

Air Quality Assessment
Huddersfield Road, Mirfield

Client: Aldi Stores Ltd (Goldthorpe)

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Prepared by	Amelia Reed			
Position	Principal Air Quality Consultant			
Reviewed by	Jethro Redmore			
Position	Director			
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Serendipity Labs, Building 7, Exchange Quay, Salford, M5 3EP

info@red-env.co.uk | 0161 706 0075 | www.red-env.co.uk

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Executive Summary

Redmore Environmental Ltd was commissioned by Aldi Stores Ltd (Goldthorpe) to undertake an Air Quality Assessment to address a planning condition for a retail development at 119 Huddersfield Road, Mirfield.

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 such, an Air Quality Assessment was undertaken in order to determine baseline conditions 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 demolition, 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 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.

A number of mitigation measures were identified in line with the requirements of the West Yorkshire Air Quality and Emissions: Technical Planning Guidance in order to reduce vehicle exhaust emissions associated with the proposals. It is considered these are appropriate for a development of this scale and nature and will further control impacts during the operational phase.

Based on the assessment results, it is recommended that the planning condition be discharged.

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1.0 INTRODUCTION

1.1 Background

1.1.1 Redmore Environmental Ltd was commissioned by Aldi Stores Ltd (Goldthorpe) to undertake an Air Quality Assessment to address a planning condition for a retail development at 119 Huddersfield Road, Mirfield.

1.1.2 The development has the potential to cause air quality impacts at sensitive locations during the construction and operational phases. As such, an Air Quality Assessment was undertaken in order to determine baseline conditions and assess potential effects associated with the scheme.

1.2 Site Location and Context

1.2.1 The site is located at 119 Huddersfield Road, Mirfield, at approximate National Grid Reference (NGR): 419829, 420010. Reference should be made to Figure 1 for a map of the site and surrounding area.

1.2.2 The proposals comprise demolition of existing buildings and erection of a Class E retail unit, access, car parking, servicing, landscaping and associated works.

1.2.3 Planning consent for the scheme was granted by Kirklees Council (KC) (reference: 2019/60/92221/E) on 18th December 2020 subject to a number of conditions. These include the following in relation to air quality:

"16. A Full Air Quality Impact Assessment shall be submitted to and approved in writing by the Local Planning Authority before development commences. The Air Quality Impact Assessment shall be prepared in accordance with the 'Air Quality and Emissions Technical Planning Guidance' (part of the West Yorkshire Low Emissions Strategy). The mitigation measures as detailed in the Full Air Quality Impact Assessment so approved shall be provided before the development is first brought into use and retained as such.

Reason: To mitigate the impact of the development on air quality and to accord with Policies LP24 and LP53 of the Kirklees Local Plan, guidance in the National Planning Policy Framework and the West Yorkshire Low Emissions Strategy."

- 1.2.4 Air Quality Assessment has therefore been undertaken to address the above condition by defining baseline conditions, assessing potential effects as a result of the proposals and identifying the requirement for mitigation to reduce any effects to an acceptable level. This is summarised in the following report.

2.0 LEGISLATION AND POLICY

2.1 Legislation

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

- Nitrogen dioxide (NO₂);
- Sulphur dioxide;
- Lead;
- Particulate matter with an aerodynamic diameter of less than 10µm (PM₁₀);
- Particulate matter with an aerodynamic diameter of less than 2.5µm (PM_{2.5});
- Benzene; and,
- Carbon monoxide.

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

2.1.3 The Air Quality Strategy (AQS) was produced by the Department for Environment, Food and Rural Affairs (DEFRA) and published in April 2023¹. The document contains standards, objectives and measures for improving ambient air quality, including a number of Air Quality Objectives (AQOs). These are maximum ambient pollutant concentrations that are not to be exceeded either without exception or with a permitted number of exceedences over a specified timescale. These are generally in line with the AQLVs, although the requirements for the determination of compliance vary.

2.1.4 The Environmental Improvement Plan 2023² was published in January 2023, providing long term and Interim Targets in order to reduce population exposure to PM_{2.5}. The concentration target for 2040 was subsequently adopted in the Environmental Targets (Fine Particulate Matter) (England) Regulations (2023).

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

² Environmental Improvement Plan 2023, DEFRA, 2023.

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

Table 1 Air Quality Objectives/Interim Target

Pollutant	Air Quality Objective/Interim Target	
	Concentration ($\mu\text{g}/\text{m}^3$)	Averaging Period
NO ₂	40	Annual mean
	200	1-hour mean, not to be exceeded on more than 18 occasions per annum
PM ₁₀	40	Annual mean
	50	24-hour mean, not to be exceeded on more than 35 occasions per annum
PM _{2.5}	12 ^(a)	Annual mean

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

2.1.6 Table 2 summarises the advice provided in DEFRA guidance³ on where the AQOs for pollutants considered within this report apply.

Table 2 Examples of Where the Air Quality Objectives Apply

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

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

Averaging Period	Objective Should Apply At	Objective Should Not Apply At
1-hour mean	<p>All locations where the annual mean and 24 and 8-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets)</p> <p>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</p> <p>Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer</p>	Kerbside sites where the public would not be expected to have regular access

2.2 Local Air Quality Management

2.2.1 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 2, are likely to be exceeded, the LA is required to declare an Air Quality Management Area (AQMA). For each AQMA the LA is required to produce an Air Quality Action Plan (AQAP), the objective of which is to reduce pollutant concentrations in pursuit of the AQOs.

2.3 Dust

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

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

2.3.2 Enforcement of the Act, in regard to nuisance, is currently under the jurisdiction of the local Environmental Health Department, whose officers are deemed to provide an independent evaluation of nuisance. If the LA is satisfied that a statutory nuisance exists, or is likely to occur or happen again, it must serve an Abatement Notice under Part III of

the Environmental Protection Act (1990). The only defence is to show that the process to which the nuisance has been attributed and its operation are being controlled according to best practicable means.

2.4 National Planning Policy

2.4.1 The revised National Planning Policy Framework⁴ (NPPF) was published in 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:

[...]

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 [...]."

⁴ NPPF, Ministry of Housing, Communities and Local Government, 2021.

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

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

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

2.5 National Planning Practice Guidance

2.5.1 The National Planning Practice Guidance⁵ (NPPG) web-based resource was launched by the Department for Communities and Local Government 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?
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?

⁵ <https://www.gov.uk/guidance/air-quality--3>.

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 Kirklees Local Plan (KLP)⁶ was adopted by KC on 27th February 2019. The KLP sets out the spatial vision and strategy for the development of Kirklees for the period up to 2031 and is used to guide decisions on planning, development and regeneration.

2.6.2 A review of the document indicated the following policies in relation to air quality which are relevant to this assessment:

"Policy LP47 - Healthy, active and safe lifestyles

The council will, with its partners, create an environment which supports healthy, active and safe communities and reduces inequality.

Healthy, active and safe lifestyles will be enabled by:

[...]

g. ensuring that the current air quality in the district is monitored and maintained and, where required, appropriate mitigation measures included as part of new development proposals; [...]"

"Policy LP51 - Protection and improvement of local air quality

1. Development will be expected to demonstrate that it is not likely to result, directly or indirectly, in an increase in air pollution which would unacceptably affect or cause a nuisance to the national or build environment or to people.

2. Proposals that have the potential to increase local air pollution either individually or cumulatively must be accompanied by evidence to show that the impact of the development has been assessed in accordance with the relevant

⁶ Kirklees Local Plan, KC, 2019.

guidance. Development which has the potential to cause levels of local air pollution to increase to unsafe levels must incorporate sustainable mitigation measures that reduce this impact to a safe level. If sustainable measures cannot be introduced the development will not be permitted.

3. Where the development introduces new receptors into Air Quality Management Areas or Areas of Concern or near other areas of relatively poor air quality, for example near roads or junctions, the development must incorporate sustainable mitigation measures that protect the new receptors from unacceptable levels of air pollution. Where sustainable mitigation measures cannot be introduced which prevent receptors from being exposed to unsafe levels of air pollution, development will not be permitted."

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

2.6.4 The West Yorkshire LAs have produced the Air Quality and Emissions: Technical Planning Guidance⁷ as part of an overarching low emission strategy to reduce road transport emissions in the county. It is aimed at helping LAs deliver AQO compliance through cost effective service planning brought about by the joint working group and relevant Local Plan policies and was taken into consideration throughout the undertaking of this assessment.

⁷ Air Quality and Emissions: Technical Planning Guidance, West Yorkshire Low Emissions Group, 2014.

3.0 METHODOLOGY

3.1 Introduction

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

3.2 Construction Phase Assessment

3.2.1 There is the potential for fugitive dust emissions to occur as a result of construction phase activities. These have been assessed in accordance with the methodology outlined within the Institute of Air Quality Management (IAQM) document 'Guidance on the Assessment of Dust from Demolition and Construction V1.1'⁸.

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

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

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

- Annoyance due to dust soiling;
- Harm to ecological receptors; and,
- The risk of health effects due to a significant increase in exposure to PM₁₀.

3.2.4 The assessment steps are detailed below.

⁸ 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 3.

Table 3 Construction Dust - Magnitude of Emission

Magnitude	Activity	Criteria
Large	Demolition	<ul style="list-style-type: none">• Total volume of building to be demolished greater than 50,000m³• Potentially dusty material (e.g. concrete)• On-site crushing and screening• Demolition activities more than 20m above ground level

Magnitude	Activity	Criteria
	Earthworks	<ul style="list-style-type: none"> 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
	Construction	<ul style="list-style-type: none"> Total building volume greater than 100,000m³ On site concrete batching Sandblasting
	Trackout	<ul style="list-style-type: none"> More than 50 Heavy Duty Vehicle (HDV) trips per day Potentially dusty surface material (e.g. high clay content) Unpaved road length greater than 100m
Medium	Demolition	<ul style="list-style-type: none"> Total volume of building to be demolished between 20,000m³ and 50,000m³ Potentially dusty construction material Demolition activities 10m to 20m above ground level
	Earthworks	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Total building volume 25,000m³ to 100,000m³ Potentially dusty construction material (e.g. concrete) On site concrete batching
	Trackout	<ul style="list-style-type: none"> 10 to 50 HDV trips per day Moderately dusty surface material (e.g. high clay content) Unpaved road length 50m to 100m
Small	Demolition	<ul style="list-style-type: none"> Total volume of building to be demolished less than 20,000m³ Construction material with low potential for dust release (e.g. metal cladding or timber) Demolition activities less than 10m above ground and during wetter months

Magnitude	Activity	Criteria
	Earthworks	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Total building volume less than 25,000m³ Construction material with low potential for dust release (e.g. metal cladding or timber)
	Trackout	<ul style="list-style-type: none"> Less than 10 HDV trips per day Surface material with low potential for dust release Unpaved road length less than 50m

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

Table 4 Construction Dust - Examples of Factors Defining Sensitivity of an Area

Receptor Sensitivity	Examples	
	Human Receptors	Ecological Receptors
High	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Internationally or nationally designated site e.g. Special Area of Conservation
Medium	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Nationally designated site e.g. Sites of Special Scientific Interest

Receptor Sensitivity	Examples	
	Human Receptors	Ecological Receptors
Low	<ul style="list-style-type: none"> • 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, shopping streets, playing fields, farmland, short term car parks and roads 	<ul style="list-style-type: none"> • Locally designated site e.g. Local Nature Reserve

3.2.11 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.

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

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

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

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		Less than 20	Less than 50	Less than 100	Less than 350
High	More than 100	High	High	Medium	Low
	10 - 100	High	Medium	Low	Low

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		Less than 20	Less than 50	Less than 100	Less than 350
	1 - 10	Medium	Low	Low	Low
Medium	More than 1	Medium	Low	Low	Low
Low	More than 1	Low	Low	Low	Low

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

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

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

Receptor Sensitivity	Background Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance from the Source (m)				
			Less than 20	Less than 50	Less than 100	Less than 200	Less than 350
	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	Low

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

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

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

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

3.2.17 Table 8 outlines the risk category from demolition activities.

Table 8 Construction Dust - Dust Risk Category from Demolition Activities

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

3.2.18 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

3.2.19 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

3.2.20 Step 3 requires the identification of site specific mitigation measures within the IAQM guidance⁹ to reduce potential dust impacts based upon the relevant risk categories identified in Step 2. For sites with **negligible** risk, mitigation measures beyond those required by legislation are not required. However, additional controls may be applied as part of good practice.

Step 4

3.2.21 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**.

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

3.3 Operational Phase Assessment

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

- 2019 - Verification;
- Opening year Do-Minimum (DM) (predicted traffic flows in 2027 should the proposals not proceed); and,
- Opening year Do-Something (DS) (predicted traffic flows in 2027 should the proposals be completed).

⁹ Guidance on the Assessment of Dust from Demolition and Construction V1.1, IAQM, 2016.

- 3.3.2 Reference should be made to Appendix 1 for assessment input data and details of the verification process.
- 3.3.3 Locations sensitive to potential changes in off-site pollutant concentrations were identified within 200m of the highway network in accordance with the guidance provided within the Design Manual for Roads and Bridges (DMRB)¹⁰ on the likely limits of pollutant dispersion from road sources. The criteria provided within DEFRA guidance¹¹ on where the AQOs apply, as summarised in Table 2, was utilised to determine worst-case receptor positions in the vicinity of links likely to be affected by changes in traffic flows as a result of the development.
- 3.3.4 The significance of predicted air quality impacts was determined in accordance with the guidance provided within the IAQM document 'Land-Use Planning & Development Control: Planning for Air Quality'¹². 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/ Interim Target (%)			
	1	2 - 5	6 - 10	> 10
75% or less of AQO/Interim Target	Negligible	Negligible	Slight	Moderate
76 - 94% of AQO/Interim Target	Negligible	Slight	Moderate	Moderate
95 - 102% of AQO/Interim Target	Slight	Moderate	Moderate	Substantial
103 - 109% of AQO/Interim Target	Moderate	Moderate	Substantial	Substantial
110% or more of AQO/Interim Target	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

¹⁰ LA 105: Air Quality, Highways England, 2019.

¹¹ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

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

the impact falls within. It should be noted that changes of 0%, i.e. less than 0.5%, are described as **negligible**.

3.3.6 Following the prediction of impacts at discrete receptor locations, the IAQM document¹³ provides guidance on determining the overall air quality impact significance of the operation of a development. The following factors are identified for consideration by the assessor:

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

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

3.3.8 The determination of significance relies on professional judgement and reasoning has been provided as far as practicable. The IAQM guidance¹⁴ suggests the provision of details of the assessor's qualifications and experience. These are provided in Appendix 2.

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

¹⁴ 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 development site were identified in order to provide a baseline for assessment. These are detailed in the following Sections.

4.2 Local Air Quality Management

4.2.1 As required by the Environment Act (1995), as amended by the Environment Act (2021), KC has undertaken Review and Assessment of air quality within their area of jurisdiction. This process has indicated that pollutant concentrations are above the AQOs within the district. As such, ten AQMAs have been declared. The closest of these to the development has been designated in relation to exceedences of the annual mean AQO for NO₂ and is described as follows:

"Kirklees AQMA - The designated area incorporates the Leeds Road (A62) - Bradley Road (A6107) junction."

4.2.2 The development is located approximately 2.1km south-east of the AQMA. As such, there is the potential for emissions from the development to increase pollution concentrations in this sensitive area. This has been considered throughout the assessment.

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

4.3 Air Quality Monitoring

4.3.1 Monitoring of pollutant concentrations is undertaken by KC throughout their area of jurisdiction. Recent NO₂ results recorded in the vicinity of the development are shown in Table 12. Exceedences of the relevant AQO are shown in **bold**.

Table 12 Monitoring Results

Monitoring Site		Monitored NO ₂ Concentration (µg/m ³)		
		2019	2020	2021
Roadside 3	RSE - Bradley	-(a)	25.5	-(a)
K5	Huddersfield Road Ravensthorpe	36.1	23.6	27.4
K6	Leeds Road - Cooper Bridge	37.9	27.0	34.9
K9	Bradley Road	34.4	28.3	21.7
K10	Leeds Road Bradley 1	34.5	28.8	-(a)
K12	Leeds Road Bradley 2	27.3	29.4	-(a)
K19	Huddersfield Road Scouthill	31.6	29.6	35.7
K22	Leeds Road Bradley 3	33.4	22.7	34.7
K23	Leeds Road Mirfield 2	35.3	31.7	36.0
K25, K26, K27	Leeds Road - RS3 - 3	27.4	22.6	24.5
K36	Huddersfield Road Mirfield 1	49.4	21.1	31.5
K70	Huddersfield Road - Scouthill - Airstation	31.8	33.4	32.9
K102	Stocks Bank Road, Mirfield	-(a)	18.8	24.4
K103	Stocks Bank Road, Mirfield	-(a)	19.4	23.3

Note: (a) Monitoring data not available.

- 4.3.2 As shown in Table 12, annual mean NO₂ concentrations exceeded the AQO at K36 - Huddersfield Road Mirfield 1 in 2019. As this site is located adjacent to an A-road, elevated results would be expected. Concentrations were below the AQO at all other monitors. Reference should be made to Figure 2 for a map of the survey positions.
- 4.3.3 Pollutant concentrations during 2020 and 2021 were lower than previous years due to a reduction in traffic and associated emissions caused by the COVID-19 pandemic. The results should therefore be viewed with caution.
- 4.3.4 Recent annual mean PM_{2.5} concentrations recorded in the vicinity of the development are shown in Table 13.

Table 13 Monitoring Results - PM_{2.5}

Monitoring Site		Monitored PM _{2.5} Concentration (µg/m ³)		
		2019	2020	2021
Roadside 3	RSE - Bradley	-(a)	9.28	-(a)

Note: (a) Monitoring data not available.

4.3.5 As shown in Table 13, PM_{2.5} concentrations below the Interim Target at the Roadside 3 monitor in recent years.

4.3.6 KC does not undertake monitoring of PM₁₀ concentrations within the vicinity of the site.

4.4 **Background Pollutant Concentrations**

4.4.1 Predictions of background pollutant concentrations on a 1km by 1km grid basis have been produced by DEFRA for the entire of the UK to assist LAs in their Review and Assessment of air quality. The proposed development site is located in grid square NGR: 419500, 420500. Data for this location was downloaded from the DEFRA website¹⁵ for the purpose of the assessment and is summarised in Table 14.

Table 14 Background Pollutant Concentration Predictions

Pollutant	Predicted Background Pollutant Concentration (µg/m ³)		
	2019	2023	2027
NO ₂	13.79	11.88	10.70
PM ₁₀	11.62	11.05	10.81
PM _{2.5}	8.03	7.61	7.42

4.4.2 As shown in Table 14, predicted background NO₂, PM₁₀ and PM_{2.5} concentrations are below the relevant AQOs and Interim Target at the development site.

¹⁵ <http://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 demolition, 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 15.

Table 15 Demolition, Earthworks and Construction Dust Sensitive Receptors

Distance from Site Boundary (m)	Approximate Number of Human Receptors	Approximate Number of Ecological Receptors
Up to 20	10 - 100	0
Up to 50	More than 100	0
Up to 100	More than 100	-
Up to 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 16.

Table 16 Trackout Dust Sensitive Receptors

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

4.5.4 There are no ecological receptors within 50m of the development boundary or the access route within 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 17.

Table 17 Additional Area Sensitivity Factors to Potential Dust Impacts

Guidance	Comment
Whether there is any history of dust generating activities in the area	The baseline study did not indicate any dust generating activities in the local area
The likelihood of concurrent dust generating activity on nearby sites	A review of the planning portal indicated that a number of applications have recently been granted consent in the vicinity of the site. It is therefore possible that there will be concurrent dust generation should the construction phases of these schemes overlap with the proposed development
Pre-existing screening between the source and the receptors	Trees and shrubs are located along the western, southern and eastern site boundaries. 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 west with significant frequencies from the south-west. As such, receptors to the east and north-east 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. The sensitivity of nearby receptors is unlikely to change during this time
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 4, 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 18.

Table 18 Sensitivity of the Surrounding Area to Potential Dust Impacts

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

Operational Phase Sensitive Receptors

4.5.8 Locations sensitive to potential operational phase road vehicle exhaust emission impacts were identified from a desk-top study and are summarised in Table 19. Receptor heights were included in order to take account of less sensitive land uses at ground floor level, such as retail.

Table 19 Operational Phase Road Vehicle Exhaust Emission Sensitive Receptor Locations

Receptor		NGR (m)		Height (m)
		X	Y	
R1	Residential - A62, Leeds Road	417121.9	420248.6	1.5
R2	Residential - A62, Leeds Road	417242.8	420350.2	1.5
R3	Residential - A62, Leeds Road	417397.5	420464.6	1.5
R4	Residential - A6017, Bradley Road	417401.8	420487.7	1.5
R5	Residential - A6017, Bradley Road	417150.9	420447.4	1.5
R6	Residential - A6017, Bradley Road	417397.0	420524.2	1.5
R7	Residential - A6017, Bradley Road	417453.2	420540.0	1.5
R8	Residential - A62, Copper Bridge Road	417637.4	420642.7	1.5
R9	Residential - A644, Leeds Road	417864.2	421042.1	1.5
R10	Residential - A62, Leeds Road	418383.2	421142.8	1.5
R11	Residential - A644, Huddersfield Road	418367.1	421061.8	1.5
R12	The Radcliffe Residential Home	418680.8	420876.5	1.5
R13	Residential - A644, Huddersfield Road	418938.3	420532.1	1.5
R14	Residential - A644, Huddersfield Road	419512.5	420271.5	1.5

Receptor		NGR (m)		Height (m)
		X	Y	
R15	Residential - A644, Huddersfield Road	419823.5	420060.0	1.5
R16	Residential - A644, Huddersfield Road	419963.7	419987.8	1.5
R17	Royd Court Pilgrim Care	420078.7	419911.3	1.5
R18	Residential - A644, Huddersfield Road	420193.6	419771.2	3.5
R19	Residential - A644, Huddersfield Road	420574.3	419809.4	1.5
R20	Residential - A644, Huddersfield Road	420838.7	419881.9	1.5
R21	Residential - A644, Huddersfield Road	421250.3	419849.3	1.5
R22	Residential - A644, Huddersfield Road	421731.5	419984.2	1.5
R23	Residential - A644, Huddersfield Road	422241.5	420297.9	1.5
R24	Residential - A644, Huddersfield Road	422432.6	420374.0	1.5
R25	Residential - A644, Huddersfield Road	423137.9	420642.1	1.5
R26	Residential - A644, Huddersfield Road	423232.5	420721.4	1.5
R27	Residential - A644, Huddersfield Road	423298.9	420807.1	1.5
R28	Residential - A644, Huddersfield Road	423491.5	420922.2	1.5
R29	Residential - A644, Huddersfield Road	423579.9	421040.7	1.5
R30	Childs Play Day Nursery Dewsbury	423704.1	421137.7	1.5

4.5.9 Reference should be made to Figure 4 for a graphical representation of road vehicle exhaust emission sensitive receptor locations.

5.0 **ASSESSMENT**

5.1 **Introduction**

5.1.1 The proposal has the potential for air quality impacts as a result of the construction and operation of the proposed development. These are assessed in the following Sections.

5.2 **Construction Phase Assessment**

Step 1

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

Demolition

5.2.4 Demolition will involve clearance of the existing buildings on site. It is estimated that the total building volume to be demolished is less than 20,000m³. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from demolition is therefore **small**.

5.2.5 Table 18 indicates the sensitivity of the area to dust soiling effects on people and property is **high**. In accordance with the criteria outlined in Table 8, the development is considered to be a **medium** risk site for dust soiling as a result of demolition activities.

5.2.6 Table 18 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 demolition activities.

Earthworks

5.2.7 Earthworks may involve excavating material, haulage, tipping and stockpiling. The area of the proposed development site is between 2,500m² and 10,000m². In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from earthworks is therefore **medium**.

5.2.8 Table 18 indicates the sensitivity of the area to dust soiling effects on people and property is **high**. In accordance with the criteria outlined in Table 9, the development is considered to be a **medium** risk site for dust soiling as a result of earthworks.

5.2.9 Table 18 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 **low** risk site for human health impacts as a result of earthworks.

Construction

5.2.10 Due to the size of the development, the total building volume will be less than 25,000m³. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from construction is therefore **small**.

5.2.11 Table 18 indicates the sensitivity of the area to dust soiling effects on people and property is **high**. 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.

5.2.12 Table 18 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

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

5.2.14 Table 18 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 activities.

5.2.15 Table 18 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 activities.

Summary of the Risk of Dust Effects

5.2.16 A summary of the risk from each dust generating activity is provided in Table 20.

Table 20 Summary of Potential Unmitigated Dust Risks

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

5.2.17 As indicated in Table 20, the potential risk of dust soiling is **medium** from demolition and earthworks and **low** from construction and trackout. The potential risk of human health effects is **low** from earthworks and **negligible** from demolition, construction and trackout.

5.2.18 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

5.2.19 The IAQM guidance¹⁶ 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 21 and should be incorporated into a Construction Environmental Management Plan or similar.

Table 21 Fugitive Dust Emission Mitigation Measures

Issue	Control Measure
Communications	<ul style="list-style-type: none"> • Develop and implement a stakeholder communications plan that includes community engagement before work commences on site. • Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager • Display the head or regional office contact information • Develop and implement a Dust Management Plan (DMP) or similar, which may include measures to control other emissions
Site management	<ul style="list-style-type: none"> • 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 off- site, and the action taken to resolve the situation in the log book
Monitoring	<ul style="list-style-type: none"> • 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

¹⁶ Guidance on the Assessment of Dust from Demolition and Construction V1.1, IAQM, 2017.

Issue	Control Measure
Site preparation	<ul style="list-style-type: none"> • Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible • Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site • Fully enclose 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	<ul style="list-style-type: none"> • Ensure all vehicles switch off engines when stationary - no idling vehicles • Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable
Operations	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • No bonfires and burning of waste materials
Demolition	<ul style="list-style-type: none"> • Ensure effective water suppression is used during demolition operations • Avoid explosive blasting, using appropriate manual or mechanical alternatives • Bag and remove any biological debris or damp down such material before demolition
Earthworks	<ul style="list-style-type: none"> • Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable • Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable
Construction	<ul style="list-style-type: none"> • 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

Issue	Control Measure
Trackout	<ul style="list-style-type: none"> • Use water-assisted dust sweeper on access and local roads, if required • Avoid dry sweeping of large areas • Ensure vehicles entering and leaving site are covered to prevent escape of materials • Implement a wheel washing system, if required

Step 4

5.2.20 Assuming the relevant mitigation measures outlined in Table 21 are implemented, the residual impact from all dust generating activities is predicted to be **not significant**, in accordance with the IAQM guidance¹⁷.

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.

5.3.2 The assessment included the following scenarios:

- 2019 - Verification;
- 2027 - DM; and,
- 2027 - 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 baseline traffic data, inclusive of anticipated growth for the relevant assessment year, in addition to predicted vehicle trips associated with the operation of the proposals.

5.3.4 For the purpose of the assessment traffic data for 2027 was utilised as the development opening year. Air quality is predicted to improve in the future. However, in order to

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

provide a robust assessment, emission factors for 2019 were utilised within the dispersion model. The use of 2027 traffic data and 2019 emission factors is considered to provide a worst-case scenario and therefore a sufficient level of confidence can be placed within the predicted pollution concentrations.

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

Predicted Concentrations

5.3.6 Annual mean NO₂ 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 NO₂ Concentrations

Receptor		Predicted Annual Mean NO ₂ Concentration (µg/m ³)		
		DM	DS	Change
R1	Residential - A62, Leeds Road	26.94	26.97	0.03
R2	Residential - A62, Leeds Road	33.79	33.83	0.04
R3	Residential - A62, Leeds Road	40.82	40.89	0.07
R4	Residential - A6017, Bradley Road	34.87	34.98	0.11
R5	Residential - A6017, Bradley Road	24.87	24.94	0.07
R6	Residential - A6017, Bradley Road	31.25	31.38	0.13
R7	Residential - A6017, Bradley Road	32.91	33.01	0.10
R8	Residential - A62, Copper Bridge Road	30.36	30.45	0.09
R9	Residential - A644, Leeds Road	36.73	36.96	0.23
R10	Residential - A62, Leeds Road	25.84	26.06	0.22
R11	Residential - A644, Huddersfield Road	26.28	26.89	0.61
R12	The Radcliffe Residential Home	22.80	23.15	0.35
R13	Residential - A644, Huddersfield Road	28.29	29.23	0.94
R14	Residential - A644, Huddersfield Road	23.67	24.15	0.48
R15	Residential - A644, Huddersfield Road	28.01	28.93	0.92

Receptor		Predicted Annual Mean NO ₂ Concentration (µg/m ³)		
		DM	DS	Change
R16	Residential - A644, Huddersfield Road	27.69	28.58	0.89
R17	Royd Court Pilgrim Care	23.51	23.99	0.48
R18	Residential - A644, Huddersfield Road	22.82	23.24	0.42
R19	Residential - A644, Huddersfield Road	27.46	28.39	0.93
R20	Residential - A644, Huddersfield Road	23.74	24.23	0.49
R21	Residential - A644, Huddersfield Road	24.02	24.54	0.52
R22	Residential - A644, Huddersfield Road	26.59	27.39	0.80
R23	Residential - A644, Huddersfield Road	27.62	28.53	0.91
R24	Residential - A644, Huddersfield Road	26.94	27.80	0.86
R25	Residential - A644, Huddersfield Road	28.79	29.83	1.04
R26	Residential - A644, Huddersfield Road	26.81	27.64	0.83
R27	Residential - A644, Huddersfield Road	26.27	27.05	0.78
R28	Residential - A644, Huddersfield Road	27.53	28.46	0.93
R29	Residential - A644, Huddersfield Road	25.88	26.64	0.76
R30	Childs Play Day Nursery Dewsbury	25.28	25.96	0.68

5.3.7 As indicated in Table 22, predicted annual mean NO₂ concentrations were below the relevant AQO at 29 receptors and above at one position in both the DM and DS scenarios. It should be noted that there are no new predicted exceedences in the DS scenario when compared with the DM.

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 23.

Table 23 Predicted Annual Mean PM₁₀ Concentrations

Receptor		Predicted Annual Mean PM ₁₀ Concentration (µg/m ³)		
		DM	DS	Change
R1	Residential - A62, Leeds Road	14.37	14.38	0.01
R2	Residential - A62, Leeds Road	15.51	15.52	0.01
R3	Residential - A62, Leeds Road	16.51	16.53	0.02
R4	Residential - A6017, Bradley Road	15.45	15.48	0.02
R5	Residential - A6017, Bradley Road	13.82	13.83	0.01
R6	Residential - A6017, Bradley Road	14.83	14.85	0.02
R7	Residential - A6017, Bradley Road	15.05	15.07	0.02
R8	Residential - A62, Copper Bridge Road	15.07	15.09	0.02
R9	Residential - A644, Leeds Road	15.87	15.91	0.04
R10	Residential - A62, Leeds Road	14.11	14.15	0.04
R11	Residential - A644, Huddersfield Road	14.15	14.27	0.11
R12	The Radcliffe Residential Home	13.47	13.54	0.06
R13	Residential - A644, Huddersfield Road	14.58	14.77	0.18
R14	Residential - A644, Huddersfield Road	13.65	13.74	0.09
R15	Residential - A644, Huddersfield Road	14.52	14.70	0.18
R16	Residential - A644, Huddersfield Road	14.45	14.62	0.17
R17	Royd Court Pilgrim Care	13.58	13.66	0.08
R18	Residential - A644, Huddersfield Road	13.42	13.48	0.07
R19	Residential - A644, Huddersfield Road	14.25	14.41	0.15
R20	Residential - A644, Huddersfield Road	13.66	13.75	0.09
R21	Residential - A644, Huddersfield Road	13.72	13.81	0.10
R22	Residential - A644, Huddersfield Road	14.20	14.35	0.15
R23	Residential - A644, Huddersfield Road	14.36	14.53	0.16
R24	Residential - A644, Huddersfield Road	14.16	14.30	0.14
R25	Residential - A644, Huddersfield Road	14.59	14.78	0.19

Receptor		Predicted Annual Mean PM ₁₀ Concentration (µg/m ³)		
		DM	DS	Change
R26	Residential - A644, Huddersfield Road	14.21	14.35	0.15
R27	Residential - A644, Huddersfield Road	14.10	14.24	0.14
R28	Residential - A644, Huddersfield Road	14.28	14.44	0.16
R29	Residential - A644, Huddersfield Road	13.96	14.08	0.12
R30	Childs Play Day Nursery Dewsbury	13.90	14.02	0.12

5.3.9 As indicated in Table 23, predicted annual mean PM₁₀ concentrations were below the relevant AQO at all sensitive receptors in both the DM and DS scenarios.

5.3.10 Annual mean PM_{2.5} concentrations were predicted at the sensitive receptor locations for the DM and DS scenarios. These are summarised in Table 24.

Table 24 Predicted Annual Mean PM_{2.5} Concentrations

Receptor		Predicted Annual Mean PM _{2.5} Concentration (µg/m ³)		
		DM	DS	Change
R1	Residential - A62, Leeds Road	9.68	9.68	0.00
R2	Residential - A62, Leeds Road	10.36	10.37	0.01
R3	Residential - A62, Leeds Road	10.97	10.98	0.01
R4	Residential - A6017, Bradley Road	10.34	10.35	0.01
R5	Residential - A6017, Bradley Road	9.37	9.38	0.01
R6	Residential - A6017, Bradley Road	9.97	9.98	0.01
R7	Residential - A6017, Bradley Road	10.10	10.12	0.01
R8	Residential - A62, Copper Bridge Road	10.09	10.10	0.01
R9	Residential - A644, Leeds Road	10.58	10.60	0.03
R10	Residential - A62, Leeds Road	9.53	9.56	0.02
R11	Residential - A644, Huddersfield Road	9.56	9.62	0.07
R12	The Radcliffe Residential Home	9.16	9.20	0.04

Receptor		Predicted Annual Mean PM _{2.5} Concentration (µg/m ³)		
		DM	DS	Change
R13	Residential - A644, Huddersfield Road	9.81	9.91	0.11
R14	Residential - A644, Huddersfield Road	9.26	9.32	0.05
R15	Residential - A644, Huddersfield Road	9.77	9.88	0.10
R16	Residential - A644, Huddersfield Road	9.73	9.83	0.10
R17	Royd Court Pilgrim Care	9.23	9.27	0.05
R18	Residential - A644, Huddersfield Road	9.13	9.17	0.04
R19	Residential - A644, Huddersfield Road	9.62	9.71	0.09
R20	Residential - A644, Huddersfield Road	9.27	9.32	0.05
R21	Residential - A644, Huddersfield Road	9.30	9.36	0.06
R22	Residential - A644, Huddersfield Road	9.58	9.67	0.09
R23	Residential - A644, Huddersfield Road	9.68	9.78	0.10
R24	Residential - A644, Huddersfield Road	9.57	9.65	0.08
R25	Residential - A644, Huddersfield Road	9.82	9.93	0.11
R26	Residential - A644, Huddersfield Road	9.59	9.68	0.09
R27	Residential - A644, Huddersfield Road	9.53	9.61	0.08
R28	Residential - A644, Huddersfield Road	9.64	9.73	0.09
R29	Residential - A644, Huddersfield Road	9.45	9.52	0.07
R30	Childs Play Day Nursery Dewsbury	9.42	9.48	0.07

5.3.11 As indicated in Table 24, predicted annual mean PM_{2.5} concentrations were below the Interim Target at all sensitive receptors in both scenarios.

Predicted Impacts

5.3.12 Predicted impacts on annual mean NO₂ concentrations at the sensitive receptor locations are summarised in Table 25.

Table 25 Predicted Impacts - NO₂

Receptor		Predicted Annual Mean NO ₂ Concentration	Predicted Concentration Change as Proportion of AQO (%)	Impact Significance
R1	Residential - A62, Leeds Road	Below 75% of AQO	0	Negligible
R2	Residential - A62, Leeds Road	76 - 94% of AQO	0	Negligible
R3	Residential - A62, Leeds Road	103 - 109% of AQO	0	Negligible
R4	Residential - A6017, Bradley Road	76 - 94% of AQO	0	Negligible
R5	Residential - A6017, Bradley Road	Below 75% of AQO	0	Negligible
R6	Residential - A6017, Bradley Road	76 - 94% of AQO	0	Negligible
R7	Residential - A6017, Bradley Road	76 - 94% of AQO	0	Negligible
R8	Residential - A62, Copper Bridge Road	76 - 94% of AQO	0	Negligible
R9	Residential - A644, Leeds Road	76 - 94% of AQO	1	Negligible
R10	Residential - A62, Leeds Road	Below 75% of AQO	1	Negligible
R11	Residential - A644, Huddersfield Road	Below 75% of AQO	2 - 5	Negligible
R12	The Radcliffe Residential Home	Below 75% of AQO	1	Negligible
R13	Residential - A644, Huddersfield Road	Below 75% of AQO	2 - 5	Negligible
R14	Residential - A644, Huddersfield Road	Below 75% of AQO	1	Negligible
R15	Residential - A644, Huddersfield Road	Below 75% of AQO	2 - 5	Negligible
R16	Residential - A644, Huddersfield Road	Below 75% of AQO	2 - 5	Negligible
R17	Royd Court Pilgrim Care	Below 75% of AQO	1	Negligible
R18	Residential - A644, Huddersfield Road	Below 75% of AQO	1	Negligible
R19	Residential - A644, Huddersfield Road	Below 75% of AQO	2 - 5	Negligible
R20	Residential - A644, Huddersfield Road	Below 75% of AQO	1	Negligible
R21	Residential - A644, Huddersfield Road	Below 75% of AQO	1	Negligible
R22	Residential - A644, Huddersfield Road	Below 75% of AQO	2 - 5	Negligible
R23	Residential - A644, Huddersfield Road	Below 75% of AQO	2 - 5	Negligible
R24	Residential - A644, Huddersfield Road	Below 75% of AQO	2 - 5	Negligible

Receptor		Predicted Annual Mean NO ₂ Concentration	Predicted Concentration Change as Proportion of AQO (%)	Impact Significance
R25	Residential - A644, Huddersfield Road	Below 75% of AQO	2 - 5	Negligible
R26	Residential - A644, Huddersfield Road	Below 75% of AQO	2 - 5	Negligible
R27	Residential - A644, Huddersfield Road	Below 75% of AQO	2 - 5	Negligible
R28	Residential - A644, Huddersfield Road	Below 75% of AQO	2 - 5	Negligible
R29	Residential - A644, Huddersfield Road	Below 75% of AQO	2 - 5	Negligible
R30	Childs Play Day Nursery Dewsbury	Below 75% of AQO	2 - 5	Negligible

5.3.13 As indicated in Table 25, impacts on annual mean NO₂ concentrations as a result of the proposed development were predicted to be **negligible** at all receptor locations.

5.3.14 Predicted impacts on annual mean PM₁₀ concentrations at the sensitive receptor locations are summarised in Table 26.

Table 26 Predicted Impacts - PM₁₀

Receptor		Predicted Annual Mean PM ₁₀ Concentration	Predicted Concentration Change as Proportion of AQO (%)	Impact Significance
R1	Residential - A62, Leeds Road	Below 75% of AQO	0	Negligible
R2	Residential - A62, Leeds Road	Below 75% of AQO	0	Negligible
R3	Residential - A62, Leeds Road	Below 75% of AQO	0	Negligible
R4	Residential - A6017, Bradley Road	Below 75% of AQO	0	Negligible
R5	Residential - A6017, Bradley Road	Below 75% of AQO	0	Negligible
R6	Residential - A6017, Bradley Road	Below 75% of AQO	0	Negligible
R7	Residential - A6017, Bradley Road	Below 75% of AQO	0	Negligible
R8	Residential - A62, Copper Bridge Road	Below 75% of AQO	0	Negligible
R9	Residential - A644, Leeds Road	Below 75% of AQO	0	Negligible

Receptor		Predicted Annual Mean PM ₁₀ Concentration	Predicted Concentration Change as Proportion of AQO (%)	Impact Significance
R10	Residential - A62, Leeds Road	Below 75% of AQO	0	Negligible
R11	Residential - A644, Huddersfield Road	Below 75% of AQO	0	Negligible
R12	The Radcliffe Residential Home	Below 75% of AQO	0	Negligible
R13	Residential - A644, Huddersfield Road	Below 75% of AQO	0	Negligible
R14	Residential - A644, Huddersfield Road	Below 75% of AQO	0	Negligible
R15	Residential - A644, Huddersfield Road	Below 75% of AQO	0	Negligible
R16	Residential - A644, Huddersfield Road	Below 75% of AQO	0	Negligible
R17	Royd Court Pilgrim Care	Below 75% of AQO	0	Negligible
R18	Residential - A644, Huddersfield Road	Below 75% of AQO	0	Negligible
R19	Residential - A644, Huddersfield Road	Below 75% of AQO	0	Negligible
R20	Residential - A644, Huddersfield Road	Below 75% of AQO	0	Negligible
R21	Residential - A644, Huddersfield Road	Below 75% of AQO	0	Negligible
R22	Residential - A644, Huddersfield Road	Below 75% of AQO	0	Negligible
R23	Residential - A644, Huddersfield Road	Below 75% of AQO	0	Negligible
R24	Residential - A644, Huddersfield Road	Below 75% of AQO	0	Negligible
R25	Residential - A644, Huddersfield Road	Below 75% of AQO	0	Negligible
R26	Residential - A644, Huddersfield Road	Below 75% of AQO	0	Negligible
R27	Residential - A644, Huddersfield Road	Below 75% of AQO	0	Negligible
R28	Residential - A644, Huddersfield Road	Below 75% of AQO	0	Negligible
R29	Residential - A644, Huddersfield Road	Below 75% of AQO	0	Negligible
R30	Childs Play Day Nursery Dewsbury	Below 75% of AQO	0	Negligible

5.3.15 As indicated in Table 26, impacts on annual mean PM₁₀ concentrations as a result of the proposed development were predicted to be **negligible** at all receptor locations.

5.3.16 Predicted impacts on annual mean PM_{2.5} concentrations at the sensitive receptor locations are summarised in Table 27.

Table 27 Predicted Impacts - PM_{2.5}

Receptor		Predicted Annual Mean PM _{2.5} Concentration	Predicted Concentration Change as Proportion of the Interim Target (%)	Impact Significance
R1	Residential - A62, Leeds Road	76 - 94% of Interim Target	0	Negligible
R2	Residential - A62, Leeds Road	76 - 94% of Interim Target	0	Negligible
R3	Residential - A62, Leeds Road	76 - 94% of Interim Target	0	Negligible
R4	Residential - A6017, Bradley Road	76 - 94% of Interim Target	0	Negligible
R5	Residential - A6017, Bradley Road	76 - 94% of Interim Target	0	Negligible
R6	Residential - A6017, Bradley Road	76 - 94% of Interim Target	0	Negligible
R7	Residential - A6017, Bradley Road	76 - 94% of Interim Target	0	Negligible
R8	Residential - A62, Copper Bridge Road	76 - 94% of Interim Target	0	Negligible
R9	Residential - A644, Leeds Road	76 - 94% of Interim Target	0	Negligible
R10	Residential - A62, Leeds Road	76 - 94% of Interim Target	0	Negligible
R11	Residential - A644, Huddersfield Road	76 - 94% of Interim Target	1	Negligible
R12	The Radcliffe Residential Home	76 - 94% of Interim Target	0	Negligible
R13	Residential - A644, Huddersfield Road	76 - 94% of Interim Target	1	Negligible
R14	Residential - A644, Huddersfield Road	76 - 94% of Interim Target	0	Negligible
R15	Residential - A644, Huddersfield Road	76 - 94% of Interim Target	1	Negligible
R16	Residential - A644, Huddersfield Road	76 - 94% of Interim Target	1	Negligible
R17	Royd Court Pilgrim Care	76 - 94% of Interim Target	0	Negligible
R18	Residential - A644, Huddersfield Road	76 - 94% of Interim Target	0	Negligible

Receptor		Predicted Annual Mean PM _{2.5} Concentration	Predicted Concentration Change as Proportion of the Interim Target (%)	Impact Significance
R19	Residential - A644, Huddersfield Road	76 - 94% of Interim Target	1	Negligible
R20	Residential - A644, Huddersfield Road	76 - 94% of Interim Target	0	Negligible
R21	Residential - A644, Huddersfield Road	76 - 94% of Interim Target	0	Negligible
R22	Residential - A644, Huddersfield Road	76 - 94% of Interim Target	1	Negligible
R23	Residential - A644, Huddersfield Road	76 - 94% of Interim Target	1	Negligible
R24	Residential - A644, Huddersfield Road	76 - 94% of Interim Target	1	Negligible
R25	Residential - A644, Huddersfield Road	76 - 94% of Interim Target	1	Negligible
R26	Residential - A644, Huddersfield Road	76 - 94% of Interim Target	1	Negligible
R27	Residential - A644, Huddersfield Road	76 - 94% of Interim Target	1	Negligible
R28	Residential - A644, Huddersfield Road	76 - 94% of Interim Target	1	Negligible
R29	Residential - A644, Huddersfield Road	76 - 94% of Interim Target	1	Negligible
R30	Childs Play Day Nursery Dewsbury	76 - 94% of Interim Target	1	Negligible

5.3.17 As indicated in Table 27, impacts on annual mean PM_{2.5} concentrations as a result of the proposed development were predicted to be **negligible** at all receptor locations.

Overall Impact Significance

5.3.18 The overall significance of operational phase road traffic emission impacts was determined as **negligible**. This was based on the overall predicted impacts at discrete

receptor locations and the considerations outlined previously. Further justification is provided in Table 28.

Table 28 Overall Road Vehicle Exhaust Emissions Impact Significance

Guidance	Comment
The existing and future air quality in the absence of the development	<p>Predicted annual mean NO₂ concentrations were above the relevant AQO at one receptor and below at 29 locations in the DM scenario</p> <p>Predicted annual mean PM₁₀ and PM_{2.5} concentrations were below the relevant AQO and Interim Target at all locations in the DM scenario</p> <p>The predicted concentrations are considered unlikely to change significantly in the absence of the proposals given the established nature of the area</p>
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 Interim Target
The influence and validity of any assumptions adopted when undertaking the prediction of impacts	<p>It is assumed that vehicle exhaust emission rates and background pollution levels will not reduce in future years. This provides worst-case results when compared with the DEFRA and National Highways methodologies</p> <p>Due to the adopted assumptions it is considered the presented results are sufficiently robust for an assessment of this nature</p>

5.3.19 The IAQM guidance¹⁸ states that only if the impact is greater than **slight**, the effect is considered **significant**. As impacts were predicted to be **negligible**, overall effects are considered **not significant**, in accordance with the stated methodology.

5.4 West Yorkshire Technical Planning Guidance

5.4.1 The West Yorkshire LAs have produced Air Quality and Emissions: Technical Planning Guidance¹⁹ as part of an overarching Low Emission Strategy to reduce road transport emissions in the county. It is aimed at helping LAs deliver AQO compliance through cost

¹⁸ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

¹⁹ Air Quality and Emissions: Technical Planning Guidance, West Yorkshire Low Emissions Group.

effective service planning brought about by the joint working and relevant Local Plan policies. This was considered in the context of the development.

5.4.2 The guidance provides a methodology for determining the scale of a development as minor, medium or major and the required air quality mitigation for the relevant banding. Review of the relevant criteria indicated the proposals were classified as **major** due to the following:

- Retail sale of food goods to the public - supermarkets, superstore, convenience food store greater than 800m²;
- Any development generating 100 or more two-way vehicle movements per day;
- Proposals that could increase the existing traffic flow on road of greater than 10,000 Annual Average Daily Traffic (AADT) by 5% or more; and,
- Proposals that include additional HDV movements by more than 10% of total trips.

5.4.3 Based on the development classification, a damage costs assessment is required to determine the appropriate amount of required mitigation. This is provided in the following Section.

Damage Costs Assessment

5.4.4 The guidance sets out a Damage Cost Assessment methodology in order to assess the local emissions from a development and determine the appropriate level of mitigation required to help reduce the potential effect on health and/or the local environment.

5.4.5 The first step of the damage costs assessment is to undertake a calculation to identify the monetary value of predicted emissions from the proposals. This utilises the Emissions Factor Toolkit (EFT) to calculate the amount of transport related pollutant emissions the development is likely to produce. The output is then multiplied by the Interdepartmental Group on Costs and Benefits damage costs for the key pollutants NO_x and PM_{2.5}, and finally multiplied by 5 to provide a five-year exposure cost value. This has been summarised in the following equation:

$$\text{5 Year Exposure Cost Value} = \text{EFT Output} \times \text{Damage Costs} \times 5$$

5.4.6 It should be noted that the calculation has been undertaken using the most recent damage costs released by DEFRA in 2023²⁰.

5.4.7 The input data values used in the assessment are shown in Table 29.

Table 29 Emissions Assessment - Inputs

Data	Value
Daily Vehicle Movements Produced by Development	1,961
HDV Proportion (%)	27
Average Speed (km/h)	50
Average Trip Length (km)	10
NO _x Output (kg/year) ^(a)	1053.17
PM _{2.5} Output (kg/year) ^(a)	213.37
NO _x Output (tonnes/year)	1.05
PM _{2.5} Output (kg/year)	0.21
NO _x Damage Cost (£/tonne)	8,148
PM _{2.5} Damage Cost (£/tonne)	74,769

Note: (a) Calculated for 5-year exposure mid point of year 2030.

5.4.8 The calculation is shown in Table 30.

Table 30 Emissions Assessment - Calculation

Data	Value
Annual Cost of NO _x Emissions (£)	8,581
Annual Cost of PM _{2.5} Emissions (£)	15,953
Total Annual Exposure Cost Value (£)	24,534
Total Five Year Exposure Cost Value (£)	122,672

²⁰ Air Quality Appraisal: Damage Cost Guidance, DEFRA, 2023.

Mitigation

5.4.9 As shown in Table 30, the calculation determined the development should include mitigation measures to reduce the air quality impacts of road traffic emissions equal to £122,672.

5.4.10 The guidance²¹ provides a number of mitigation options that should be considered for inclusion within developments. These were reviewed and the those to be incorporated within the proposals include the following:

- Implementation of the Fugitive Dust Emission Mitigation Measures outlined within the IAQM guidance²², as summarised in Table 19, to control emissions during the construction phase of the development;
- Provision of electric vehicle (EV) charging points;
- Provision of secure cycle storage, to encourage the use of sustainable transport modes to and from the site;
- Improved pedestrian pathways to encourage walking throughout the site;
- High performance building envelope and efficient heating/ cooling technologies;
- Modern and efficient HDV fleet and advanced Global Positioning Systems to minimise miles on road, where possible
- Trailer solar panels to be installed on applicant owned trailers; and
- Production of a full Travel Plan to encourage the use of non-transport modes and assist with the reduction of development transport related emissions.

5.4.11 Costs for a number of the above measures were provided by the applicant. This indicated that the total monetary value of measures to be implemented equated to approximately £300,000. This is higher than the calculated damage cost of £122,672. As such, the proposed initiatives are considered sufficient to further minimise air quality impacts.

²¹ Air Quality and Emissions: Technical Planning Guidance, West Yorkshire Low Emissions Group.

²² Guidance on the Assessment of Dust from Demolition and Construction V1.1, IAQM, 2016.

6.0 CONCLUSION

- 6.1.1 Redmore Environmental Ltd was commissioned by Aldi Stores Ltd (Goldthorpe) to undertake an Air Quality Assessment to address a planning condition for a retail development at 119 Huddersfield Road, Mirfield.
- 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 such, an Air Quality Assessment was therefore undertaken in order to determine baseline conditions 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 demolition, earthworks, construction and trackout activities was predicted to be **not significant**.
- 6.1.4 The proposed development has the potential to 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 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. Air quality impacts as a result of the operation of the development were therefore considered to be **not significant**, in accordance with the IAQM guidance.
- 6.1.6 A number of mitigation measures were identified in line with the requirements of the West Yorkshire Air Quality and Emissions: Technical Planning Guidance²³ in order to reduce vehicle exhaust emissions associated with the proposals. It is considered these are

²³ Air Quality and Emissions: Technical Planning Guidance, West Yorkshire Low Emissions Group.

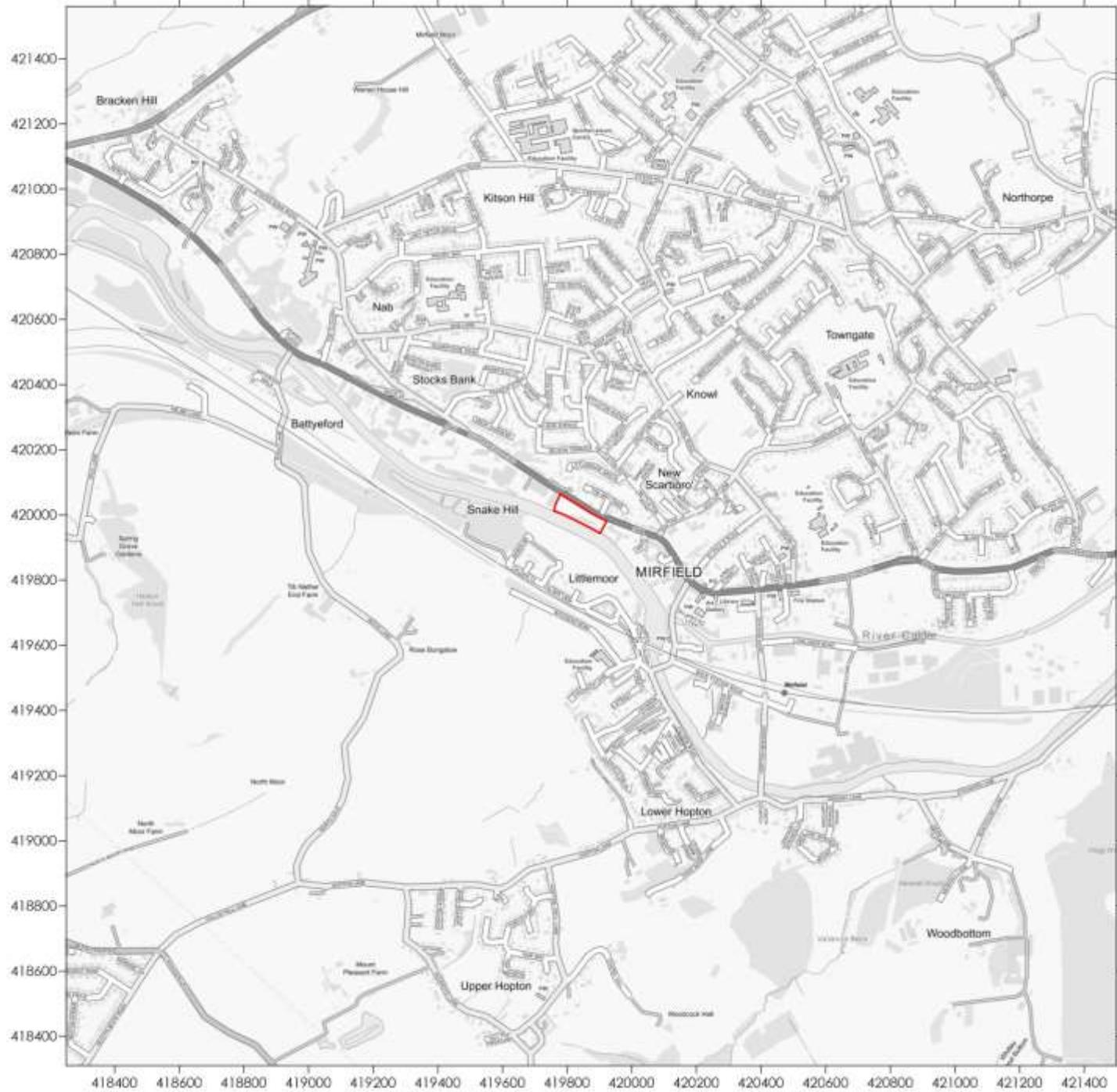
appropriate for a development of this scale and nature and will further control impacts during the operational phase.

6.1.7 Based on the assessment results, it is recommended that the planning condition be discharged.

7.0 ABBREVIATIONS

AADT	Annual Average Daily Traffic
ADM	Atmospheric Dispersion Modelling
AQAP	Air Quality Action Plan
AQLV	Air Quality Limit Value
AQMA	Air Quality Management Area
AQO	Air Quality Objective
AQS	Air Quality Strategy
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
EFT	Emissions Factor Toolkit
EV	Electric Vehicle
HDV	Heavy Duty Vehicle
IAQM	Institute of Air Quality Management
KC	Kirklees Council
KLP	Kirklees Local Plan
LA	Local Authority
LAQM	Local Air Quality Management
NGR	National Grid Reference
NO ₂	Nitrogen dioxide
NO _x	Oxides of nitrogen
NPPF	National Planning Policy Framework
NPPG	National Planning Policy Guidance
PM ₁₀	Particulate matter with an aerodynamic diameter of less than 10µm
PM _{2.5}	Particulate matter with an aerodynamic diameter of less than 2.5µm
SP	Slow Phase
Z ₀	Roughness length

Figures



Legend



Title
Figure 1 - Site Location Plan

Project
Air Quality Assessment
Huddensfield Road, Mirfield

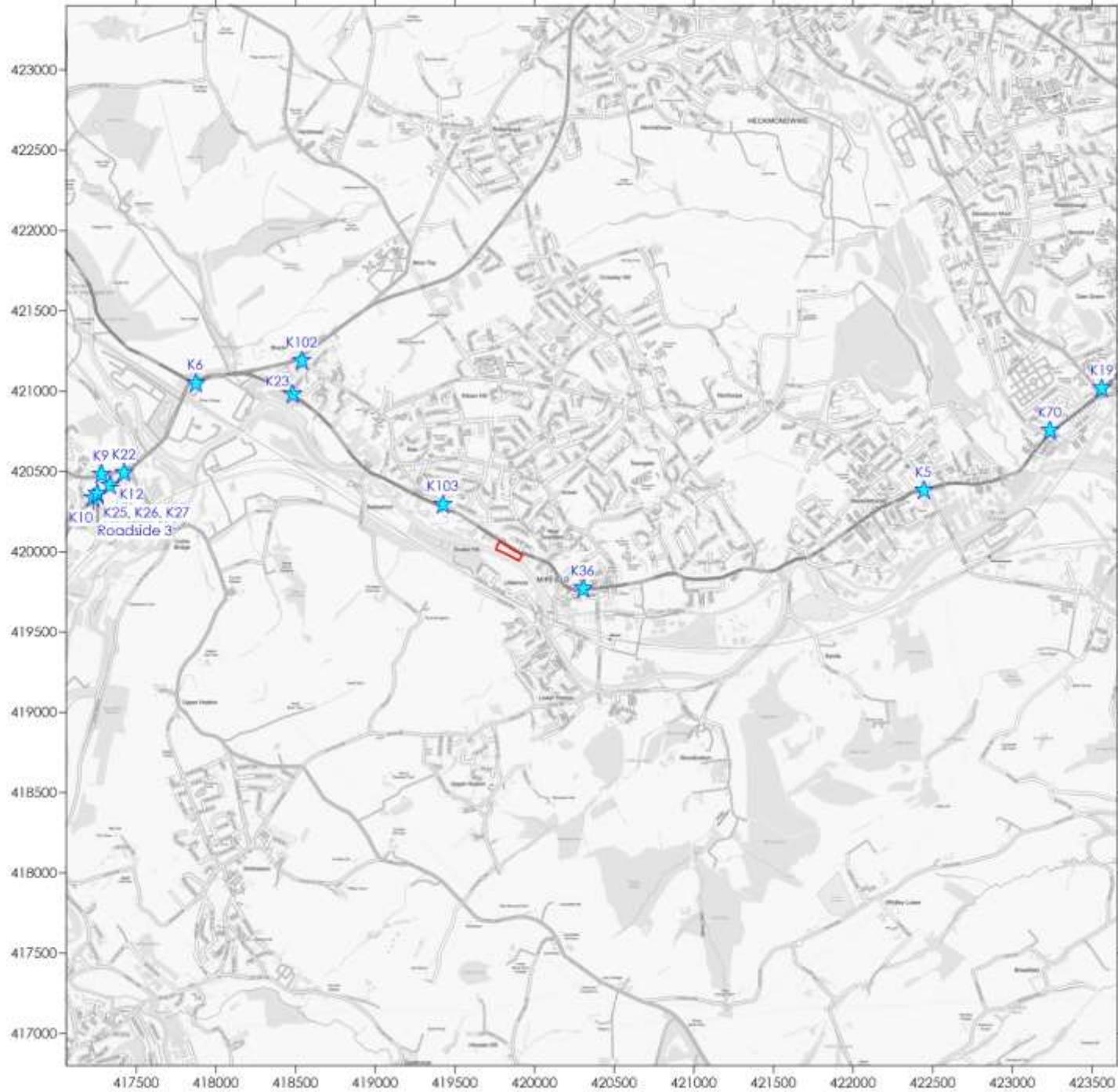
Project Reference
7023

Client
Aldi Stores Ltd (Goldthorpe)

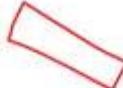
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Legend

-  Site Boundary
-  Monitor

Title
Figure 2 - Monitoring Locations

Project
Air Quality Assessment
Huddensfield Road, Mirfield

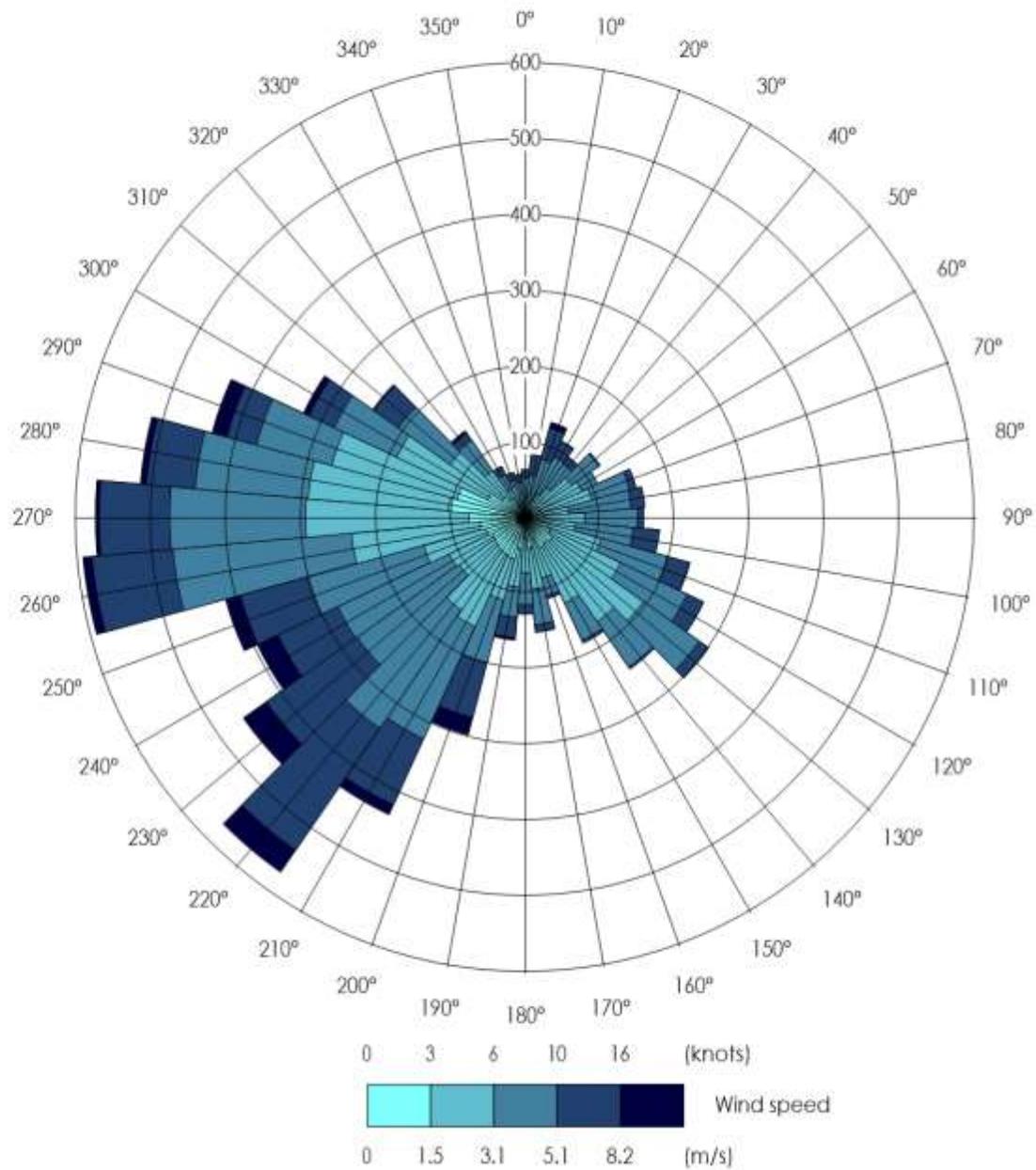
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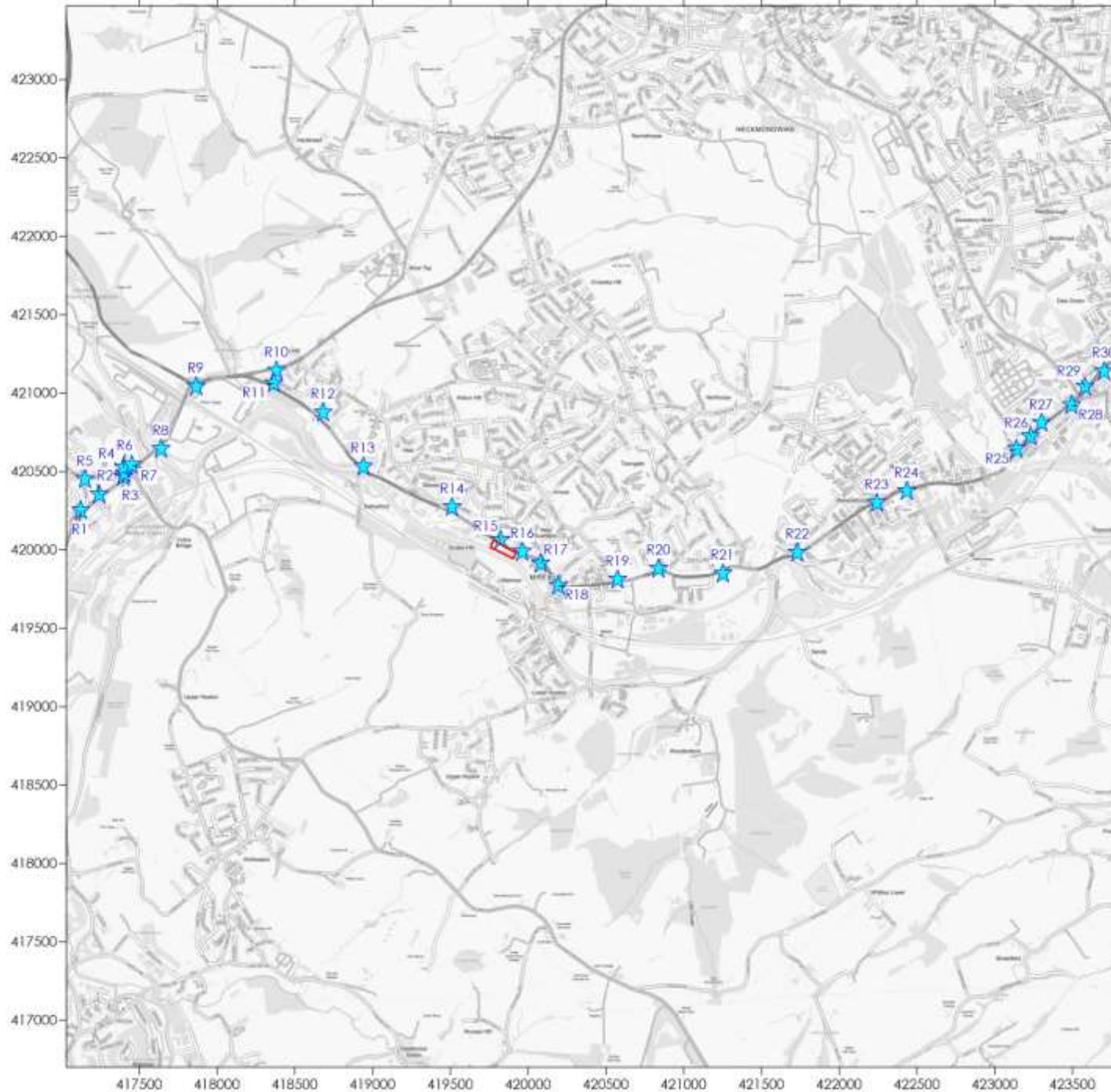
Title
Figure 3 - Wind Rose of 2019
Bingley Meteorological Data

Project
Air Quality Assessment
Huddensfield Road, Mirfield

Project Reference
7023

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Aldi Stores Ltd (Goldthorpe)





Legend

-  Site Boundary
-  Receptor

Title

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

Project

Air Quality Assessment
Huddensfield Road, Mirfield

Project Reference

7023

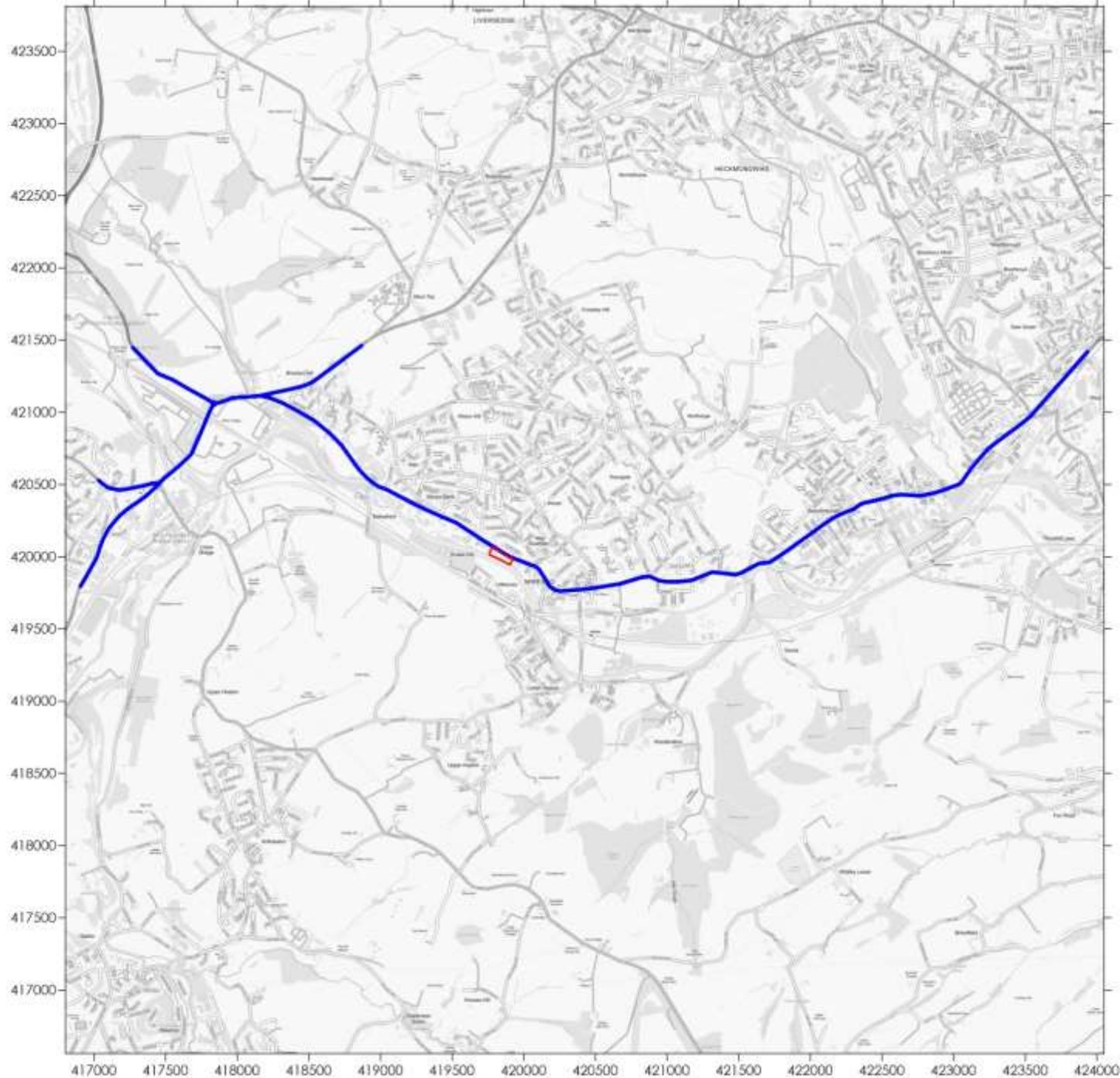
Client

Aldi Stores Ltd (Goldthorpe)

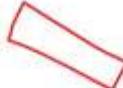
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Legend

-  Site Boundary
-  Road Link

Title
Figure 5 - ADMS-Roads Inputs

Project
Air Quality Assessment
Huddensfield Road, Mirfield

Project Reference
7023

Client
Aldi Stores Ltd (Goldthorpe)

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Appendix 1 - Assessment Input Data

Introduction

The proposed development has the potential to cause air quality impacts as a result of exhaust emissions associated with vehicles travelling to and from 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 5.0.1.3). ADMS-Roads is developed by Cambridge Environmental Research Consultants (CERC) and is routinely used throughout the world for the prediction of pollutant dispersion from road sources. Modelling predictions from this software package are accepted within the UK by the Environment Agency and DEFRA.

The model requires input data that details the following parameters:

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

The following Sections detail the relevant inputs utilised in the assessment.

Traffic Flow Data

Traffic data for use in the assessment, including 24-hour Annual Average Daily Traffic (AADT) flows and fleet composition, was obtained from the Department for Transport (DfT)²⁴. The DfT web tool enables the user to view and download traffic flows on every link of the 'A' road and motorway network, as well as the selected minor roads, in Great Britain for the years 1999 to 2022. It should

²⁴ <https://roadtraffic.dft.gov.uk/#14/53.3690/-2.7272/basemap-countpoints>.

be noted that the DfT web tool is reference in DEFRA guidance²⁵ as being a suitable source of data for air quality assessment and it is therefore considered to provide a reasonable estimate of traffic flows in the vicinity of the site.

Baseline traffic data was converted to the site opening year utilising a factor obtained from TEMPro (version 8.0). This software package has been developed by the DfT to calculate future traffic growth throughout the UK.

Traffic generation associated with the proposals was obtained from the Transport Assessment²⁶ completed in support of the development. These flows were applied to the relevant road links to establish the DS scenario.

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

Table A1.1 Traffic Data

Link		24-hour AADT Flow			HDV Prop. of Fleet (%)		
		Verif.	2027 DM	2027 DS	Verif.	2027 DM	2027 DS
L1	A62, Leeds Road, West of Oak Road	28,172	29,950	30,133	4.07	4.07	3.97
L2	A62, Leeds Road, East of Oak Road	28,172	29,950	30,133	4.07	4.07	3.97
L3	A62, Leeds Road, West of Colne Bridge Road, Slow Phase (SP)	28,172	29,950	30,133	4.07	4.07	3.97
L4	A62, Copper Bridge Road, East of Colne Bridge Road, SP	33,670	35,795	36,162	5.10	5.10	5.02
L5	A6107, Bradley Road, West of Colne Bridge Road	19,503	20,734	20,917	1.83	1.83	1.94
L6	A6107, Bradley Road, West of Colne Bridge Road, SP	19,503	20,734	20,917	1.83	1.83	1.94
L7	A62, Copper Bridge Road, South of A644	33,670	35,795	36,162	5.10	5.10	5.02
L8	A62, Copper Bridge Road, South of A644, SP	33,670	35,795	36,162	5.10	5.10	5.02
L9	A644, Wakefield Road, West of A62	22,541	23,963	24,331	7.42	7.42	7.28

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

²⁶ Transportation Assessment, Huddersfield Road Mirfield, Turner Lowe Associates, 2019.

Link		24-hour AADT Flow			HDV Prop. of Fleet (%)		
		Verif.	2027 DM	2027 DS	Verif.	2027 DM	2027 DS
L10	A644, Wakefield Road, West of A62, SP	22,541	23,963	24,331	7.42	7.42	7.28
L11	A644, Leeds Road, East of Copper Bridge Road, SP	28,902	30,726	31,461	5.19	5.19	5.40
L12	A644, Leeds Road, West of A62	28,902	30,726	31,461	5.19	5.19	5.40
L13	A644, Leeds Road, West of A62, SP	28,902	30,726	31,461	5.19	5.19	5.40
L14	A62, Leeds Road, East of A644, SP	19,371	20,593	20,838	2.25	2.25	2.41
L15	A62, Leeds Road	19,371	20,593	20,838	2.25	2.25	2.41
L16	A644, Huddersfield Road, South of A62, SP	12,706	13,508	14,488	5.82	5.82	6.93
L17	A644, Huddersfield Road, West of Site Entrance	12,706	13,508	14,488	5.82	5.82	6.93
L18	A644, Huddersfield Road, East of Site Entrance	12,706	13,508	14,488	5.82	5.82	6.93
L19	A644, Huddersfield Road, West of Calder Road	12,706	13,508	14,488	5.82	5.82	6.93
L20	A644, Huddersfield Road, West of Hurst Lane	12,706	13,508	14,488	5.82	5.82	6.93
L21	A644, Huddersfield Road, East of Hurst Lane	12,706	13,508	14,488	5.82	5.82	6.93
L22	A644, Huddersfield Road, West of North Road	12,706	13,508	14,488	5.82	5.82	6.93
L23	A644, Huddersfield Road, East of North Road	12,706	13,508	14,488	5.82	5.82	6.93
L24	A644, Huddersfield Road, East of Calder Road	12,706	13,508	14,488	5.82	5.82	6.93
L25	A644, Huddersfield Road, West of Quarry Road	12,706	13,508	14,488	5.82	5.82	6.93
L26	A644, Huddersfield Road, East of Quarry Road	12,706	13,508	14,488	5.82	5.82	6.93
R1	A62/A644 Roundabout	28,371	30,161	30,529	7.42	7.42	7.28

Road widths and vehicle speeds were estimated from aerial photography and UK highway design standards. A summary of the relevant parameters is shown in Table A1.2.

Table A1.2 Traffic Data

Link		Speed (km/h)	Road Width (m)
L1	A62, Leeds Road, West of Oak Road	50	8.8
L2	A62, Leeds Road, East of Oak Road	35	10.0
L3	A62, Leeds Road, West of Colne Bridge Road, SP	25	10.4
L4	A62, Copper Bridge Road, East of Colne Bridge Road, SP	25	19.1
L5	A6107, Bradley Road, West of Colne Bridge Road	35	14.7
L6	A6107, Bradley Road, West of Colne Bridge Road, SP	25	17.6
L7	A62, Copper Bridge Road, South of A644	50	11.5
L8	A62, Copper Bridge Road, South of A644, SP	25	18.1
L9	A644, Wakefield Road, West of A62	60	7.5
L10	A644, Wakefield Road, West of A62, SP	25	12.9
L11	A644, Leeds Road, East of Copper Bridge Road, SP	25	20.6
L12	A644, Leeds Road, West of A62	50	8.7
L13	A644, Leeds Road, West of A62, SP	25	14.1
L14	A62, Leeds Road, East of A644, SP	25	11.9
L15	A62, Leeds Road	50	6.6
L16	A644, Huddersfield Road, South of A62, SP	25	12.6
L17	A644, Huddersfield Road, West of Site Entrance	45	8.3
L18	A644, Huddersfield Road, East of Site Entrance	45	8.6
L19	A644, Huddersfield Road, West of Calder Road	40	10.8
L20	A644, Huddersfield Road, West of Hurst Lane	35	10.4
L21	A644, Huddersfield Road, East of Hurst Lane	45	9.9
L22	A644, Huddersfield Road, West of North Road	40	9.4
L23	A644, Huddersfield Road, East of North Road	35	15.7
L24	A644, Huddersfield Road, East of Calder Road	40	12.1
L25	A644, Huddersfield Road, West of Quarry Road	35	14.2
L26	A644, Huddersfield Road, East of Quarry Road	40	12.2

Link		Speed (km/h)	Road Width (m)
R1	A62/A644 Roundabout	30	9.4

Reference should be made to Figure 5 for a graphical representation of the road link locations.

Emission Factors

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

There is current uncertainty over NO₂ concentrations within the UK, with the implementation of new vehicle emission standards not resulting in the previously expected reduction in roadside levels. Therefore, 2019 emission factors were utilised in preference to the scheme opening year in order to provide robust model outputs. As predictions for 2019 were verified, it is considered the results are a robust indication of worst case concentrations for the future year.

Meteorological Data

Meteorological data used in the assessment was taken from Bingley meteorological station over the period 1st January 2019 to 31st December 2019 (inclusive). Bingley is located at NGR: 408874, 435015, which is approximately 19km north-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 the utilised meteorological data.

Roughness Length

The z_0 is a modelling parameter applied to allow consideration of surface height roughness elements. A z_0 of 0.5m was used to describe the modelling extents. This is considered appropriate

for the morphology of the area and is suggested within ADMS-Roads as being suitable for 'parkland, open suburbia'.

A z_0 of 0.3m 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 (max)'.

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. This value is considered appropriate for the development site and is suggested within ADMS-Roads as being suitable for 'cities and large towns.'

A minimum Monin-Obukhov length of 1m was used to describe the meteorological site. This value is considered appropriate for the nature of the meteorological site and is suggested within ADMS-Roads as being suitable for 'rural areas'.

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 K5 monitor, NGR: 422500, 420500. These are shown in Table A1.3.

Table A1.3 Background Pollutant Concentrations - Modelling Extents

Pollutant	Predicted 2019 Background Pollutant Concentration ($\mu\text{g}/\text{m}^3$)
NO ₂	19.14
PM ₁₀	12.77
PM _{2.5}	8.75

The values were chosen to represent concentrations throughout the dispersion modelling extents without the contribution from road vehicles as they are higher than the DEFRA background for the grid square containing the site, as shown in Table 14.

Similarly to emission factors, background concentrations from 2019 were utilised throughout the assessment in preference to the development opening year. This provided a robust assessment and is likely to overestimate pollutant concentrations during the operation of the proposal.

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 guidance²⁷.

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. The choice of 2019 as the verification year aligns with the IAQM position statement 'Use of 2020 and 2021 Monitoring Datasets'²⁸, which states:

"If you are carrying out an air quality study that includes validation against monitoring data, use 2019 monitoring data as the last typical year"

²⁷ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

²⁸ Use of 2020 and 2021 Monitoring Datasets, IAQM, 2021.

Monitoring of NO₂ concentrations was undertaken at 11 locations within the vicinity of roads included within the model during 2019. The results were obtained and the road contribution to total NO_x concentrations calculated following the methodology contained within DEFRA guidance²⁹. The monitored annual mean NO₂ concentrations and calculated road NO_x concentrations are summarised in Table A1.4.

Table A1.4 NO_x Verification - Monitoring Results

Monitoring Location		Monitored NO ₂ Concentration (µg/m ³)	Calculated Road NO _x Concentration (µg/m ³)
K5	Huddersfield Road Ravensthorpe	36.1	33.93
K6	Leeds Road - Cooper Bridge	37.9	37.85
K9	Bradley Road	34.4	30.30
K10	Leeds Road Bradley 1	34.5	30.51
K12	Leeds Road Bradley 2	27.3	15.70
K19	Huddersfield Road Scouthill	31.6	24.43
K22	Leeds Road Bradley 3	33.4	28.18
K23	Leeds Road Mirfield 2	35.3	32.22
K25, K26, K27	Leeds Road - RS3 - 3	27.4	15.90
K36	Huddersfield Road Mirfield 1	49.4	64.46
K70	Huddersfield Road - Scouthill - Airstation	31.8	24.84

The annual mean road NO_x concentrations predicted from the dispersion model and the 2019 road NO_x concentrations calculated from the monitoring results are summarised in Table A1.5.

Table A1.5 NO_x Verification - Modelling Results

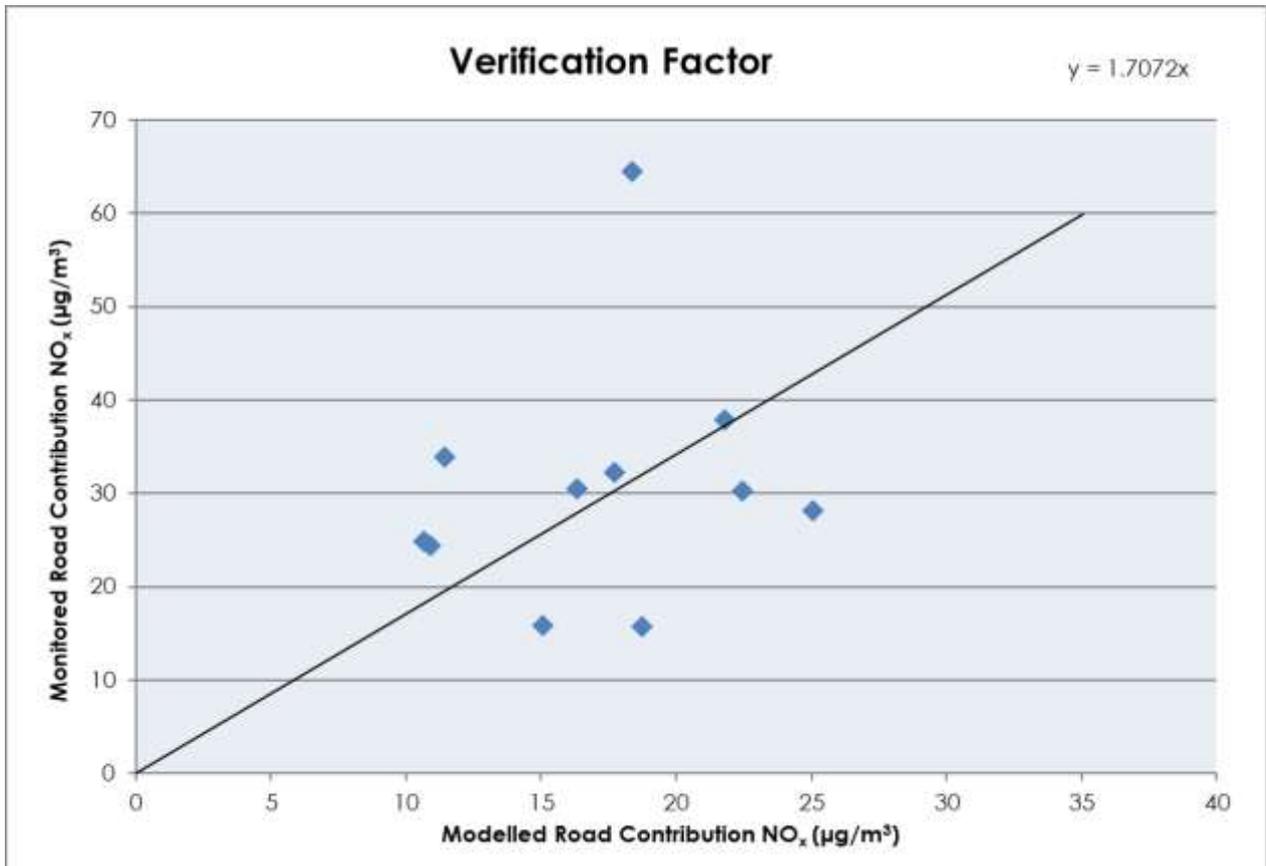
Monitoring Location		Calculated Road NO _x Concentration (µg/m ³)	Modelled Road NO _x Concentration (µg/m ³)
K5	Huddersfield Road Ravensthorpe	33.93	11.44
K6	Leeds Road - Cooper Bridge	37.85	21.80

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

Monitoring Location		Calculated Road NO _x Concentration (µg/m ³)	Modelled Road NO _x Concentration (µg/m ³)
K9	Bradley Road	30.30	22.44
K10	Leeds Road Bradley 1	30.51	16.34
K12	Leeds Road Bradley 2	15.70	18.74
K19	Huddersfield Road Scouthill	24.43	10.88
K22	Leeds Road Bradley 3	28.18	25.07
K23	Leeds Road Mirfield 2	32.22	17.70
K25, K26, K27	Leeds Road - RS3 - 3	15.90	15.06
K36	Huddersfield Road Mirfield 1	64.46	18.38
K70	Huddersfield Road - Scouthill - Airstation	24.84	10.65

The monitored and modelled road NO_x concentrations were graphed and the equation of the trendline based on linear progression through zero calculated. This indicated that a verification factor of 1.7072 was required to be applied to all NO_x modelling results, as shown in Graph 1.

Graph 1 NO_x verification Factor



Monitoring of PM₁₀ or PM_{2.5} concentrations was not undertaken within the assessment extents during 2019. 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 guidance³⁰.

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

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:

Amelia is a Principal 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 and industrial emissions using ADMS-Roads and ADMS-5. Studies have included impact assessment of ground level pollutant and odour concentrations and assessment of suitability of development sites for proposed end-use.
- Project management and co-ordination of Environmental Impact Assessments (EIAs) and scoping reports for developments throughout the UK.
- Advanced canyon modelling to evaluate the impact of altered urban topography on air quality in built up areas.
- Air quality monitoring at industrial sites to quantify pollutant concentrations.
- Assessment of fugitive dust impacts from a range of mineral extraction developments.
- Production of air quality mitigation strategies specifically tailored to address issues at individual sites.
- Odour surveys to assess amenity and suitability of sites for potential future development for residential use.

SELECT PROJECTS SUMMARY:

Bradley Road, Huddersfield

Air Quality EIA in support of a hybrid planning application for a residential development on land off Bradley Road, Huddersfield. This included a detailed application for circa 300 units and an outline application for the remainder of the site allocation of +1,000 dwellings. Dispersion modelling was undertaken due to the proximity of nearby Air Quality Management Areas (AQMAs). Using sensitive receptors located in areas where increased road traffic may affect pollutant levels, a comparison was made between concentrations with and without the development in place. Site suitability for residential use due to potential constraints associated with vehicle emissions from the M62 and odour emissions from an adjacent landfill site and poultry farm, was also considered.

Kingston Road, New Malden

Air Quality Neutral Assessment for a mixed-use development in Kingston upon Thames to determine compliance with the London Plan requirements. This indicated an acceptable level of emissions from the scheme and the development was considered to be air quality neutral.

The Burrell Collection Museum, Glasgow

Air Quality Assessment in support of an energy centre at an existing museum. The scheme included provision of three gas fired boilers. Concerns were raised the proximity of the flues to the building intake and surrounding Pollok Country Park. Impacts associated with emissions from the proposed gas boilers were assessed through detailed dispersion modelling using ADMS-5. This indicated impacts on annual mean NO₂ and PM₁₀ concentrations were predicted to be not significant.

Magnitude, Middlewich

Air Quality EIA and a number of Air Quality Assessments in support of Phases 1b, 3, 4a, 4b and Plot 1c of the Magnitude sites in Middlewich. Detailed dispersion modelling was undertaken with the inclusion of advanced canyon modelling to evaluate the impact of the urban topography within the locality on the dispersion of traffic related pollutants, particularly within AQMAs nearby. The Results indicated the in-combination impacts were not significant.

Rookery Avenue, Whiteley

Odour Impact Assessment in support of a hot food takeaway with a drive thru facility in Whiteley. The assessment considered 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. The scheme was granted planning permission.

Old Knotty Way, Uffoxeter

Air Quality Assessment in support of an Aldi food store and associated facilities. Concerns had been raised in relation to the impacts during the operational phase of the proposals. Changes in pollution levels were therefore considered at sensitive receptors as a result of variations to road geometry and associated redistribution of vehicle movements across the local area. Results of the dispersion modelling study indicated air quality impacts as a result of the scheme were not significant and the scheme was granted planning permission.