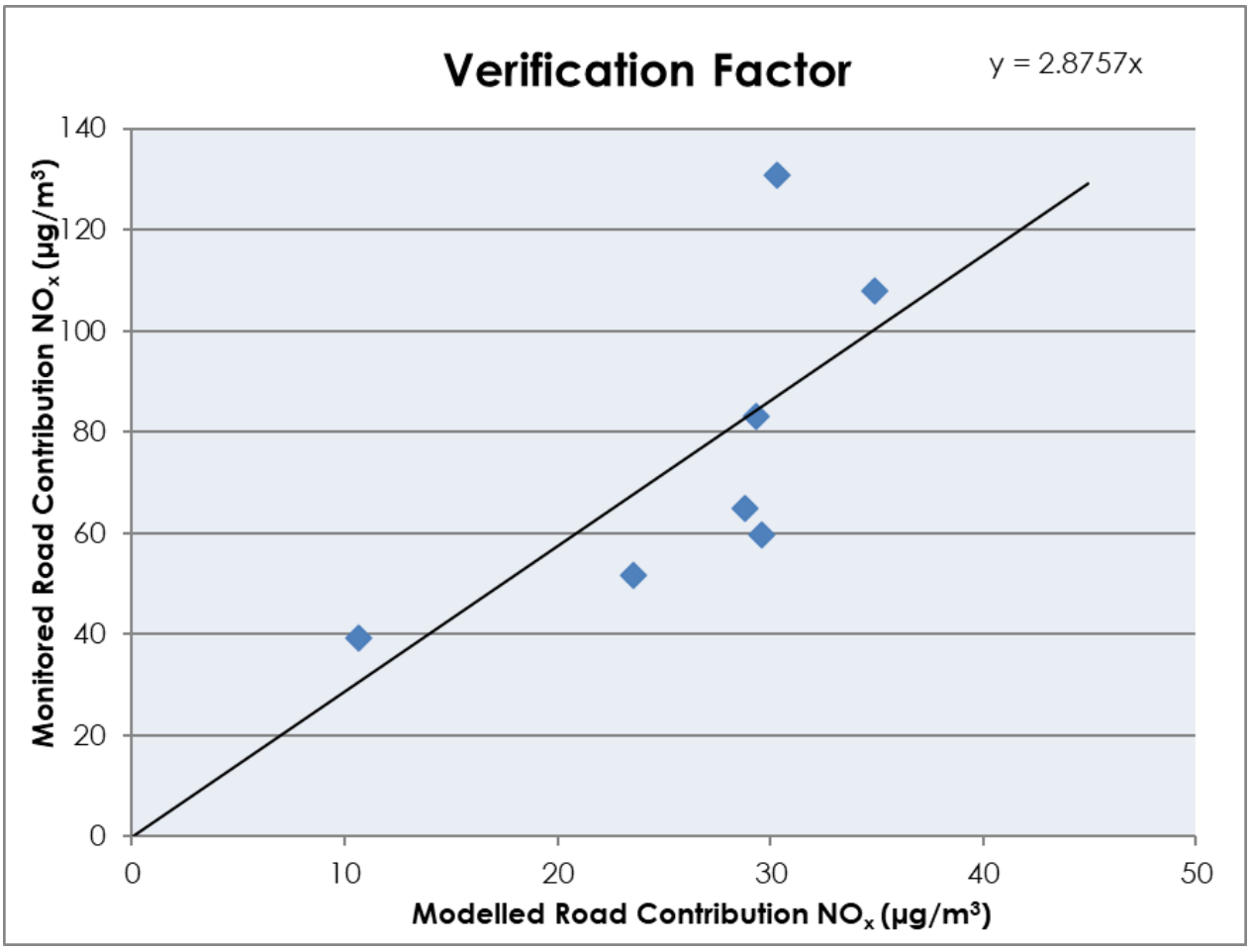
27 Greater Manchester LAQM and CAP NO_2 Diffusion Tube Results 2011-2024, GMCA, 2024.

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

Monitoring Location	Calculated Road NO_x Concentration (µg/m³)	Modelled Road NO_x Concentration (µg/m³)
CAP_MANC_017	64.94	28.81
CAP_MANC_176	83.05	29.35
CAP_MANC_027	130.9	30.32
CAP_MANC_018	108.1	34.90

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 a verification factor of 2.8757 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 PM_{10} and $PM_{2.5}$ concentrations is 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 guidance[29].

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

Appendix 2 - Curriculum Vitae

EMILY PEARS-RYDING

Director

BSc (Hons), MIAQM, MIEnvSc

Tel: 0161 706 0075 | Email: emily.pears-ryding@red-env.co.uk

KEY EXPERIENCE:

Emily is a Director 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 and industrial emissions using ADMS-Roads and ADMS-5. 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 mineral extraction developments.
- Assessment of petrol stations to address benzene concentrations and their impact on adjacent developments.
- Production of air quality mitigation strategies specifically tailored to address issues at individual sites.
- Assessment of potential effects associated with network realignment schemes and highway developments.

SELECT PROJECTS SUMMARY:

Broad Street, Birmingham

Air Quality Assessment in support of a residential-led development on land at Broad Street, Birmingham. The proposals were located adjacent to a section of the Midland Metro Westside which runs along Broad Street. Consideration was made to the potential for re-alignment of the local road network as a result of the Metro to effect pollution levels at the development. The assessment indicated NO_2 concentrations exceeded air quality criteria from ground to third floor level as a result of road vehicle exhaust emissions. Mitigation was therefore specified for the affected units.

Home Farm, Forest Road, Warfield

Ecological Air Quality Assessment in support of a residential development. Natural England held concerns regarding potential impacts at sensitive ecological designations as a result of traffic exhaust emissions associated with the development. The predicted change in NO_x and ammonia concentrations and nitrogen and acid deposition was below the relevant criteria at all locations within the ecological designations. Impacts were therefore not considered to be significant.

Saltcoats Road, Stevenston

Air Quality Assessment in support of an educational campus and associated energy centre. Impacts associated with emissions from the proposed gas and biomass boilers were assessed through detailed dispersion modelling. This indicated impacts on annual mean NO_2 and PM_{10} concentrations were predicted to be not significant.

Blackthorn & Piddington

Environmental Impact Assessment in support of a railway embankment scheme on land at the Network Railway Embankment between Piddington and Blackthorn. Due to the extensive stabilisation works a Fugitive Dust Emissions Assessment was undertaken in addition to consideration of road vehicle exhaust emissions. Due to the location of the site in relation to nearby sensitive receptors, potential impacts associated with construction works were not considered to be significant.

Blackmoorfoot Road, Huddersfield

Air Quality in support of a residential-led development in close proximity to an operational minerals facility. Due to the presence of the Johnsons Wellfield Quarry to the south of the site a Fugitive Dust Emissions Assessment was undertaken to determine potential impacts. Dispersion modelling of road vehicle exhaust emissions was also undertaken in support of the scheme. Results indicated the overall significance of fugitive dust emissions from the quarry and air quality impacts associated with operation of the development itself were not significant.

Lockwood Bar, Huddersfield

Air Quality Assessment for the proposed highway realignment scheme along Lockwood Road, Huddersfield. Changes in pollution levels were considered at sensitive receptors as a result of variations to road geometry and associated redistribution of vehicle trips across the local area. Results of the dispersion modelling study indicated air quality impacts as a result of the scheme were not significant.