

Air Quality Assessment
Parrs Wood Lane, Didsbury

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Executive Summary

Redmore Environmental Ltd was commissioned by Dandara Living to undertake an Air Quality Assessment in support of a planning application for a residential development on part of the Tesco Car Park, off Parrs Wood Lane, Didsbury.

The proposals have the potential to cause air quality impacts as a result of fugitive dust emissions during construction and road traffic exhaust emissions associated with vehicles travelling to and from the site during operation, as well as expose future residents to any existing air quality issues. As such, an Air Quality Assessment was undertaken in order to determine baseline conditions, consider site suitability for the proposed end use and assess potential effects as a result of the scheme.

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 good practice 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 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 predicted air quality impacts as a result of traffic generated by the development were not 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 air quality standards across the development. As such, the site is considered suitable for the proposed end use from an air quality perspective.

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

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1.0 INTRODUCTION

1.1 Background

1.1.1 Redmore Environmental Ltd was commissioned by Dandara Living to undertake an Air Quality Assessment in support of a planning application for a residential development on part of the Tesco Car Park, off Parrs Wood Lane, Didsbury.

1.1.2 The proposals have the potential to cause air quality impacts as a result of fugitive dust emissions during construction and road traffic exhaust emissions associated with vehicles travelling to and from the site during operation, as well as expose future residents to any existing air quality issues. As such, an Air Quality Assessment was undertaken in order to determine baseline conditions, consider site suitability for the proposed end use and assess potential effects as a result of the scheme.

1.2 Site Location and Context

1.2.1 The site is located on land off Parrs Wood Lane, at approximate National Grid Reference (NGR): 385323, 390475. Reference should be made to Figure 1 for a map of the site and surrounding area.

1.2.2 The proposals comprise erection of a six storey residential building (Use Class C3) comprising 75 new homes together with ground floor flexible community space, car parking, cycle parking as well as landscaping, highways and other associated works.

1.2.3 The proposals have the potential to cause air quality impacts at sensitive locations. These may include fugitive dust emissions associated with construction works and road traffic exhaust emissions from vehicles travelling to and from the site during the operational phase. There is also the potential for the exposure of future residents to any existing air quality issues. An Air Quality Assessment was therefore undertaken in order to determine baseline conditions and consider potential effects as a result of the proposals. This is detailed in the following report.

2.0 **LEGISLATION AND POLICY**

2.1 **Legislation**

2.1.1 The Air Quality Standards Regulations (2010) came into force on 11th June 2010 and include Air Quality Limit Values (AQLVs) for the following pollutants:

- Nitrogen dioxide (NO₂);
- Sulphur dioxide (SO₂);
- 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 (AQTVs) have also been 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 Part IV of the Environment Act (1995) requires UK government to produce a national Air Quality Strategy (AQS) which contains standards, objectives and measures for improving ambient air quality. The most recent AQS was produced by the Department for Environment, Food and Rural Affairs (DEFRA) and published in July 2007¹. The AQS sets out Air Quality Objectives (AQOs) that 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 Table 1 presents the AQOs for pollutants considered within this assessment.

Table 1 Air Quality Objectives

¹ The AQS for England, Scotland, Wales and Northern Ireland, DEFRA, 2007.

Pollutant	Air Quality Objective	
	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

2.1.5 Table 2 presents the AQTV considered within this assessment.

Table 2 Air Quality Target Value

Pollutant	Air Quality Target Value	
	Concentration ($\mu\text{g}/\text{m}^3$)	Averaging Period
PM _{2.5}	20	Annual mean

2.1.6 Table 3 summarises the advice provided in DEFRA guidance² on where the AQOs and AQTV for pollutants considered within this report apply.

Table 3 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

² Local Air Quality Management (TG16), DEFRA, 2021.

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 Under Section 82 of the Environment Act (1995) (Part IV) Local Authorities (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 3, 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 Framework³ (NPPF) was published in July 2021 and sets out the Government's planning policies for England and how these are expected to be applied.

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

"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:

[...]

³ NPPF, Ministry of Housing, Communities and Local Government, 2021.

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality [...]"

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 Guidance⁴ (NPPG) web-based resource was launched by the Department for Communities and Local Government on 6th March 2014 and updated on 1st November 2019 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?

⁴ <https://www.gov.uk/guidance/air-quality--3>.

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?
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 Local Planning Policy

2.6.1 The Manchester Local Development Framework consists of a series of planning documents of which the Core Strategy⁵ is central. This was adopted by Manchester City Council (MCC) on 11th July 2012.

2.6.2 A review of the Core Strategy indicated the following policies of relevance to the assessment:

"Policy EN 16

Air Quality

The Council will seek to improve the air quality within Manchester, and particularly within Air Quality Management Areas, located along Manchester's principal traffic routes and at Manchester Airport. Developers will be expected to take measures to minimise and mitigate the local effect of emissions from traffic generated by the development, as well as emissions created by the use of the development itself, including from Combined Heat and Power and biomass plant.

When assessing the appropriateness of locations for new development the Council will consider the effects on air quality, alongside other plan objectives. This includes cumulative effects, particularly in Air Quality Management Areas."

"Policy DM 1

⁵ Core Strategy, MCC, 2012.

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."

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

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 issues have been assessed in accordance with the following methodology, which was agreed with Sue Jones, Environmental Protection Officer at MCC, on 20th September 2021.

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 V1.1'⁶.

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 for 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.

⁶ Guidance on the Assessment of Dust from Demolition and Construction V1.1, IAQM, 2016.

Step 1

3.2.5 Step 1 screens the requirement for a more detailed assessment. Should human receptors be identified within 350m from the boundary or 50m from the construction vehicle route up to 500m 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 500m 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

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 4.

Table 4 Construction Dust - Magnitude of Emission

Magnitude	Activity	Criteria
Large	Earthworks	• Total site area greater than 10,000m² • 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 8m in height • More than 100,000 tonnes of material moved

Magnitude	Activity	Criteria
	Construction	- Total building volume greater than 100,000m³ - 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	Earthworks	- Total site area 2,500m² to 10,000m² - Moderately dusty soil type (e.g. silt) 5 to 10 heavy earth moving vehicles active at any one time - Formation of bunds 4m to 8m in height - Total material moved 20,000 tonnes to 100,000 tonnes
	Construction	- Total building volume 25,000m³ to 100,000m³ - Potentially dusty construction material (e.g. concrete) - On site concrete batching
	Trackout	10 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 2,500m² - 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 4m in height - Total material moved less than 20,000 tonnes - Earthworks during wetter months
	Construction	- Total building volume less than 25,000m³ - Construction material with low potential for dust release (e.g. metal cladding or timber)
	Trackout	- Less than 10 HDV trips per day - Surface material with low potential for dust release - Unpaved road length less than 50m

3.2.16 Step 2B defines the sensitivity of the area around the development to potential dust impacts. The influencing factors are shown in Table 5.

Table 5 Construction Dust - Examples of Factors Defining Sensitivity of an Area

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
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

3.2.17 The guidance also provides the following factors to consider when determining the sensitivity of an area to potential dust impacts:

- Any history of dust generating activities in the area;
- The likelihood of concurrent dust generating activity on nearby sites;
- Any pre-existing screening between the source and receptors;
- Any conclusions drawn from analysing local meteorological data which accurately represent the area; and if relevant the season during which works will take place;
- Any conclusions drawn from local topography;
- Duration of the potential impact, as a receptor may become more sensitive over time; and,

- Any known specific receptor sensitivities which go beyond the classifications given in the document.

3.2.18 These factors were considered in the undertaking of this assessment.

3.2.19 The criteria for determining the sensitivity of the area to dust soiling effects on people and property is summarised in Table 6.

Table 6 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 350
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

3.2.20 Table 7 outlines the criteria for determining the sensitivity of the area to human health impacts.

Table 7 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 200	Less than 350
High	Greater than 32µg/m ³	More than 100	High	High	High	Medium	Low
		10 - 100	High	High	Medium	Low	Low
		1 - 10	High	Medium	Low	Low	Low
	28 - 32µg/m ³	More than 100	High	High	Medium	Low	Low
		10 - 100	High	Medium	Low	Low	Low
		1 - 10	High	Medium	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 200	Less than 350
	24 - 28µg/m ³	More than 100	High	Medium	Low	Low	Low
		10 - 100	High	Medium	Low	Low	Low
		1 - 10	Medium	Low	Low	Low	Low
	Less than 24µg/m ³	More than 100	Medium	Low	Low	Low	Low
		10 - 100	Low	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low	Low
	Medium	Greater than 32µg/m ³	High	Medium	Low	Low	Low
			1 - 10	Medium	Low	Low	Low
	28 - 32µg/m ³	More than 10	Medium	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low	Low
	24 - 28µg/m ³	More than 10	Low	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low	Low
	Less than 24µg/m ³	More than 10	Low	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low	Low
	Low	-	1 or more	Low	Low	Low	Low

3.2.21 Table 8 outlines the criteria for determining the sensitivity of the area to ecological impacts.

Table 8 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

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

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

3.2.23 Table 9 outlines the risk category from earthworks and construction activities.

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

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

3.2.24 Table 10 outlines the risk category from trackout activities.

Table 10 Construction Dust - Dust Risk Category from Trackout Activities

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

Step 3

3.2.25 Step 3 requires the identification of site specific mitigation measures within the IAQM guidance⁷ to reduce potential dust impacts based upon the relevant risk categories

⁷ Guidance on the Assessment of Dust from Demolition and Construction V1.1, IAQM, 2016.

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

3.2.26 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**.

3.2.27 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, 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:

- 2019 - Verification;
- Opening year Do-Minimum (DM) (predicted traffic flows in 2024 should the proposals not proceed); and,
- Opening year Do-Something (DS) (predicted traffic flows in 2024 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 pollutant concentrations were identified within 200m of the highway network in accordance with the guidance provided within the Design Manual for Roads and Bridges (DMRB)⁸ on the likely limits of pollutant dispersion from road sources. The criteria provided within DEFRA guidance⁹ on where the AQOs apply, as summarised in Table 3, was utilised to determine appropriate receptor positions.
- 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'¹⁰. 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 11.

Table 11 Significance of Operational Phase Road Vehicle Exhaust Emissions Impact

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

- 3.3.5 The matrix shown in Table 11 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**.

⁸ LA 105, Highways England, 2019.

⁹ Local Air Quality Management (TG16), DEFRA, 2021.

¹⁰ 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 document¹¹ 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. 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 should be provided as far as practicable. This has been considered throughout the assessment when defining predicted impacts. The IAQM guidance¹² 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 at the site. Pollutant concentrations were therefore quantified across the development using dispersion modelling. The results were subsequently compared with the relevant AQOs and AQTv to determine the potential for any exceedence.

¹¹ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

¹² 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), MCC has undertaken Review and Assessment of air quality within their area of jurisdiction. This process has indicated that annual mean concentrations of NO₂ are above the AQO within the city. As such, a number of roads within Manchester have been included within the Greater Manchester Combined Authority (GMCA) AQMA. This is described as follows:

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

- 4.2.2 The development is partly located within the AQMA. As such, there is the potential for exposure of future residents to poor air quality, as well as vehicles travelling to and from the site to increase pollution levels in this sensitive area. These issues have been considered throughout the assessment.
- 4.2.3 MCC has concluded that concentrations of all other pollutant 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 MCC throughout their area of jurisdiction. Recent NO₂ results from sites in the vicinity of the development are shown in Table 12.

Table 12 NO₂ Monitoring Results

Monitoring Site		Monitored NO ₂ Concentration (µg/m ³)		
		2017	2018	2019
MA74NO	Kingsway	37.1	35.7	33.6

4.3.2 As shown in Table 12, annual mean NO₂ concentrations were below the relevant AQO at the Kingsway site in recent years. Reference should be made to Figure 2 for a map of the survey position.

4.3.3 MCC does not undertake PM₁₀ or PM_{2.5} monitoring 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: 385500, 390500. Data for this location was downloaded from the DEFRA website¹³ for the purpose of the assessment and is summarised in Table 13.

Table 13 Background Pollutant Concentration Predictions

Pollutant	Predicted Background Pollutant Concentration (µg/m ³)		
	2019	2022	2024
NO ₂	19.58	17.08	15.77
PM ₁₀	12.24	11.78	11.58
PM _{2.5}	8.25	7.92	7.77

4.4.2 As shown in Table 13, predicted background NO₂, PM₁₀ and PM_{2.5} concentrations are below the relevant AQOs and AQTV at the development site.

¹³ <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>.

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 earthworks and construction were identified from a desk-top study of the area up to 350m from the development boundary. These are summarised in Table 14.

Table 14 Earthworks and Construction Dust Sensitive Receptors

Distance from Site Boundary (m)	Approximate Number of Human Receptors	Approximate Number of Ecological Receptors
Less than 20	0	0
Less than 50	0	0
Less than 100	More than 100	-
Less than 350	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 500m of the site access. These are summarised in Table 15.

Table 15 Trackout Dust Sensitive Receptors

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

- 4.5.4 There are no ecological receptors within 50m of the development boundary or the access route within 500m of the site entrance. As such, ecological impacts have not been assessed further within this report.

4.5.5 A number of additional factors have been considered when determining the sensitivity of the surrounding area. These are summarised in Table 16.

Table 16 Additional Area Sensitivity Factors

Guidance	Comment
Whether there is any history of dust generating activities in the area	The baseline study indicated a number of developments in the vicinity of the site have been constructed in recent years. As such, it is possible that there has been a history of dust generation in the local area
The likelihood of concurrent dust generating activity on nearby sites	A review of the planning portal did not indicate any additional development proposals likely to result in concurrent dust generation in the vicinity of the site
Pre-existing screening between the source and the receptors	Trees are located on the northern, eastern and southern boundaries of the site, as well as directly to the west of the boundary. These may act as a barrier between emission sources and receptors should they be retained during construction
Conclusions drawn from analysing local meteorological data which accurately represent the area: and if relevant the season during which works will take place	As shown in Figure 3, the predominant wind bearing at the site is from the south. As such, receptors to the north of the boundary are most likely to be affected by dust releases
Conclusions drawn from local topography	There are no significant topographical constraints to dust dispersion
Duration of the potential impact, as a receptor may become more sensitive over time	Currently it is unclear as to the duration of the construction phase. However, it is likely that it will extend over one year
Any known specific receptor sensitivities which go beyond the classifications given in the document	No specific receptor sensitivities identified during the baseline assessment

4.5.6 Based on the criteria shown in Table 5, the sensitivity of the receiving environment to potential dust impacts was determined as **high**. This was because the identified receptors included residential properties.

4.5.7 The sensitivity of the receiving environment to specific potential dust impacts, based on the criteria shown in Section 3.2, is shown in Table 17.

Table 17 Sensitivity of the Surrounding Area

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

Operational Phase Sensitive Receptors

4.5.8 Receptors sensitive to potential operational phase road vehicle exhaust emission impacts were identified from a desk-top study. These are summarised in Table 18. 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 18 Operational Phase Road Vehicle Exhaust Emission Sensitive Receptor Locations

Receptor		NGR (m)		Height (m)
		X	Y	
R1	Residential - A5145 Wilmslow Road	385366.1	390440.4	4.0
R2	Residential - A5145 Wilmslow Road	385311.6	390404.2	1.5
R3	Residential - A5145 Wilmslow Road	385298.9	390436.3	4.0
R4	Residential - A5145 Wilmslow Road	385263.4	390408.8	1.5
R5	Residential - A5145	385405.7	390397.7	1.5
R6	Residential - A34 Kingsway	385629.9	390667.2	1.5
R7	Residential - A34 Kingsway	385632.7	390845.8	1.5
R8	Residential - Parrs Wood Lane	385857.6	390572.2	1.5
R9	Residential - Parrs Wood Lane	385925.5	390551.3	1.5
R10	Residential - A34 Kingsway	385431.9	390275.7	1.5
R11	Residential - A34 Kingsway	385425.6	390143.0	1.5
R12	Residential - A34 Kingsway	385294.6	389912.3	1.5
R13	Residential - B5095 Wilmslow Road	385463.2	390117.4	1.5
R14	Residential - Parrs Wood Road	385388.2	390863.4	1.5

Receptor		NGR (m)		Height (m)
		X	Y	
R15	Residential - Parrs Wood Road	385148.2	390099.3	1.5

4.5.9 Reference should be made to Figure 4 for a graphical representation of the sensitive receptor locations.

4.6 Rail Emissions

4.6.1 The development site is located approximately 25m east of the Manchester Piccadilly to Heald Green rail line. Diesel locomotives are a source of atmospheric emissions and research has shown that NO₂ and SO₂ concentrations can be elevated alongside rail lines with a large number of movements. DEFRA has therefore issued guidance on the assessment of potential impacts for use in the LAQM process.

4.6.2 The DEFRA guidance¹⁴ indicates there is risk of exposure to exceedences of the 15-minute mean AQO for SO₂ should a stationary locomotive be situated within 15m of a sensitive land use on more than three occasions per day. Review of the area indicated that no trains are scheduled to be stationary for a period of 15-minutes or more within 15m of the site boundary. As such, exceedences of the relevant AQO for SO₂ due to rail emissions is not anticipated at the development location.

4.6.3 The DEFRA guidance¹⁵ indicates there is risk of exposure to exceedences of the annual mean AQO for NO₂ should a sensitive land use be situated within 30m of a railway line identified as having a heavy flow of diesel locomotives and the annual mean background NO₂ concentration is above 25µg/m³. Review of Table 7.2 in the LAQM guidance¹⁶ indicates the Manchester Piccadilly to Heald Green line has been identified as a track experiencing a high number of diesel train movements. However, as shown in Table 13, the annual mean background NO₂ concentration at the site is 17.08µg/m³. As such, exceedences of the relevant AQO for NO₂ due to rail emissions is not anticipated at the development location.

¹⁴ Local Air Quality Management Technical Guidance (TG16), DEFRA, 2021.

¹⁵ Local Air Quality Management Technical Guidance (TG16), DEFRA, 2021.

¹⁶ Local Air Quality Management Technical Guidance (TG16), DEFRA, 2021.

4.6.4 Based on the above factors, air quality conditions at the proposed site are not predicted to be significantly affected by rail emissions

5.0 **ASSESSMENT**

5.1 **Introduction**

- 5.1.1 There is the potential for air quality impacts as a result of the construction and operation of the proposed development, as well as the exposure of future residents to poor air quality. These issues are assessed in the following Sections.

5.2 **Construction Phase Assessment**

Step 1

- 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 350m of the site boundary. As such, a detailed assessment of potential dust impacts was required.

Step 2

Earthworks

- 5.2.4 Earthworks will primarily involve excavating material, haulage, tipping and stockpiling, as well as site levelling and landscaping. The proposed development site covers an area of less than 2,500m². In accordance with the criteria outlined in Table 4, the magnitude of potential dust emissions from earthworks is therefore **small**.

5.2.5 Table 17 indicates the sensitivity of the area to dust soiling effects on people and property is **medium**. In accordance with the criteria outlined in Table 9, the development is considered to be a **low** risk site for dust soiling as a result of earthworks.

5.2.6 Table 17 indicates the sensitivity of the area to human health impacts is **low**. In accordance with the criteria outlined in Table 9, the development is considered to be a **negligible** risk site for human health impacts as a result of earthworks.

Construction

5.2.7 Due to the size of the development, the total building volume was estimated to be less than 25,000m³. In accordance with the criteria outlined in Table 4, the magnitude of potential dust emissions from construction is therefore **small**.

5.2.8 Table 17 indicates the sensitivity of the area to dust soiling effects on people and property is **medium**. In accordance with the criteria outlined in Table 9, the development is considered to be a **low** risk site for dust soiling as a result of construction activities.

5.2.9 Table 17 indicates the sensitivity of the area to human health impacts is **low**. In accordance with the criteria outlined in Table 9, the development is considered to be a **negligible** risk site for human health impacts as a result of construction activities.

Trackout

5.2.10 Based on the site area and existing hard standing provision, it is anticipated that the unpaved road length is likely to be less than 50m. In accordance with the criteria outlined in Table 4, the magnitude of potential dust emissions from trackout is therefore **small**.

5.2.11 Table 17 indicates the sensitivity of the area to dust soiling effects to people and property is **high**. In accordance with the criteria outlined in Table 10, the development is considered to be a **low** risk site for dust soiling as a result of trackout.

5.2.12 Table 17 indicates the sensitivity of the area to human health impacts is **medium**. In accordance with the criteria outlined in Table 10, the development is considered to be a **negligible** risk site for human health impacts as a result of trackout.

Summary of the Risk of Dust Effects

5.2.13 A summary of the risk from each dust generating activity is provided in Table 19.

Table 19 Summary of Potential Unmitigated Dust Risks

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

5.2.14 As indicated in Table 19, the potential risk of dust soiling is **low** from earthworks, construction and trackout. The potential risk of human health impacts is **negligible** from earthworks, construction and trackout.

5.2.15 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.

Step 3

5.2.16 The IAQM guidance¹⁷ 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 20. 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.

¹⁷ Guidance on the Assessment of Dust from Demolition and Construction V1.1, IAQM, 2016.

Table 20 Fugitive Dust Emission Mitigation Measures

Issue	Control Measure
Communications	• Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager • Display the head or regional office contact information • 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	• Undertake daily on-site and off-site inspection to monitor dust, record inspection results, and make the log available to the LA upon request • Carry out regular site inspections to monitor compliance with the DMP, 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
Site preparation	• Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible • 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

Issue	Control Measure
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	• No 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 • Record all inspections of haul routes and any subsequent action in a site log book • Implement a wheel washing system, if required

Step 4

5.2.17 Assuming the relevant mitigation measures outlined in Table 20 are implemented, the residual impacts from all dust generating activities is predicted to be **not significant**, in accordance with the IAQM guidance¹⁸.

5.3 Operational Phase Assessment

5.3.1 Vehicle movements associated with the operation of the proposal will generate exhaust emissions on the local and regional road networks. 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 AQTV exceedences.

¹⁸ Guidance on the Assessment of Dust from Demolition and Construction V1.1, IAQM, 2016.

5.3.2 The assessment included the following scenarios:

- 2019- Verification;
- 2024 - DM; and,
- 2024 - DS.

5.3.3 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 anticipated baseline traffic data, inclusive of anticipated growth, for the relevant assessment year, in addition to vehicle trips associated with the operation of the development.

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

Potential Development Impacts

Predicted Concentrations

5.3.5 Annual mean NO₂ concentrations were predicted at sensitive receptor locations for the DM and DS scenarios. These are summarised in Table 21.

Table 21 Predicted Annual Mean NO₂ Concentrations

Receptor		Predicted Annual Mean NO ₂ Concentration (µg/m ³)		
		DM	DS	Change
R1	Residential - A5145 Wilmslow Road	25.75	25.76	0.01
R2	Residential - A5145 Wilmslow Road	23.92	23.93	0.01
R3	Residential - A5145 Wilmslow Road	27.27	27.28	0.01
R4	Residential - A5145 Wilmslow Road	24.35	24.35	0.00
R5	Residential - A5145	25.47	25.48	0.01
R6	Residential - A34 Kingsway	20.89	20.90	0.01
R7	Residential - A34 Kingsway	26.06	26.08	0.02
R8	Residential - Parris Wood Lane	23.34	23.36	0.02

Receptor		Predicted Annual Mean NO ₂ Concentration (µg/m ³)		
		DM	DS	Change
R9	Residential - Parrs Wood Lane	20.28	20.29	0.01
R10	Residential - A34 Kingsway	38.34	38.35	0.01
R11	Residential - A34 Kingsway	25.38	25.39	0.01
R12	Residential - A34 Kingsway	27.37	27.38	0.01
R13	Residential - B5095 Wilmslow Road	22.45	22.46	0.01
R14	Residential - Parrs Wood Road	19.32	19.32	0.00
R15	Residential - Parrs Wood Road	20.43	20.43	0.00

5.3.6 As indicated in Table 21, predicted annual mean NO₂ concentrations were below the relevant AQO at all receptor locations in both scenarios.

5.3.7 Reference should be made to Figures 5 and 6 for graphical representations of annual mean NO₂ concentrations across the assessment area for the DM and DS scenarios, respectively.

5.3.8 Annual mean PM₁₀ concentrations were predicted at the sensitive receptor locations for the DM and DS scenarios. These are summarised in Table 22.

Table 22 Predicted Annual Mean PM₁₀ Concentrations

Receptor		Predicted Annual Mean PM ₁₀ Concentration (µg/m ³)		
		DM	DS	Change
R1	Residential - A5145 Wilmslow Road	13.17	13.17	0.00
R2	Residential - A5145 Wilmslow Road	12.88	12.88	0.00
R3	Residential - A5145 Wilmslow Road	13.41	13.41	0.00
R4	Residential - A5145 Wilmslow Road	12.96	12.96	0.00
R5	Residential - A5145	13.17	13.18	0.00
R6	Residential - A34 Kingsway	12.50	12.50	0.00

Receptor		Predicted Annual Mean PM ₁₀ Concentration (µg/m ³)		
		DM	DS	Change
R7	Residential - A34 Kingsway	13.56	13.56	0.00
R8	Residential - Parrs Wood Lane	12.92	12.92	0.00
R9	Residential - Parrs Wood Lane	12.37	12.37	0.00
R10	Residential - A34 Kingsway	15.27	15.27	0.00
R11	Residential - A34 Kingsway	13.32	13.32	0.00
R12	Residential - A34 Kingsway	13.84	13.84	0.00
R13	Residential - B5095 Wilmslow Road	12.76	12.76	0.00
R14	Residential - Parrs Wood Road	12.19	12.19	0.00
R15	Residential - Parrs Wood Road	12.39	12.39	0.00

5.3.9 As indicated in Table 22, predicted annual mean PM₁₀ concentrations were below the relevant AQO at all sensitive receptors in both the DM and DS scenarios.

5.3.10 Reference should be made to Figures 7 and 8 for graphical representations of predicted annual mean PM₁₀ concentrations throughout the assessment extents for the DM and DS scenarios, respectively.

5.3.11 Annual mean PM_{2.5} concentrations were predicted at the sensitive receptor locations for the DM and DS scenarios. These are summarised in Table 23.

Table 23 Predicted Annual Mean PM_{2.5} Concentrations

Receptor		Predicted Annual Mean PM _{2.5} Concentration (µg/m ³)		
		DM	DS	Change
R1	Residential - A5145 Wilmslow Road	10.60	10.61	0.00
R2	Residential - A5145 Wilmslow Road	10.08	10.08	0.00
R3	Residential - A5145 Wilmslow Road	11.02	11.02	0.00
R4	Residential - A5145 Wilmslow Road	10.22	10.22	0.00

Receptor		Predicted Annual Mean PM _{2.5} Concentration (µg/m ³)		
		DM	DS	Change
R5	Residential - A5145	10.61	10.61	0.00
R6	Residential - A34 Kingsway	9.42	9.42	0.00
R7	Residential - A34 Kingsway	11.34	11.34	0.00
R8	Residential - Parrs Wood Lane	10.17	10.18	0.00
R9	Residential - Parrs Wood Lane	9.18	9.18	0.00
R10	Residential - A34 Kingsway	14.31	14.31	0.00
R11	Residential - A34 Kingsway	10.88	10.89	0.00
R12	Residential - A34 Kingsway	11.84	11.85	0.00
R13	Residential - B5095 Wilmslow Road	9.88	9.88	0.00
R14	Residential - Parrs Wood Road	8.86	8.86	0.00
R15	Residential - Parrs Wood Road	9.22	9.22	0.00

5.3.12 As indicated in Table 23, predicted annual mean PM_{2.5} concentrations were below the AQTV at all sensitive receptors in both scenarios.

5.3.13 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

5.3.14 Predicted impacts on annual mean NO₂ concentrations at the sensitive receptor locations are summarised in Table 24.

Table 24 Predicted Impacts - NO₂

Receptor		Predicted Concentration	Predicted Concentration Change as Proportion of AQO (%)	Impact Significance
R1	Residential - A5145 Wilmslow Road	Below 75% of AQO	0	Negligible
R2	Residential - A5145 Wilmslow Road	Below 75% of AQO	0	Negligible
R3	Residential - A5145 Wilmslow Road	Below 75% of AQO	0	Negligible
R4	Residential - A5145 Wilmslow Road	Below 75% of AQO	0	Negligible
R5	Residential - A5145	Below 75% of AQO	0	Negligible
R6	Residential - A34 Kingsway	Below 75% of AQO	0	Negligible
R7	Residential - A34 Kingsway	Below 75% of AQO	0	Negligible
R8	Residential - Parrs Wood Lane	Below 75% of AQO	0	Negligible
R9	Residential - Parrs Wood Lane	Below 75% of AQO	0	Negligible
R10	Residential - A34 Kingsway	95 - 102% of AQO	0	Negligible
R11	Residential - A34 Kingsway	Below 75% of AQO	0	Negligible
R12	Residential - A34 Kingsway	Below 75% of AQO	0	Negligible
R13	Residential - B5095 Wilmslow Road	Below 75% of AQO	0	Negligible
R14	Residential - Parrs Wood Road	Below 75% of AQO	0	Negligible
R15	Residential - Parrs Wood Road	Below 75% of AQO	0	Negligible

5.3.15 As indicated in Table 24, impacts on annual mean NO₂ concentrations as a result of the proposed development were predicted to be **negligible** at all receptors.

5.3.16 Predicted impacts on annual mean PM₁₀ concentrations at the sensitive receptor locations are summarised in Table 25.

Table 25 Predicted Impacts - PM₁₀

Receptor		Predicted Concentration	Predicted Concentration Change as Proportion of AQO (%)	Impact Significance
R1	Residential - A5145 Wilmslow Road	Below 75% of AQO	0	Negligible
R2	Residential - A5145 Wilmslow Road	Below 75% of AQO	0	Negligible
R3	Residential - A5145 Wilmslow Road	Below 75% of AQO	0	Negligible
R4	Residential - A5145 Wilmslow Road	Below 75% of AQO	0	Negligible
R5	Residential - A5145	Below 75% of AQO	0	Negligible
R6	Residential - A34 Kingsway	Below 75% of AQO	0	Negligible
R7	Residential - A34 Kingsway	Below 75% of AQO	0	Negligible
R8	Residential - Parrs Wood Lane	Below 75% of AQO	0	Negligible
R9	Residential - Parrs Wood Lane	Below 75% of AQO	0	Negligible
R10	Residential - A34 Kingsway	Below 75% of AQO	0	Negligible
R11	Residential - A34 Kingsway	Below 75% of AQO	0	Negligible
R12	Residential - A34 Kingsway	Below 75% of AQO	0	Negligible
R13	Residential - B5095 Wilmslow Road	Below 75% of AQO	0	Negligible
R14	Residential - Parrs Wood Road	Below 75% of AQO	0	Negligible
R15	Residential - Parrs Wood Road	Below 75% of AQO	0	Negligible

5.3.17 As indicated in Table 25, impacts on annual mean PM₁₀ concentrations as a result of the proposed development were predicted to be **negligible** at all receptors.

5.3.18 Predicted impacts on annual mean PM_{2.5} concentrations at the sensitive locations are summarised in Table 26.

Table 26 Predicted Impacts - PM_{2.5}

Receptor		Predicted Concentration	Predicted Concentration Change as Proportion of AQTV (%)	Impact Significance
R1	Residential - A5145 Wilmslow Road	Below 75% of AQTV	0	Negligible
R2	Residential - A5145 Wilmslow Road	Below 75% of AQTV	0	Negligible
R3	Residential - A5145 Wilmslow Road	Below 75% of AQTV	0	Negligible
R4	Residential - A5145 Wilmslow Road	Below 75% of AQTV	0	Negligible
R5	Residential - A5145	Below 75% of AQTV	0	Negligible
R6	Residential - A34 Kingsway	Below 75% of AQTV	0	Negligible
R7	Residential - A34 Kingsway	Below 75% of AQTV	0	Negligible
R8	Residential - Parrs Wood Lane	Below 75% of AQTV	0	Negligible
R9	Residential - Parrs Wood Lane	Below 75% of AQTV	0	Negligible
R10	Residential - A34 Kingsway	Below 75% of AQTV	0	Negligible
R11	Residential - A34 Kingsway	Below 75% of AQTV	0	Negligible
R12	Residential - A34 Kingsway	Below 75% of AQTV	0	Negligible
R13	Residential - B5095 Wilmslow Road	Below 75% of AQTV	0	Negligible
R14	Residential - Parrs Wood Road	Below 75% of AQTV	0	Negligible
R15	Residential - Parrs Wood Road	Below 75% of AQTV	0	Negligible

5.3.19 As indicated in Table 26, impacts on annual mean PM_{2.5} concentrations as a result of the proposed development were predicted to be **negligible** at all receptors.

Potential Future Exposure

5.3.20 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 NO₂, PM₁₀ and PM_{2.5} concentrations.

- 5.3.21 As shown in Figure 6, annual mean NO₂ concentrations were predicted to be below the AQO of 40µg/m³ across the site. The maximum level at the boundary was 34.62µg/m³.
- 5.3.22 As shown in Figure 8, annual mean PM₁₀ concentrations were predicted to be below the AQO of 40µg/m³ across the site. The maximum level at the boundary was 14.72µg/m³.
- 5.3.23 As shown in Figure 10, annual mean PM_{2.5} concentrations were predicted to be below the AQTV of 25µg/m³ across the site. The maximum level at the boundary was 13.32µg/m³.
- 5.3.24 Based on the assessment results, future residents are not predicted to be exposed to pollutant concentrations above the AQOs and AQTV. The site is therefore considered suitable for the proposed end use from an air quality perspective.

Mitigation

- 5.3.25 There are a number of mitigation options available to reduce or off-set potential air quality impacts. However, all techniques have financial implications and may therefore affect scheme viability. As such, they should only be included if necessary. As air quality impacts associated with the proposals were predicted to be **negligible**, further mitigation to control effects is not considered necessary. However, a number of additional measures have been included within the scheme in accordance with the requirements of the IAQM document 'Land-Use Planning & Development Control: Planning for Air Quality'¹⁹ to encourage the use of sustainable transport modes, manage vehicle flow and reduce pollution around the site. Table 27 describes the good practice principles detailed in the IAQM guidance along with how each has been addressed with regards to the proposals.

Table 27 Good Practice Design Principles

Phase	Principle	Action
Design Phase	New developments should not contravene the Council's Air Quality Action Plan ²⁰ , or render any of the measures unworkable	It is confirmed that the proposals will not contravene MCC's Air Quality Action Plan, or render any of the measures unworkable

¹⁹ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

²⁰ Greater Manchester Air Quality Action Plan (GMAQAP) 2016-2021, GMCA, 2016.

Phase	Principle	Action
Operational Phase	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 behaviours, such as active and public transport, due to its close proximity to local bus routes and amenities
	The provision of at least 1 Electric Vehicle (EV) "rapid charge" point per 10 residential dwellings and/or 1,000m² of commercial floor space. Where on-site parking is provided for residential dwellings, EV charging points for each parking space should be made Where development generates significant additional traffic, provision of a detailed Travel Plan (with provision to measure its implementation and effect) which sets out measures to encourage sustainable means of transport (public, cycling and walking) via subsidised or free-ticketing, improved links to bus stops, improved infrastructure and layouts to improve accessibility and safety 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/Nm³; • Compression ignition engine: 400mgNO_x/Nm³; • Gas turbine: 50mgNO_x/Nm³ 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/Nm³ and 25mgPM/Nm³	It is confirmed that 20% of the total car parking spaces will be served by EV charging with all remaining spaces cable enabled should active spaces be required in the future A Travel Plan, produced by Curtins, will be submitted with the planning application No gas-fired boilers will be included in the development

Overall Impact Significance

5.3.26 The overall significance of operational phase road traffic emission impacts was determined as **negligible**. This was based on the predicted impacts at discrete receptor locations and the considerations outlined in Section 3.3. Further justification is provided in Table 28.

Table 28 Overall Impact Significance of Operational Phase Road Vehicle Exhaust Emissions

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 AQTV at all sensitive receptors 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 or AQTV
The influence and validity of any assumptions adopted when undertaking the prediction of impacts	The assessment assumed that background pollutant levels and future vehicle exhaust emission rates will reduce in future years in accordance with DEFRA predictions. This approach is considered suitable for an assessment of this nature

5.3.27 The IAQM guidance²¹ states that only if the impact is greater than **slight**, the effect is considered significant. Given that the overall impact of operational phase road traffic emissions was concluded to be **negligible**, the effect of the proposals is considered to be **not significant**.

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

6.0 CONCLUSION

- 6.1.1 Redmore Environmental Ltd was commissioned by Dandara Living to undertake an Air Quality Assessment in support of a planning application for a residential development on part of the Tesco Car Park, off Parrs Wood Lane, Didsbury.
- 6.1.2 The proposals have the potential to cause air quality impacts as a result of fugitive dust emissions during construction and road traffic exhaust emissions associated with vehicles travelling to and from the site during operation, as well as expose future residents to any existing air quality issues. As such, an Air Quality Assessment was undertaken in order to determine baseline conditions, consider site suitability for the proposed end use and assess potential effects as a result of the scheme.
- 6.1.3 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. Assuming good practice dust control measures are implemented, the residual significance of potential air quality impacts from dust generated by earthworks, construction and trackout activities was predicted to be **not significant**.
- 6.1.4 The proposed development has the potential to expose future residents to elevated pollution levels and impact existing air quality in the vicinity of the site during operation. Dispersion modelling was therefore undertaken using ADMS-Roads in order to predict pollutant concentrations as a result of emissions from the local highway network. Results were subsequently verified using local monitoring data.
- 6.1.5 Review of the dispersion modelling results indicated that impacts on annual mean NO₂, PM₁₀ and PM_{2.5} concentrations as a result of traffic generated by the development were predicted to be **negligible** at all sensitive receptor locations.
- 6.1.6 The results of the dispersion modelling assessment also indicated that predicted annual mean NO₂, PM₁₀ and PM_{2.5} concentrations were below the relevant AQOs and AQTV across the development. The site is therefore considered suitable for the proposed use from an air quality perspective.

6.1.7 Following consideration of the relevant issues, air quality impacts as a result of the operation of the development were considered to be **not significant**, in accordance with the IAQM guidance.

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

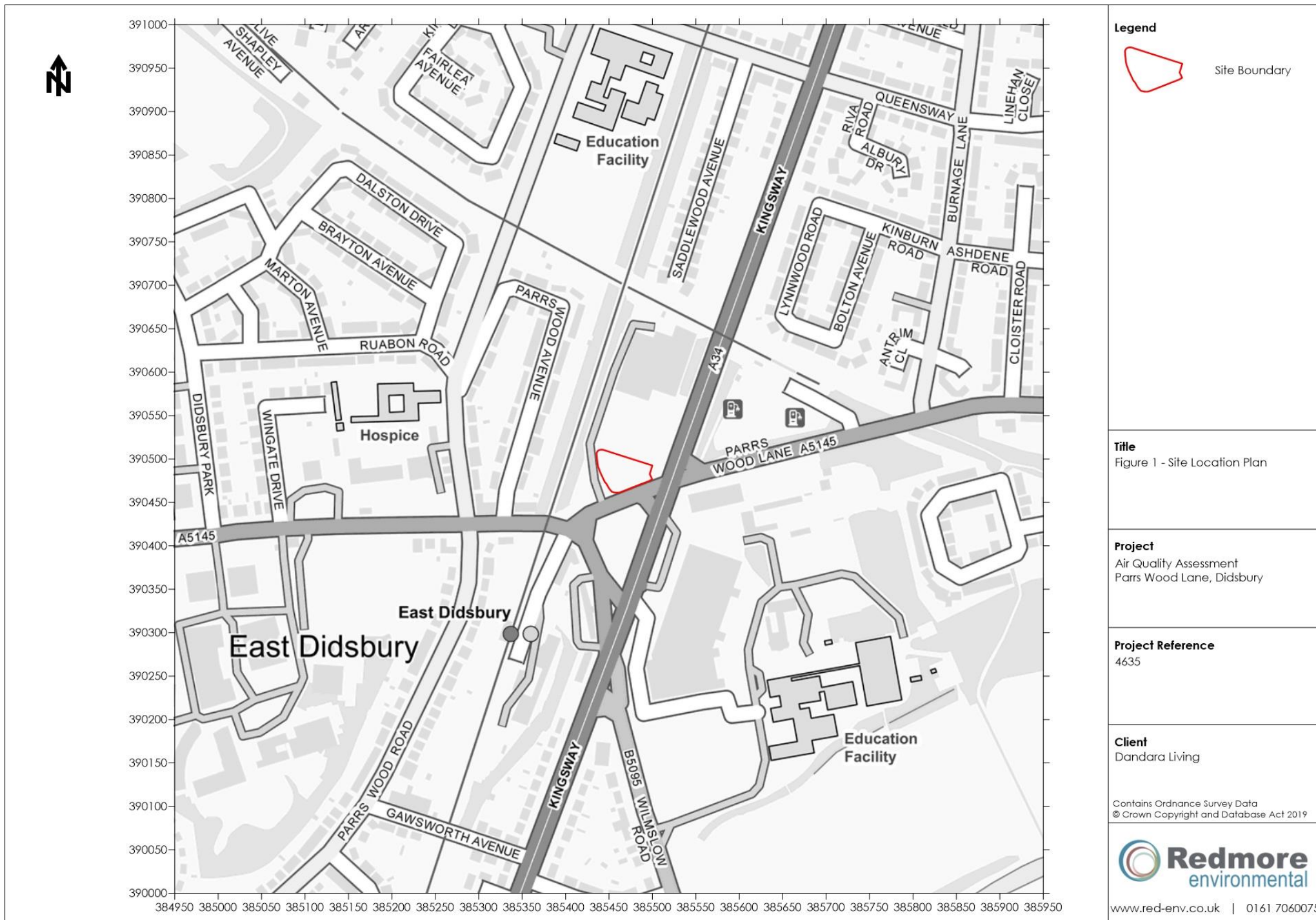
7.0 **ABBREVIATIONS**

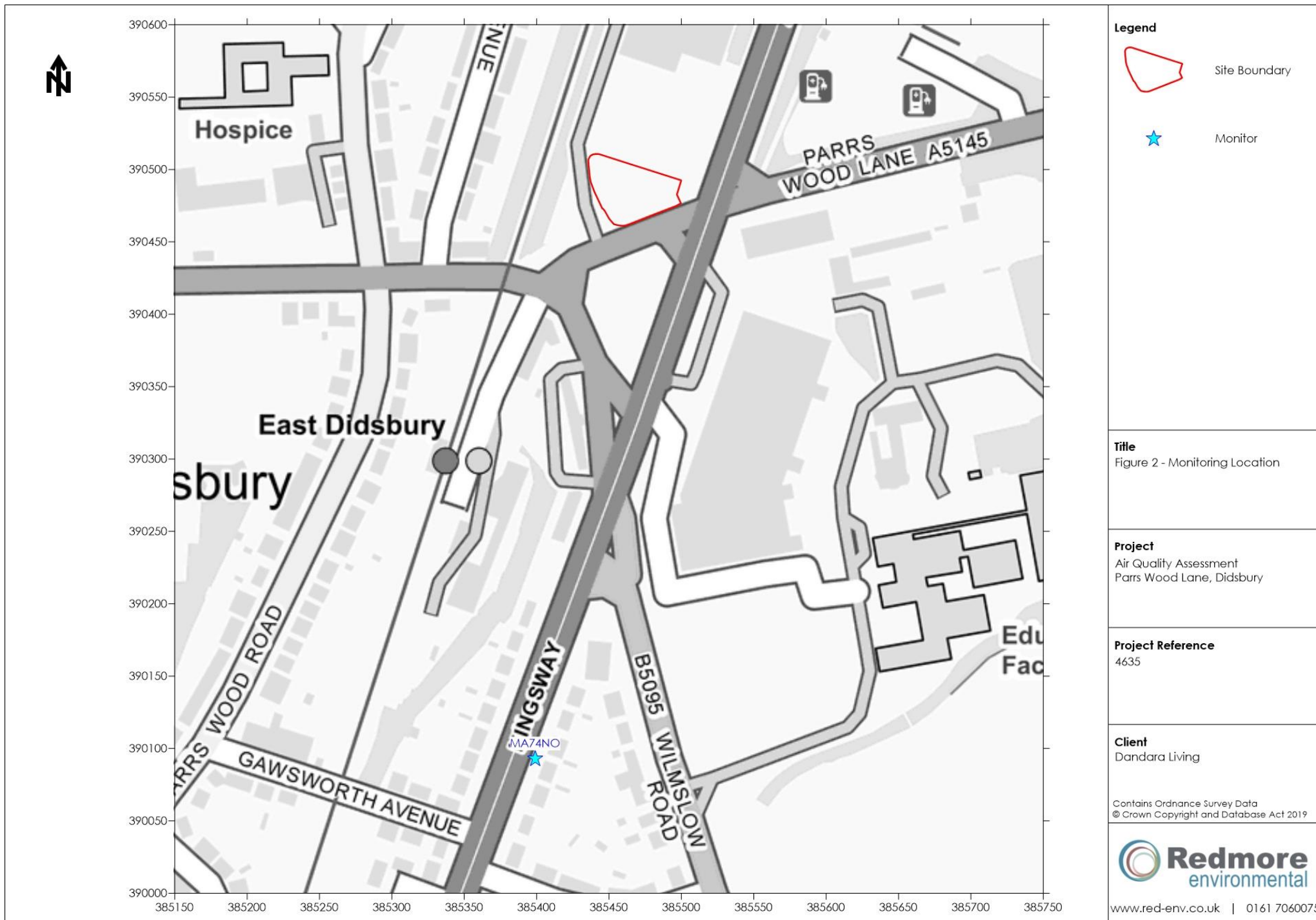
AADT	Annual Average Daily Traffic
ADM	Atmospheric Dispersion Modelling
AQLV	Air Quality Limit Value
AQMA	Air Quality Management Area
AQO	Air Quality Objective
AQS	Air Quality Strategy
AQTV	Air Quality Target Value
CERC	Cambridge Environmental Research Consultants
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DM	Do-Minimum
DMP	Dust Management Plan
DMRB	Design Manual for Roads and Bridges
DS	Do-Something
EB	Eastbound
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
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
MCC	Manchester City Council
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
SO ₂	Sulphur dioxide
SP	Slow Phase
WB	Westbound

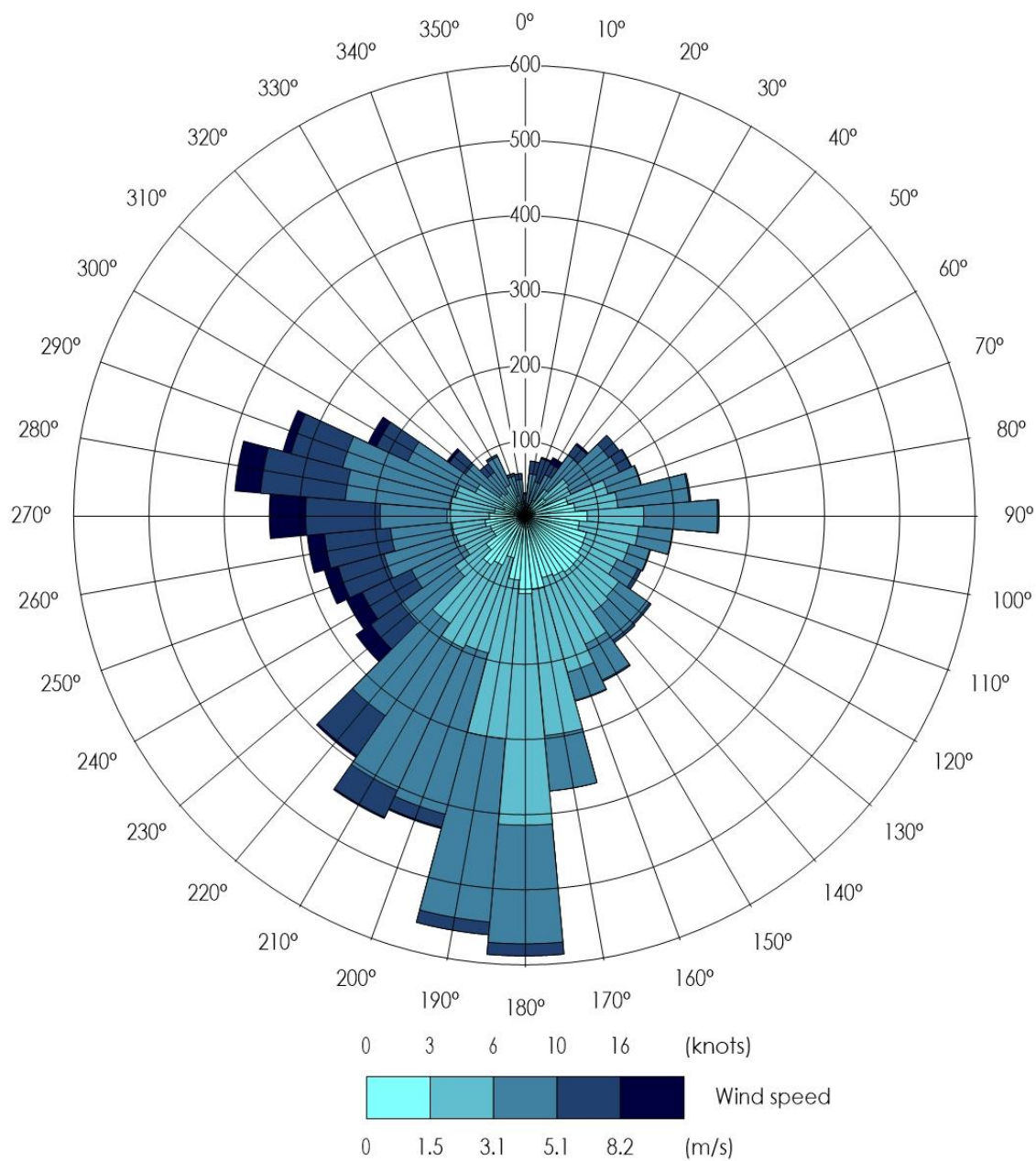
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Roughness length

Figures







Legend

Title

Figure 3 - Wind Rose of 2019
Manchester Airport Meteorological
Data

Project

Air Quality Assessment
Parrs Wood Lane, Didsbury

Project Reference

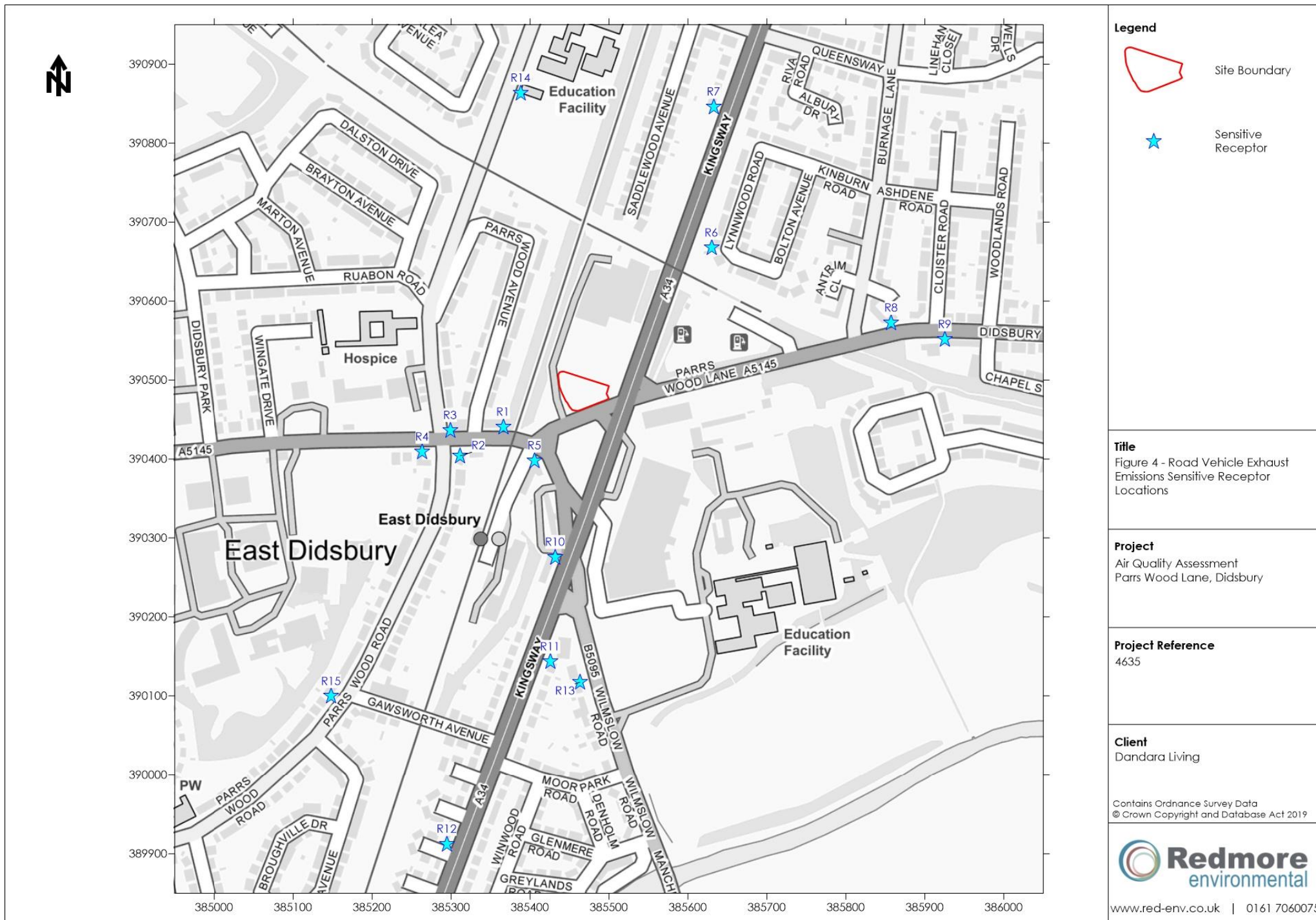
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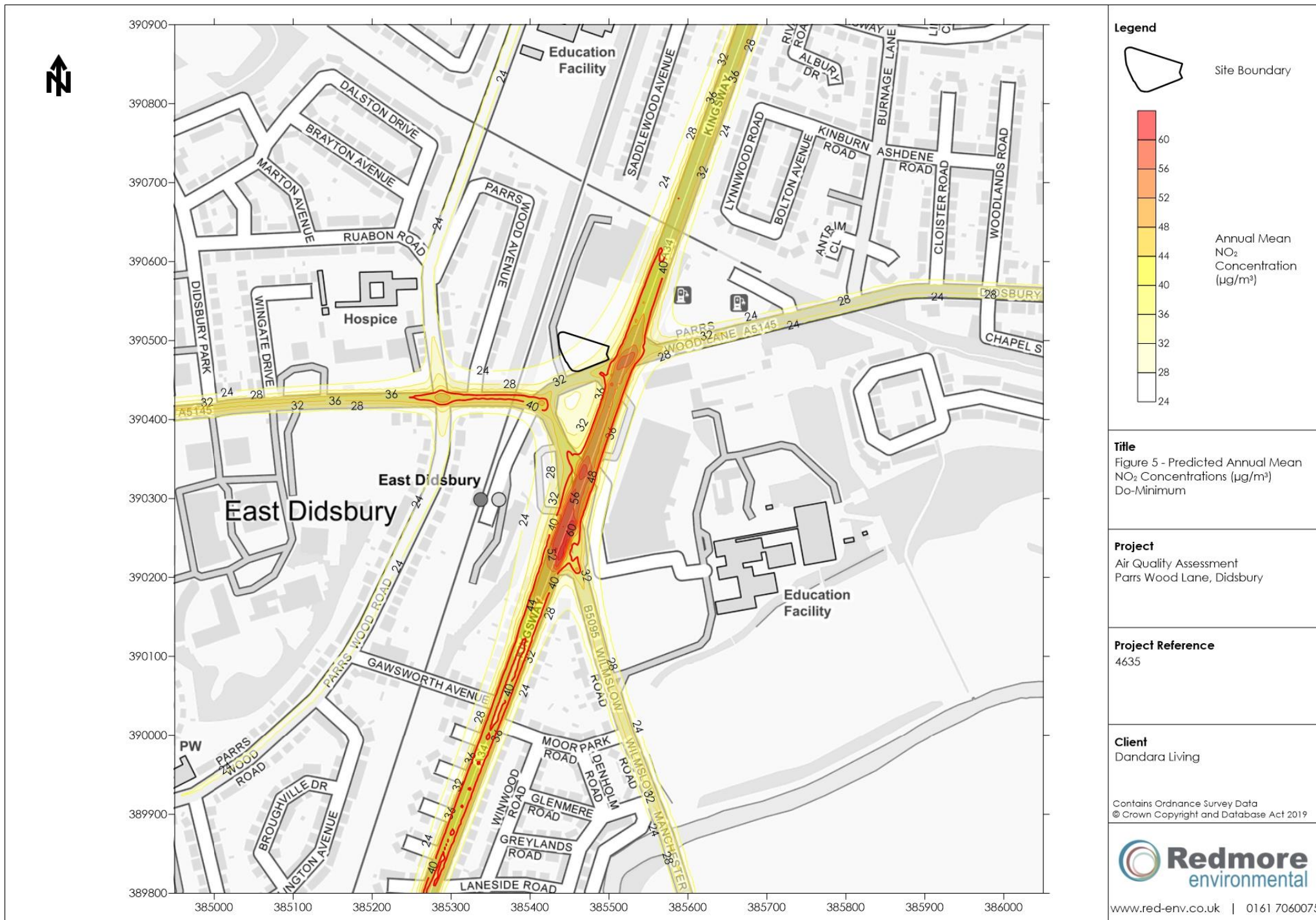
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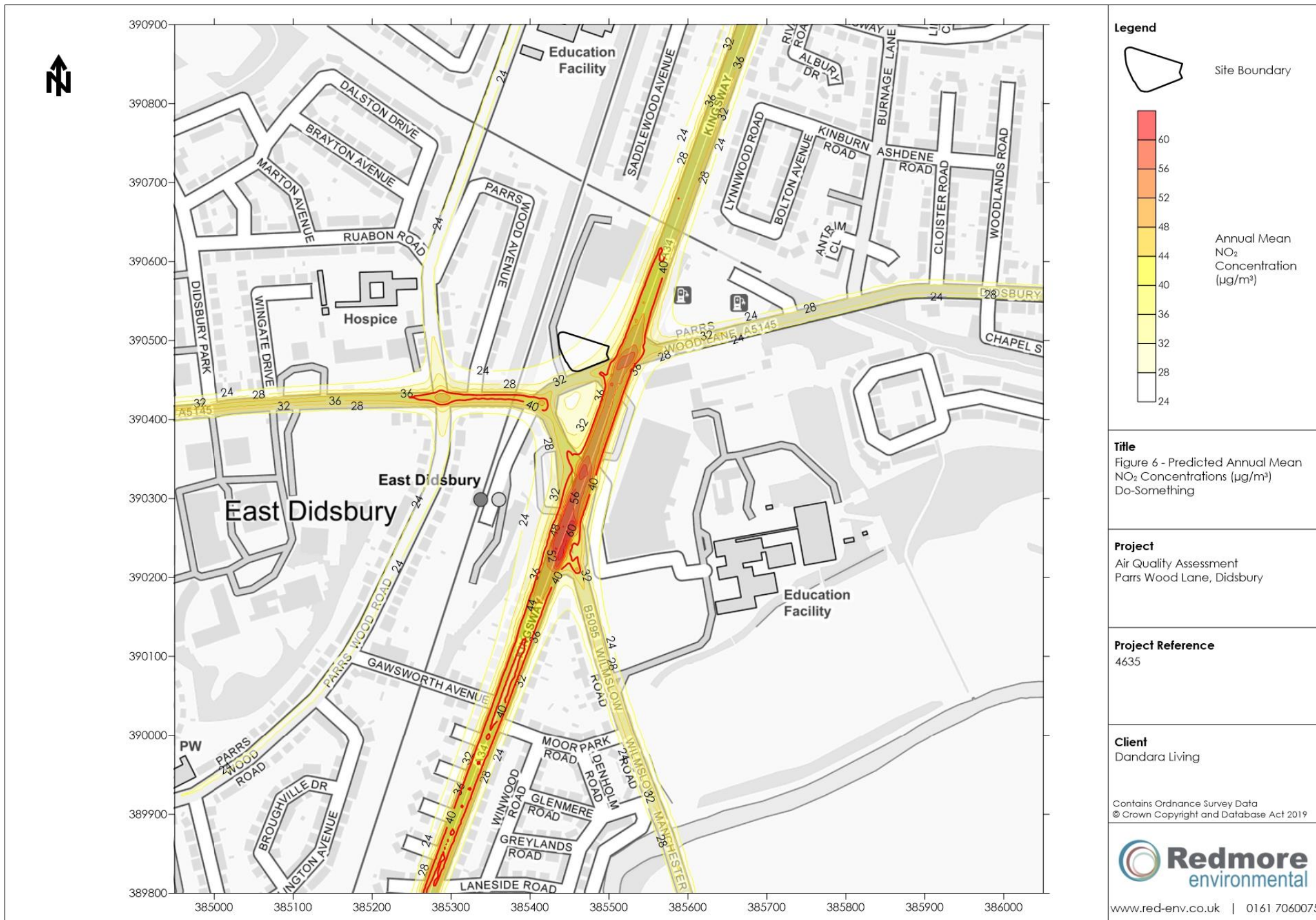
Dandara Living

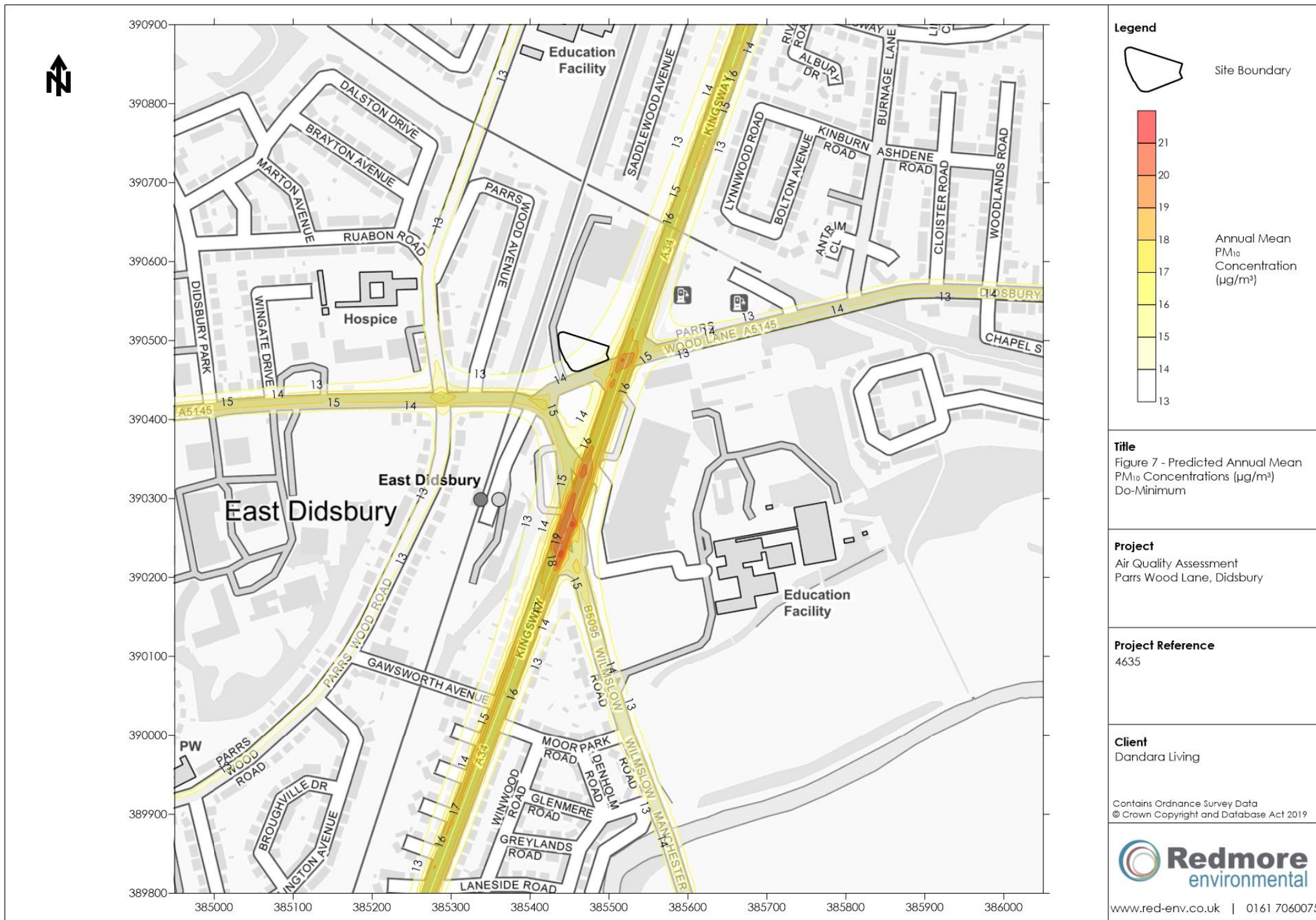


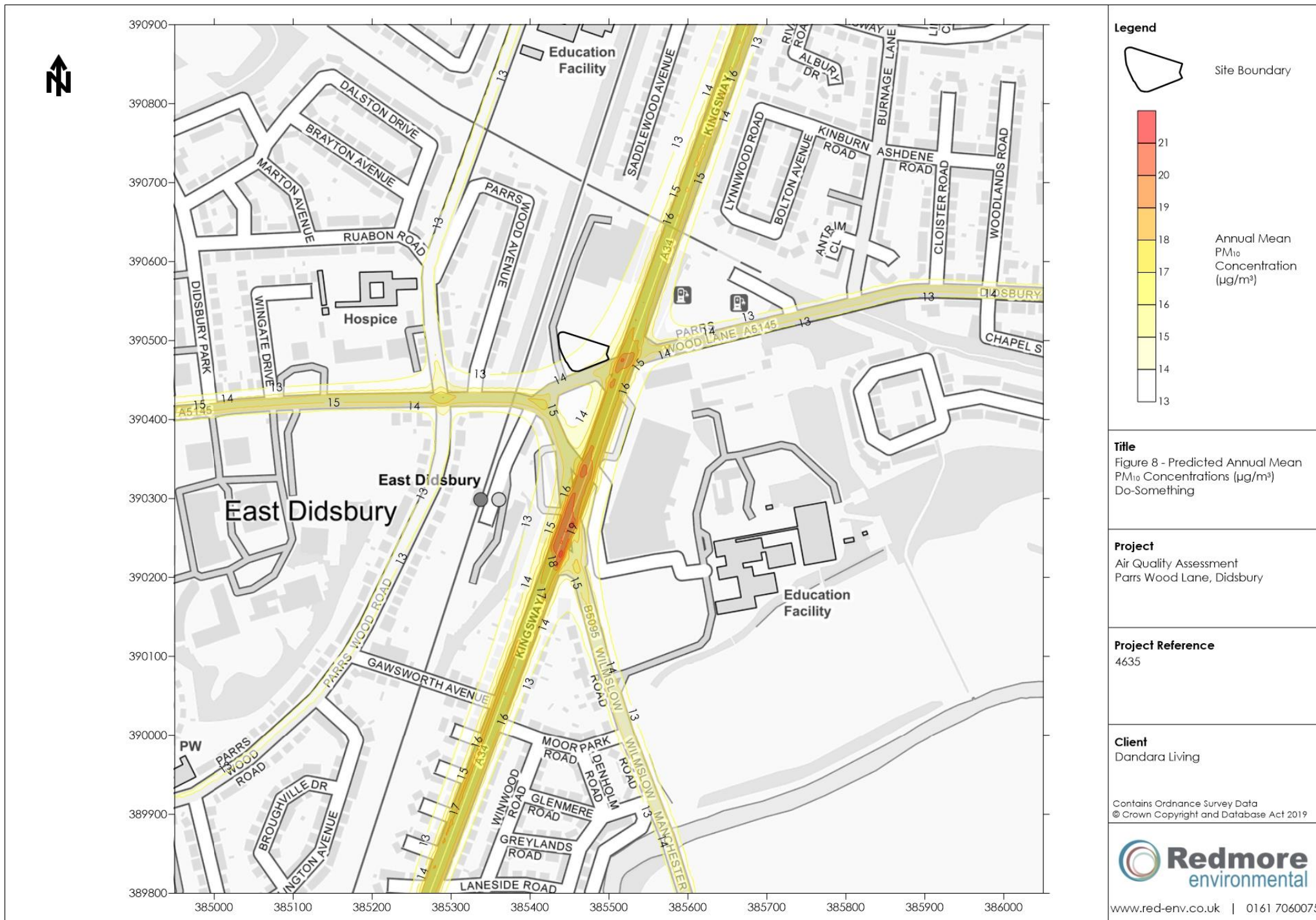
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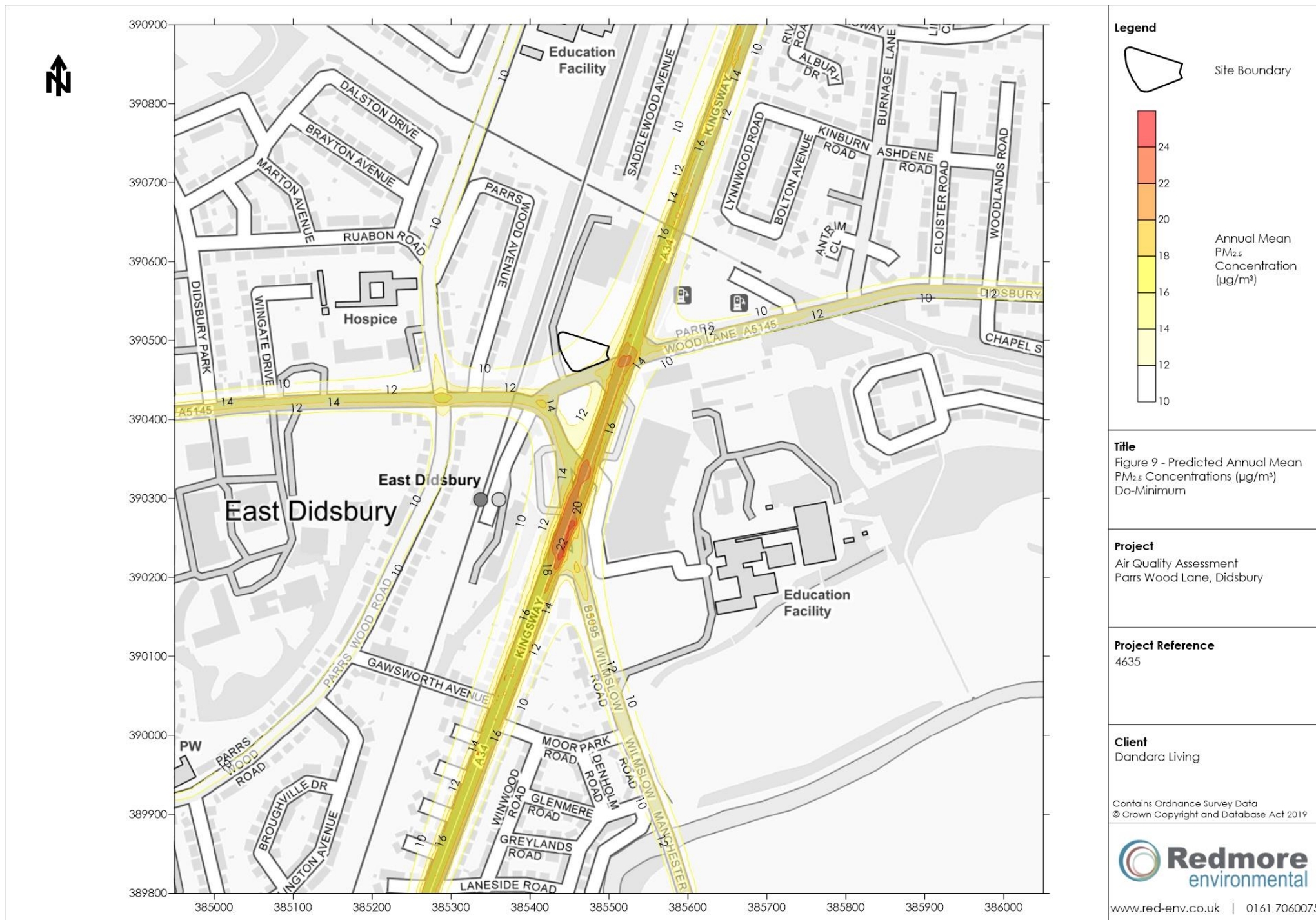


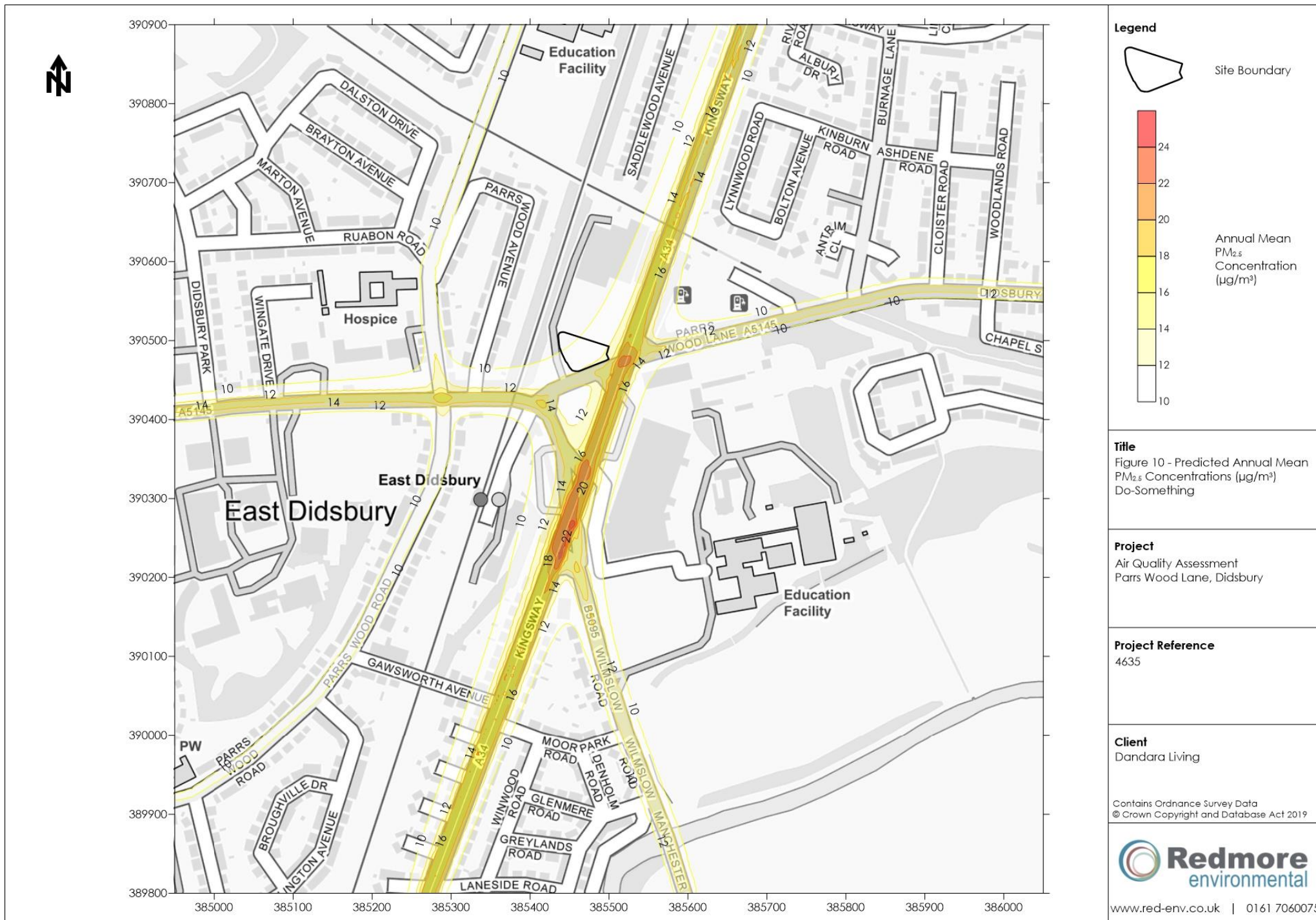


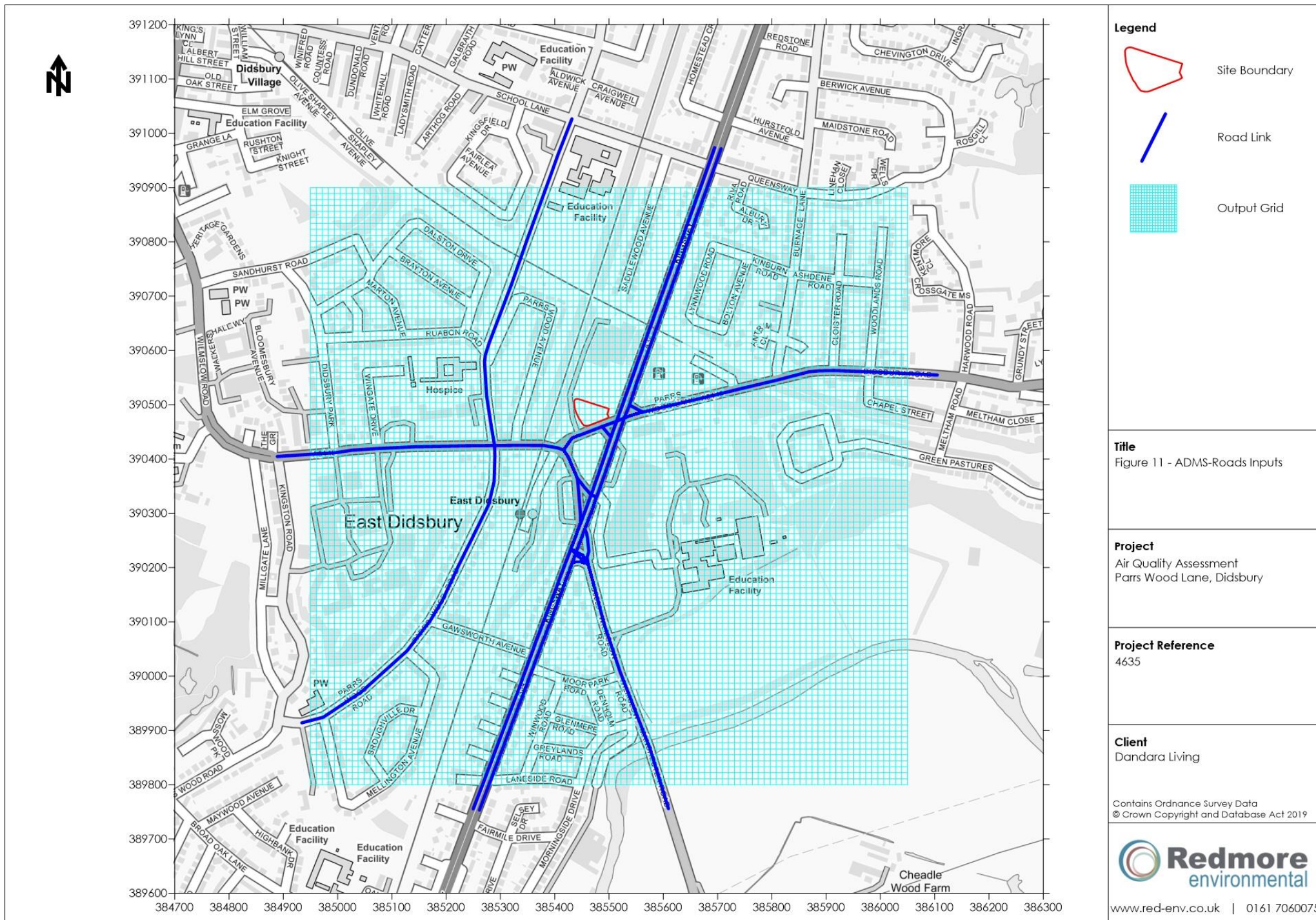












Appendix 1 - Assessment Input Data

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 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 5.0.0.1). 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.

These are detailed in the following Sections.

Assessment Area

The assessment area was defined based on the site location and anticipated vehicle trip distribution from the development. Ambient concentrations were predicted over NGR: 384950, 389800 to 386050, 390900. One Cartesian grid was used within the model to produce data suitable for contour plotting using the Surfer software package.

Reference should be made to Figure 10 for a map of the assessment area.

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 Curtins, the Transport Consultants for the scheme.

Baseline traffic data was not available for Parrs Wood Road. As such, vehicle movements on this road were obtained from the Department for Transport (DfT)²². 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 2020. It should be noted that the DfT web tool is referenced in DEFRA guidance²³ 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.

Baseline traffic data Parrs Wood Road was converted to 2019 and 2024 flows utilising a factor obtained from TEMPro (version 7.2). This software package has been developed by the Department for Transport (DfT) to calculate future traffic growth throughout the UK.

A summary of the traffic flow data is provided in Table A1.1. Road widths and vehicle speeds were estimated from aerial photography and UK highway design standards.

Table A1.1 Traffic Data

Link		24-hour AADT Flow			HDV Prop. of Fleet (%)	Road Width (m)	Avg. Vehicle Speed (km/h)
		Verif.	2024 DM	2024 DS			
L1	A5145 Wilmslow Road	25,443	27,312	27,330	3.15	10.4	45
L2	A5145 Wilmslow Road, Slow Phase (SP)	25,443	27,312	27,330	3.15	13.8	30
L3	A5145 Parrs Wood Lane, west of Site Access, SP	9,653	10,361	10,403	6.87	11.0	25

²² <https://roadtraffic.dft.gov.uk/#6/55.254/-6.053/basemap-regions-countpoints>.

²³ Local Air Quality Management (TG16), DEFRA, 2021.

Link		24-hour AADT Flow			HDV Prop. of Fleet (%)	Road Width (m)	Avg. Vehicle Speed (km/h)
		Verif.	2024 DM	2024 DS			
L4	A5145 Parrs Wood Lane, east of Site Access, SP	9,058	9,722	9,837	7.23	11.5	25
L5	A5145 Parrs Wood Lane, east of Site Access, Eastbound (EB), SP	4,529	4,861	4,918	7.23	11.7	25
L6	A5145 Parrs Wood Lane/A34 Kingsway Junction	13,944	14,967	15,043	3.05	11.7	25
L7	A5145 Parrs Wood Lane, EB, SP	13,944	14,967	15,004	3.05	14.8	25
L8	A5145 Parrs Wood Lane, Westbound (WB), SP	3,486	3,742	3,742	3.05	5.8	25
L9	A5145 Parrs Wood Lane	17,430	18,709	18,746	3.05	10.6	45
L10	A34 Kingsway, Southbound (SB), SP	20,780	22,307	22,332	1.91	11.7	25
L11	A34 Kingsway, SB	20,780	22,307	22,332	1.91	7.7	65
L12	A34 Kingsway, Northbound (NB)	20,780	22,307	22,332	1.91	7.7	65
L13	A34 Kingsway, NB	24,524	26,325	26,325	2.70	9.6	35
L14	A5145 Parrs Wood Lane, east of Site Access, WB, SP	4,529	4,861	4,875	7.23	4.8	25
L15	A34 Kingsway, NB	24,524	26,325	26,339	2.70	9.4	35
L16	A34 Kingsway, SB	24,524	26,325	26,339	2.70	9.9	35
L17	A5145, SB, SP	9,391	10,081	10,093	1.48	14.9	25
L18	A34 Kingsway, NB, south of A5145, SP	24,487	26,285	26,299	2.26	7.6	25
L19	A34 Kingsway, NB, south of A5145, SP	31,988	34,338	34,363	1.70	9.5	25
L20	A34 Kingsway, NB, south of B5095 Wilmslow Road	24,114	25,886	25,911	1.71	12.7	30
L21	A34 Kingsway, NB, south of B5095 Wilmslow Road	24,114	25,886	25,911	1.71	6.8	65
L22	A34 Kingsway, SB, south of B5095 Wilmslow Road	24,114	25,886	25,911	1.71	6.8	65
L23	A34 Kingsway, SB, south of B5095 Wilmslow Road	24,114	25,886	25,911	1.71	7.2	65
L24	A34 Kingsway, SB, adjacent to B5095 Wilmslow Road, SP	31,988	34,338	34,363	1.70	6.7	25

Link		24-hour AADT Flow			HDV Prop. of Fleet (%)	Road Width (m)	Avg. Vehicle Speed (km/h)
		Verif.	2024 DM	2024 DS			
L25	A34 Kingsway, SB, south of A5145	31,988	34,338	34,363	1.70	11.9	35
L26	B5095, Wilmslow Road, SB	11,952	12,829	12,829	1.30	6.5	45
L27	B5095, Wilmslow Road to A34 Kingsway Junction NB, SP	4,064	4,362	4,362	1.30	6.8	25
L28	B5095, Wilmslow Road to A34 Kingsway Junction NB, SP	4,064	4,362	4,362	1.30	6.9	25
L29	B5095, Wilmslow Road to A34 Kingsway Junction SB, SP	4,064	4,362	4,362	1.30	5.3	25
L30	B5095, Wilmslow Road	23,903	25,659	25,659	1.30	15.7	45
L31	B5095, Wilmslow Road	23,903	25,659	25,659	1.30	14.0	45
L32	A5145, NB	9,391	10,081	10,093	1.48	14.6	40
L33	A5145	18,782	20,162	20,186	1.48	11.7	45
L34	Parrs Wood Road, north of A5145 Wilmslow Road	10,480	11,337	11,337	1.29	9.2	45
L35	Parrs Wood Road, SP	10,480	11,337	11,337	1.29	14.0	25
L36	Parrs Wood Road, south of A5145 Wilmslow Road	10,480	11,337	11,337	1.29	12.6	45

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

Emission Factors

The emission factors were calculated using the relevant traffic flows and the Emissions Factor Toolkit (version 11.0). This has been produced by DEFRA and incorporates COPERT 5.3 vehicle emission factors and fleet information.

Meteorological Data

Meteorological data used in the assessment was taken from Manchester Airport meteorological station over the period 1st January 2019 to 31st December 2019 (inclusive). Manchester Airport is located at NGR: 381792, 384116, which is approximately 7.3km 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 3 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 is considered appropriate for the morphology of the area and is suggested within ADMS-Roads as being suitable for 'agricultural areas (max)'.

A z_0 of 0.2m was used to describe the meteorological site. This 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 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

Background NO₂, PM₁₀ and PM_{2.5} concentrations for use in the assessment were obtained from the DEFRA mapping study for the grid square containing the development site, as shown in Table 13.

NO_x to NO₂ Conversion

Predicted annual mean NO_x concentrations were converted to NO₂ concentrations using the spreadsheet (version 8.1) provided by DEFRA, which is the method detailed within DEFRA guidance²⁴.

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 2019 using traffic data, meteorological data and monitoring results from this year.

MCC undertook monitoring of NO₂ concentrations at one location within the modelling extents during 2019. The result was obtained and the road contribution to total NO_x concentration calculated following the methodology contained within DEFRA guidance²⁵. The monitored annual mean NO₂ concentration and calculated road NO_x concentration is summarised in Table A1.2.

²⁴ Local Air Quality Management (TG16), DEFRA, 2021.

²⁵ Local Air Quality Management (TG16), DEFRA, 2021.

Table A1.2 NO_x Verification - Monitoring Result

Monitoring Location		Monitored NO ₂ Concentration (µg/m ³)	Calculated Road NO _x Concentration (µg/m ³)
MA74NO	Kingsway	33.6	27.97

The annual mean road NO_x concentration predicted from the dispersion model and the 2019 road NO_x concentration calculated from the 2019 monitoring result is summarised in Table A1.3

Table A1.3 NO_x Verification - Modelling Result

Monitoring Location		Calculated Road NO _x Concentration (µg/m ³)	Modelled Road NO _x Concentration (µg/m ³)
MA74NO	Kingsway	27.97	15.77

The monitored and modelled road NO_x concentrations were compared to calculate the associated ratio. This indicated a verification factor of 1.7736 was required to be applied to all modelling results.

Monitoring of PM₁₀ 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 guidance²⁶

²⁶ Local Air Quality Management (TG16), DEFRA, 2021.

Appendix 2 - Curricula Vitae

KEY EXPERIENCE:

Jethro is a Chartered Environmentalist and Director of Redmore Environmental with specialist experience in the air quality and odour sectors. His key capabilities include:

- Production and management of Air Quality, Dust and Odour Assessments for a wide-range of clients from the retail, residential, infrastructure, commercial and industrial sectors.
- Production and co-ordination of Environmental Permit applications for a variety of industrial sectors.
- Detailed dispersion modelling of road vehicle and industrial emissions using ADMS-Roads, ADMS-5, AERMOD-PRIME and BREEZE-ROADS. 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.
- Provision of expert witness services at Planning Inquiries.
- Design and project management of pollutant monitoring campaigns.
- Co-ordination and management of large-scale multi-disciplinary projects and submissions.
- Provision of expert advice to local government and international environmental bodies, as well as involvement in production of industry guidance.

SELECT PROJECTS SUMMARY:

Industrial

Shanks Waste Management - Odour Assessments of two waste management facilities to support Environmental Permit Applications.

Tatweer Petroleum - dispersion modelling of Bahrain oil field.

Doha South Sewage Treatment Works - AQA for works extension in Qatar.

IRIS Environmental Appraisal Report Reviews, Isle of Man Government - odour assessment reviews.

Lankem, Greater Manchester - Environmental Permit Application for chemical manufacturing plant.

Newport Docks Bulk Drying, Pelleting and CHP Facility - air quality EIA for gas CHP.

Springshades, Leicester - Environmental Permit Variation Application for textile manufacturing plant.

Valspar, Chester - Odour Assessment and production of Odour Management Plan for a paint manufacturing plant in response to neighbour complaints.

Agrivert - dispersion modelling of odour and CHP emissions from numerous AD plants.

James Cropper Paper Mill, Cumbria - air quality EIA, Environmental Permit Variation and Human Health Risk Assessment for new biomass boiler adjacent to SSSI.

Rigg Approach, Leyton - Air Quality Assessment in support of waste transfer site.

Lynchford Lane Waste Transfer Station - biomass facility energy recovery plant.

Barnes Wallis Heat and Power, Cobham - biomass facility adjacent to AQMA.

Residential

Wood St Mill, Bury - residential development adjacent to scrap metal yard.

Hyams Lane, Holbrook - Odour Assessment to support residential development adjacent to sewage works.

North Wharf Gardens, London - peer review of EIA undertaken for large residential development.

Loxford Road, Alford - Air Quality EIA for residential development, included consideration of impacts from associated package sewage works

Elephant and Castle Leisure Centre - baseline AQA for redevelopment.

Carr Lodge, Doncaster - EIA for large residential development.

Queensland Road, Highbury - residential scheme including CHP.

Bicester Ecotown - dispersion modelling of energy centre.

Castleford Growth Delivery Plan - baseline air quality constraints assessment for town redevelopment.

York St, Bury - residential development adjacent to AQMA.

Temple Point Leeds - residential development adjacent to M1.

Commercial and Retail

Etihad Stadium - Air Quality EIA for the extension to the capacity of the Etihad Stadium, Manchester.

Wakefield College - redevelopment of city centre campus in AQMA.

Manchester Airport Cargo Shed - commercial development.

Manchester Airport Apron Extension - EIA including aircraft emission modelling.

National Youth Theatre, Islington - redevelopment to provide new arts space and accommodation.

KEY EXPERIENCE:

Olly is an Environmental Consultant with specialist experience in the air quality sector. His 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 assessment of road traffic exhaust emissions on sensitive receptors and exposure of new residents to poor air quality.
- Detailed dispersion modelling of industrial emission sources using ADMS-5. Studies have included assessment of pollutant concentrations and consideration of associated impacts.
- Assessment of construction dust impacts from a range of development sizes.
- Production of air quality mitigation strategies specifically tailored to address issues at individual sites.
- Definition of baseline air quality and identification of sensitive areas across the UK.
- Air quality monitoring at industrial sites to quantify pollutant concentrations.

SELECT PROJECTS SUMMARY:

Millharbour, Isle of Dogs

Air Quality Assessment for the development of residential units within an Air Quality Management Area (AQMA). Concerns were raised regarding the exposure of future occupants to poor air quality due to road traffic emissions. Detailed dispersion modelling was undertaken using ADMS-roads to assess PM₁₀ and NO₂ concentrations across the site. Results identified that pollution levels were below the air quality standards across the development.

Station Road, Howden

Air Quality Assessment in support of a residential development. Using sensitive receptors located in areas where increased road traffic may affect NO₂ concentrations, a comparison was made between overall concentrations with and without the development in place. Results indicated pollutant concentrations were below the relevant standards across the site and impacts associated with the development were not significant.

Honeycombe Beach, Bournemouth

Air Quality Assessment to determine air quality conditions within a covered car park serving a residential complex and evaluate the effectiveness of the existing ventilation system. Monitoring of pollutant concentrations over a three-month period at four locations at the site was undertaken. Internal concentrations of pollutants were below the relevant Work Exposure Limits (WELs) at all locations. As such, natural ventilation was considered to provide adequate control of internal air quality.

Matching Airport, Abbess Roding

Air Quality Assessment in support of a flexible generation facility. Dispersion modelling was undertaken to determine potential changes in pollution levels as a result of emissions from the installation and consider the potential impact at nearby sensitive receptor locations. Predicted concentrations of NO₂ were below the relevant air quality criteria at all locations of relevant exposure across all meteorological data sets modelled. The overall effects of the development were predicted to be not significant in accordance with the stated guidance.

High Road, Wood Green, London

Air Quality Assessment for a residential scheme located in an AQMA. Detailed dispersion modelling was undertaken at several heights reflective of residential units within the development. Results indicated that NO₂ and PM₁₀ concentrations were below air quality criteria across the development.

Anlaby Road, Hull

Air Quality Assessment for the development of a six storey hotel and associated infrastructure within an AQMA. Concerns were raised about the exposure of future occupants to elevated pollution concentrations during operation due to road traffic exhaust emissions. Detailed dispersion modelling was undertaken using ADMS-roads to assess PM₁₀ and NO₂ concentrations across the site. Results indicated that pollution levels were below the air quality standards across the development.

KEY EXPERIENCE:

Alicia 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 assessment of road traffic exhaust emissions on sensitive receptors and exposure of new residents to poor air quality.
- Advanced Canyon Modelling to evaluate the impact of altered urban topography on air quality in built up areas.
- Assessment of construction dust impacts from a range of development sizes.
- Production of air quality mitigation strategies specifically tailored to address issues at individual sites.
- Definition of baseline air quality and identification of sensitive areas across the UK.
- Odour surveys to assess amenity and suitability of sites for potential future development for residential use.
- Production of Damage Cost Assessments in accordance with DEFRA guidance.

SELECT PROJECTS SUMMARY:

Cross Street, Sale

Air Quality Assessment for the redevelopment of the former Trafford Magistrates Court to provide houses and apartments. Concerns were raised regarding the exposure of future occupants to poor air quality due to road traffic emissions. Dispersion modelling was therefore undertaken to quantify pollution levels at the development. Predicted concentrations were below the relevant Air Quality Objectives (AQO) at all sensitive locations across the development. Mitigation in the form of mechanical ventilation was therefore not required.

Church Street, Irthlingborough

Odour Impact Assessment in support of a hot food takeaway in Wellingborough. The assessment considered a number of factors, including the scale and nature of potential emissions, the location of nearest receptors and the proposed cooking type in accordance with the relevant DEFRA guidance. An appropriate ventilation system was identified and described on the basis of the assessment results.

Lewis Street, Cardiff

Air Quality Assessment in support of the construction of circa 30 residential units on land off Lewis Street, Cardiff. Concerns had been raised in relation to the potential exposure of future occupants to elevated pollution concentrations. Detailed dispersion modelling was subsequently undertaken using ADMS-roads to assess pollutant concentrations across the site. Results indicated that pollution levels were below the air quality standards across the site.

Leigham Court Road, Streatham

Air Quality Assessment in support of a mixed-use development located in an Air Quality Management Area (AQMA). Detailed dispersion modelling was undertaken with the inclusion of advanced canyon modelling to evaluate the impact of the urban topography on the dispersion of traffic related pollutants. Predicted concentrations of Nitrogen Dioxide (NO₂) were found to exceed the air quality criteria from ground to third floor level. As such, mitigation was specified for the affected units to ensure future residents would not be exposed to poor air quality.

Warning Tongue Lane, Doncaster

Air Quality Assessment in support of the construction of 220 residential units. The development had potential to cause air quality impacts at sensitive locations during construction and operation. Detailed dispersion modelling was therefore undertaken to consider the potential impact of the development on air quality at sensitive receptor locations within the vicinity of the site. Results indicated that impacts were not predicted to be significant at any sensitive receptor location. Suitable mitigation to control potential impacts associated with fugitive dust releases during construction was also identified.

Dearne Valley Parkway, Barnsley

Air Quality Assessment in support of an industrial development comprising three units. The development had the potential to cause impacts at sensitive locations. An assessment was therefore undertaken in order to determine baseline conditions and consider potential effects as a result of the proposals. Review of the results indicated an acceptable level of emissions from the scheme.