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Environmental Associates

Air Quality Assessment

Junction of Fairy Lane and Bury New Road, Manchester

December 2020

BOI Trading Company Ltd

Air Quality Assessment

Junction of Fairy Lane and Bury New Road, Manchester

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1 INTRODUCTION

1.1 Background

1.1.1 NJD Environmental Associates LTD was instructed by BOI Trading Company Ltd, to undertake an air quality assessment in support of an outline planning application for the development of a new building to provide retail units with residential apartments on land south of the junction of Fairy Lane with Bury New Road in Manchester. The site location is provided below at Drawing 1.

Drawing 1: Site location

1.1.2 This report provides an air quality assessment of the construction phase and considers the potential air quality impacts of the additional road traffic generated by the proposed development.

1.1.3 With regards to the impact from development traffic, air pollutant concentrations are considered at existing sensitive receptor locations in the vicinity of the proposed development, adjacent to the most affected roads as a worst case. Site suitability for the proposed residential element is also considered.

2 LEGISLATION AND POLICY

2.1 Environmental Protection Act

2.1.1 This Act defines statutory nuisance relevant to odour as follows:

"Any dust, steam, smell or other effluvia arising from industrial, trade or business premises or smoke, fumes or gases emitted from premises so as to be prejudicial to health or a nuisance."

2.1.2 Where the local authority is a satisfied that a statutory nuisance exists, an abatement notice must be served. Failure to comply with an abatement notice is an offence and if necessary, the local authority may abate the nuisance and recover expenses.

2.2 Air Quality Standards Regulations (2010)

2.2.1 The Air Quality Standards Regulations (2010) provides air quality limit values for seven pollutants and target values for an additional five pollutants, based on the requirements of the EU Directive 2008/50/EC.

2.2.2 Part IV of the Environment Act (1995) requires the UK Government to produce a national air quality strategy containing standards, objectives and measures for improving ambient air quality and to keep these policies under review.

2.2.3 The latest air quality strategy sets out air quality objectives (AQO), which are maximum concentrations not to be exceeded. Table 1 provides the objective levels of the pollutants considered within the site suitability assessment.

Table 1 Air Quality Objectives		
Pollutant	**Concentration (µg/m³)**	**Averaging Period**
NO_2	40	Annual mean
	200	1-hour, 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
$PM_{2.5}$	25	Annual mean

2.3 Local Air Quality Management

2.3.1 Under Section 82 of the Environment Act (1995) (Part IV) Local Authorities (LAs) are required to periodically review and assess air quality within their area of jurisdiction under the system of Local Air Quality Management (LAQM). This review and assessment of air quality involves comparing present and likely future pollutant concentrations against the AQOs. If it is predicted that levels at locations of relevant exposure, as summarised in Table 1, are likely to be exceeded, the LA is required to declare an Air Quality Management Area (AQMA). For each AQMA the LA is required to produce an Air Quality Action Plan, the objective of which is to reduce pollutant concentrations in pursuit of the AQOs.

2.4 National Planning Policy Framework (NPPF)

2.4.1 The revised National Planning Policy Framework (NPPF), dated February 2019, sets out the Government's core policies and principles with respect to land use planning, including air quality. The document includes the following considerations which are relevant to the proposed development:

"*170. The planning system should contribute to and enhance the natural and local environment by: 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.*"

"181. 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."

2.4.2 The National Planning Practice Guidance (NPPG) states that whether or not air quality is relevant to a planning decision will depend on the proposed development air quality impacts in an area where air quality is known to be poor. They could also arise where the development is likely to adversely impact upon the implementation of air quality strategies and action plans and/or, in particular, lead to a breach of EU legislation (including that applicable to wildlife).

3 ASSESSMENT METHODOLOGY

3.1 Construction Phase

3.1.1 The IAQM '*Guidance on the assessment of dust from demolition and construction*', provides a methodology to determine the potential air quality impacts associated with demolition and construction activity. The emphasis of the guidance document is to classify the risk of dust impacts from a site from which then to identify appropriate mitigation measures commensurate with the risk.

3.1.2 The underlying concept of Source-Pathway-Receptor is the basis of the guidance, with four main types of construction activity required to be considered as follows:

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

3.1.3 The potential for dust emissions is assessed for each of these activities, taking into consideration three separate dust impacts:

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

Assessment procedure

3.1.4 The assessment steps provided within the IAQM guidance are summarised below.

Step 1

3.1.5 This step screens the requirement for a more detailed assessment. If there are no receptors within a certain distance then no further assessment is required.

3.1.6 For human receptors, these distances are specified as 350m from the site boundary or 50m from the construction vehicle route within 500m of the site entrance. Should any ecological receptors also be present within 50m of the construction vehicle route within 500m of the site entrance, these will require consideration. The assessment proceeds to Step 2 if any receptors are identified within these specified distances.

Step 2

3.1.7 This step assesses the risk of the dust impact for each of the four types of activity provided at paragraph 3.1.2, taking account of the scale and nature of the works to determine the dust magnitude (Step 2A) and the sensitivity of the area (Step 2B). Step 2C is then undertaken, considering these factors to provide the risk of dust impacts.

3.1.8 The criteria used during Step 2 of the assessment, as contained within the IAQM guidance, is summarised and provided at Appendix 1 of this report.

Step 3

3.1.9 Step 3 defines the site-specific mitigation measures to be adopted, based on the dust risk categories for each of the four activities undertaken at Step 2C.

3.1.10 Where the risk during Step 2C is defined as negligible, no mitigation measures beyond those required by legislation are required. However, control measures may be adopted as part of best practice.

Step 4

3.1.11 This step determines the significance of the effect after considering the construction activity with mitigation.

3.1.12 As recognised within the IAQM guidance, for almost all construction activity, the aim should be to prevent significant effects through the use of effective mitigation. Hence the residual effect will normally be 'not significant'.

3.2 Operational Phase

3.2.1 ADMS Roads dispersion modelling software has been used to predict the concentrations of NO_2 and PM_{10} at the existing sensitive receptors adjacent to New Bury Road as a worst case; as these pollutants are considered to be the most likely to exceed the AQOs. In addition, proposed receptors have also been considered in terms of site suitability for residential development.

3.2.2 The predicted impact has been assessed against the AQOs for a future year of 2023, with and without development.

3.2.3 Model verification has been performed for the year 2019 using the monitoring results from a Greater Manchester Combined Authority (GMCA) diffusion tube located on Bury New Road, closest to the proposed development site. The verification process is provided at Appendix 2.

3.2.4 Traffic surveys in the locality have not been undertaken as part of the planning submission, due to government restrictions implemented in response to the COVID-19 pandemic. Traffic data has therefore been obtained from the Department for Transport (DfT) count points on Bury New Road for 2019, close to the site.

3.2.5 A growth factor has been provided by the project team's transport consultant, for the opening year 2023.

3.2.6 With regards to development traffic, for the retail element, based on the Transport Assessment submitted in support of the application, it is assumed that 90% of trips will be pass-by and 10% transferred. The split of traffic from the site access has been estimated from the flows on Bury New Road, as obtained from the DfT data, i.e. 49.3% northbound and 50.7% southbound. The traffic data is provided at Appendix 3.

3.2.7 Meteorological data for the year 2019 has been obtained from Manchester Ringway, as recommended by the provider of the data, based on proximity of the station. The wind rose is provided at Appendix 4.

3.2.8 The receptors considered within this assessment, located adjacent to Bury New Road, are summarised in Table 2.

Table 2 Sensitive Receptors Considered

ID and Description	Receptor Height (m)	Grid Reference (x, y)
ESR1 Residential First Floor Flat – Bury New Road	4.0	383409,399822
ESR2 Existing Residential Dwelling – Fairy Lane	1.5	383322,400140
ESR3 Existing Residential Dwellings – Pegwell Drive	1.5	383121,400287
PR1 – Proposed Residential First Floor Level	4.0	383309,400058
PR2 – Proposed Residential Second Floor Level	6.5	383309,400058
PR3 – Proposed Residential Third Floor Level	9.0	383309,400058
PR4 – Proposed Residential Fourth Floor Level	11.5	383309,400058
PR5 – Proposed Residential Fifth Floor Level	14.0	383309,400058

3.2.9 The predicted impacts have been assessed against the AQOs and standards set out in the Air Quality Standards Regulations (2010). Changes in pollutant concentrations between 'without development' and 'with development' scenarios are also assessed against a set of significance criteria, detailed in Section 5 of this report.

4 BASELINE

4.1 Local Air Quality

4.1.1 The site is located within GMCA. The most recent Annual Status Report (ASR), dated June 2020, has been reviewed.

4.1.2 GMCA currently monitor NO_2 concentrations across the ten authorities. One diffusion tube is located adjacent to Bury New Road considered within the assessment, as follows:

- SA14NO – 2019 bias-adjusted concentration is reported as 31.6µg/m^3.

4.2 Background Concentrations

4.2.1 As there is no urban background monitoring undertaken by GMCA in the vicinity of the site and receptors, background concentrations of NO_2, PM_{10} and $PM_{2.5}$ have been obtained from the 2018 based default concentration maps provided by Defra for the relevant grid squares containing the diffusion tubes and existing and proposed sensitive receptors. These are provided below in Table 3.

Table 3 Background concentrations for 2019

Grid square	NO_2 (µg/m³)	PM_{10} (µg/m³)	$PM_{2.5}$ (µg/m³)
383500, 399500 (ESR1)	21.34	12.36	8.14
383500, 400500 (ESR2 to PR5)	19.16	12.74	8.50
382500, 401500 (SA14NO)	17.11	11.99	8.09

4.2.2 The background concentrations are well below the national AQOs of 40µg/m³ for PM_{10} and 25µg/m³ for $PM_{2.5}$.

4.3 Construction Phase

4.3.1 Human receptors within 350m of the site boundary or within 50m of the construction vehicle route up to 500m from the site entrance need to be considered.

4.3.2 Based on the residential areas surrounding the site, there are approximately 10-100 receptors located within 50m of the site boundary.

4.3.3 When considering the sensitivity of the area to dust soiling effects based on the criteria contained within Table A4, due to the surrounding residential use, the sensitivity is deemed to be **medium**.

4.3.4 When considering the sensitivity of the area to human health effects based on the criteria contained within Table A5, the sensitivity is deemed to be **low**.

5 IMPACT ASSESSMENT

5.1 Construction Phase

Step 1

5.1.1 The desk study undertaken as part of the baseline considerations identified human receptors within 350m of the site boundary. It is therefore necessary to proceed to Step 2 of the assessment and undertake a detailed assessment.

Step 2

Earthworks

5.1.2 Earthworks involve excavating material, haulage, tipping and stockpiling. There may also be levelling of the site and landscaping. As the total site area is between 2,500 and 10,000m^2, the potential dust emission magnitude associated with earthworks is **medium**, as taken from the IAQM guidance criteria provided at Table A1 of Appendix 1.

5.1.3 As the sensitivity of the area to dust soiling effects is medium, in accordance with Table A8 of Appendix 1, the risk of dust impact during earthworks is **medium**.

Construction

5.1.4 The key issues when determining the potential dust emission magnitude from the construction phase include the size of the buildings, method of construction, construction materials and duration of build. The potential dust emission magnitude associated with construction is **large**, as taken from the IAQM guidance criteria provided at Table A1 of Appendix 1.

5.1.5 As the sensitivity of the area to dust soiling effects is **medium**, in accordance with Table A8 of Appendix 1, the risk of dust impact during construction is **medium**.

Trackout

5.1.6 At this stage there is no information regarding the number of HDV vehicles or the proposed construction routes. Given the size of the site, it has been assumed that unpaved road lengths within the site will be between 50 and 100m in length. The potential dust emission magnitude associated with trackout is **medium**, as taken from the IAQM guidance criteria provided at Table A1 of Appendix 1.

5.1.7 As the sensitivity of the area to dust soiling effects is **medium**, in accordance with Table A9 of Appendix 1, the risk of dust impact associated with trackout is **low.**

Summary

5.1.8 The risk from each dust generating activity is summarised in Table 4.

Table 4 Summary of risk prior to mitigation			
Potential Impact	**Risk**		
	Earthworks	**Construction**	**Trackout**
Dust Soiling	Medium	Medium	Low
Human Health Effects	Low	Low	Low

Step 3

5.1.9 Appropriate, site-specific mitigation is to be adopted based on the dust risk categories determined above. The IAQM guidance provides examples of mitigation to reduce dust impact which are summarised below in Table 5 and can be included in the Construction Environmental Management Plan.

Table 5 Dust emissions mitigation measures	
Issue	**Control measure**
Communication	• Display the name and contact details of person(s) accountable for dust issues on the site boundary. • Display the head or regional office contact information. • Develop and implement a Dust Management Plan (DMP) which may be incorporated into the overall Construction Environmental Management Plan
Site management	• Record all dust complaints, identify causes(s), take appropriate measures to reduce emissions in a timely manner and record the measures taken. • Make the complaints log available to the Local Authority when asked. • Record any exceptional incidents that cause dust emissions either on or off-site and the action taken to resolve the situation in the log book.
Monitoring	• Carry out regular site inspections to monitor compliance, record inspection results and make an inspection log available to the Local Authority when asked. • 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.
Preparing and maintaining the site	• 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 site or specific operations where there is a high potential for dust production and the site is 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 the potential to produce dust from site as soon as possible unless being re-used on site. If they are being re-used on-site, cover as described below. • Cover, seed or fence stockpiles to prevent wind whipping.

Operations	• Only use cutting, grinding or sawing equipment fitter or in conjunction with suitable dust suppression techniques such as water sprays or local extraction. • 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 from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. • Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Waste management	• Avoid bonfires and burning of waste materials.

Step 4

5.1.10 Providing the mitigation measures as summarised in Table 6 are implemented, the residual effect is deemed to be **not significant** in accordance with the IAQM guidance.

5.2 Operational Phase

Significance Criteria

5.2.1 The significance of predicted air quality impacts was determined in accordance with the IAQM guidance.

5.2.2 Using this methodology, impacts are defined based on the interaction between the predicted pollutant concentration for a future year for the 'Without Development' and 'With Development' scenarios and the magnitude of change, as provided in Table 6 below.

5.2.3 Only the 'With Development' scenario has been considered in terms of site suitability for the proposed residential element.

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

Predicted Concentrations – 2023

5.2.4 Annual mean NO_2 concentrations were predicted at the existing sensitive receptor locations for a future year of 2023 for 'Without Development' and 'With Development' scenarios. These are summarised in Table 7 below.

5.2.5 In order to provide a robust assessment, the background concentrations for 2019 have been used for the future year of 2023, i.e. assumes no reduction in background concentrations.

Table 7 Calculated Annual Mean Concentrations of NO_2 for 2023 (µg/m³)			
Receptor	**Without Development**	**With Development**	**Change**
ESR1	24.60	24.67	+0.07
ESR2	22.96	23.04	+0.08
ESR3	21.73	21.79	+0.06
PR1	n/a	34.33	n/a
PR2	n/a	26.09	n/a
PR3	n/a	22.58	n/a
PR4	n/a	21.07	n/a
PR5	n/a	20.35	n/a

5.2.6 As indicated in Table 7, predicted annual mean NO_2 concentrations were below the relevant AQO at the sensitive receptors in both scenarios.

5.2.7 Annual mean PM_{10} concentrations were also predicted at the sensitive receptor locations for both future year scenarios. These are summarised in Table 8.

Table 8 Calculated Annual Mean Concentrations of PM_{10} for 2023 (µg/m³)

Receptor	Without Development	With Development	Change
ESR1	12.60	12.60	+/-0.0
ESR2	12.99	13.00	+0.01
ESR3	12.91	12.91	+/-0.0
PR1	n/a	13.81	n/a
PR2	n/a	13.21	n/a
PR3	n/a	12.97	n/a
PR4	n/a	12.87	n/a
PR5	n/a	12.82	n/a

5.2.8 As indicated in Table 8, predicted annual mean PM_{10} concentrations were below the relevant AQO at all sensitive receptors in both scenarios.

Predicted Impact

5.2.9 The predicted impact on annual mean NO_2 concentrations at the existing sensitive receptor locations is summarised in Table 9.

Table 9 Predicted Impact - NO_2

Receptor	Predicted Annual Mean Concentration	Predicted Concentration Change as Proportion of AQO	Impact Significance
ESR1	Below 75% of AQO	+0.175%	Negligible
ESR2	Below 75% of AQO	+0.20%	Negligible
ESR3	Below 75% of AQO	+0.15%	Negligible

5.2.10 As summarised in Table 9, impacts on annual mean NO_2 concentrations as a result of the proposed development are predicted to be negligible at all receptors.

5.2.11 The predicted impact on annual mean PM_{10} concentrations at the existing sensitive receptor locations is summarised in Table 10.

Table 10 Predicted Impact – PM_{10}

Receptor	Predicted Annual Mean Concentration	Predicted Concentration Change as Proportion of AQO	Impact Significance
ESR1	Below 75% of AQO	+/-0.0%	Negligible
ESR2	Below 75% of AQO	+0.025%	Negligible
ESR3	Below 75% of AQO	+/-0.0%	Negligible

5.2.12 As summarised in Table 10, impacts on annual mean PM_{10} concentrations as a result of the proposed development are predicted to be negligible at all receptors.

6 MITIGATION MEASURES

6.1 Construction Phase

6.1.1 Providing the mitigation measures as summarised above in Table 5 are implemented, the potential impact during the construction phase has been identified as being of negligible significance, in accordance with the IAQM guidance.

6.2 Operational Phase

6.2.1 Impacts on NO_2 and PM_{10} concentrations at identified receptors during the operational phase are predicted to be negligible.

6.2.2 Nevertheless, to minimise the impact and to promote sustainable travels, a Travel Plan will be prepared. The Travel Plan will contain a package of measures aimed at promoting sustainable development. This will include measures to encourage the use of public transport, as well as promote walking and cycling to and from the Proposed Development.

6.2.3 In terms of car parking provision, electric charging vehicle bays will also be provided as part of the proposed development.

7 CONCLUSION

7.1.1 NJD Environmental Associates was instructed by BOI Trading Company Ltd, to undertake an air quality assessment in support of a proposed mixed-use scheme on land south of the junction of Fairy Lane with New Bury Road, Manchester.

7.1.2 An assessment has been undertaken in accordance with IAQM Guidance for the construction phase of the proposed development.

7.1.3 During the construction phase, there is the potential for dust soiling effects associated with fugitive emissions from the site. Assuming good practice control measures are implemented, the residual effect associated with dust soiling during the construction phase is deemed to be **not significant**.

7.1.4 An assessment has been undertaken in accordance with IAQM Guidance to determine the impact from development generated traffic on the local road network.

7.1.5 Impacts on NO_2 and PM_{10} concentrations resulting from development traffic at existing sensitive receptors were predicted to be **not significant** in accordance with IAQM guidance.

7.1.6 In addition, predicted concentrations at the proposed residential receptor locations are below the relevant annual air quality objective levels and therefore the site is considered suitable for residential development.

7.1.7 Based on the results of this assessment, it is concluded that air quality should not be a prohibitive factor in the determination of this planning application.

APPENDIX 1 – IAQM Assessment Criteria

Table A1: Potential Dust Emission Magnitude

Magnitude	Activity	IAQM Criteria
Large	Earthworks	• Total site area >10,000m^2 • Potentially dusty soil type, e.g. clay • >10 heavy earth moving vehicles active at any one time • Formation of bunds >8m in height • Total material moved >100,000 tonnes
	Construction	• Total building volume >100,000m^3 • On site concrete batching • Sandblasting
	Trackout	• >50 HDV (>3.5t) outward movements in any one day • Potentially dusty surface material, e.g. high clay content • Unpaved road length >100m
Medium	Earthworks	• Total site area 2,500m^2 – 10,000m^2 • Moderately dusty soil type, e.g. silt • 5-10 heavy earth moving vehicles active at any one time • Formation of bunds 4m-8m in height • Total material moved 20,000 tonnes – 100,000 tonnes
	Construction	• Total building volume 25,000m^3 – 100,000m^3 • Potentially dusty construction material, e.g. concrete • On site concrete batching
	Trackout	• 10-50 HDV(>3.5t) outward movements in any one day • Moderately dusty surface material, e.g. high clay content • Unpaved road length 50m – 100m
Small	Earthworks	• Total site area <2,500m^2 • Soil type with large grain size, e.g. sand • <5 heavy earth moving vehicles active at any one time • Formation of bunds <4m in height • Total material moved <20,000t • Earthworks during wetter months
	Construction	• Total building volume <25,000 m^3 • Construction material with low potential for dust release, e.g. metal cladding or timber
	Trackout	• <10 HDV (>3.5t) outward movements in any one day • Surface material with low potential for dust release • Unpaved road length <50m

Table A2: Factors to consider – Sensitivity of the Area to Dust Soiling Effects

Receptor Sensitivity	Human Receptors	Ecological Receptors
High	• Users can expect enjoyment of a high level of amenity • The appearance, aesthetics or value of their property would be diminished by soiling • People or property reasonably expected to be present continuously, or at least regularly for extended periods, as part of the normal use of the land • Indicative examples include dwellings, museums, medium and long-term car parks and car showrooms	• Locations with an international or national designation and the designated features may be affected by dust soiling • Locations where there is a community of particularly dust sensitive species such as vascular species included in the Red Data List for Great Britain • Indicative examples include a Special Area of Conservation (SAC) designated for acid heathlands or a local site designated for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings
Medium	• Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home • The appearance, aesthetics or value of their property could be diminished by soiling • The people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal use of the land • Indicative examples include parks and places of work	• Location where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown • Locations with a national designation where the features may be affected by dust deposition • Indicative examples is a Site of Special Scientific Interest (SSSI) with dust sensitive features

Low	• The enjoyment of amenity would not reasonably be expected • Property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling • There is a transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land • Indicative examples include playing fields, farmland (unless commercially sensitive horticultural), footpaths, short term car parks and roads	• Locations with a local designation where the features may be affected by dust deposition • Indicative example is a local nature reserve with dust sensitive features

Table A3: Factors to consider – Sensitivity of People to Health Effects of PM_{10}

Receptor Sensitivity	Human Receptors
High	• Locations where members of the public are exposed over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for 8 hours or more in a day). • Indicative examples include residential properties. Hospitals and schools should also be considered as have equal sensitivity to residential areas for the purposes of this assessment.
Medium	• Locations where the people exposed are workers and exposure is over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for 8 hours or more in a day). • Indicative examples include office and shop workers, but will generally not include workers occupationally exposed to PM_{10}, as protection is covered by Health and Safety at Work legislation.
Low	• Locations where human exposure is transient. • Indicative examples include public footpaths, playing fields, parks and shopping streets.

TABLE A4: Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		<20	<50	<100	<350
High	**>100**	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	**>1**	Medium	Low	Low	Low
Low	**>1**	Low	Low	Low	Low

TABLE A5: Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM_{10} Concentrations	Number of Receptors	Distance from the Source (m)				
			<20	<50	<100	<200	<350
High	>32µg/m³ (>18 µg/m³ in Scotland)	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32µg/m³ (16-18 µg/m³ in Scotland	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28µg/m³ (14-16 µg/m³ in Scotland	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24µg/m³ (<14 µg/m³ in Scotland	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>32µg/m³ (>18 µg/m³ in Scotland)	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	>32µg/m³ (>18 µg/m³ in Scotland)	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	>32µg/m³ (>18 µg/m³ in Scotland)	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	>32µg/m³ (>18 µg/m³ in Scotland)	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low	-	≥1	Low	Low	Low	Low	Low

Table A6: Factors to consider – Sensitivity of the Area to Ecological Impacts

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

Table A7: Risk of Dust Impacts – Demolition

Sensitivity of Area	Dust Emission Magnitude		
	Large	**Medium**	**Small**
High	High Risk	Medium Risk	Medium, Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

Table A8: Risk of Dust Impacts – Earthworks and Construction

Sensitivity of Area	Dust Emission Magnitude		
	Large	**Medium**	**Small**
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table A9: Risk of Dust Impacts – Trackout

Sensitivity of Area	Dust Emission Magnitude		
	Large	**Medium**	**Small**
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

APPENDIX 2 MODEL VERIFICATION

NITROGEN DIOXIDE

Monitoring Results 2019

Monitoring Location	Monitored NO2 Concentration (µg/m3)	Calculated Road NOx Concentration (µg/m3)*
SA14NO	31.6	28.58
*In accordance with LAQM.TG(16)		

Modelling Results 2019

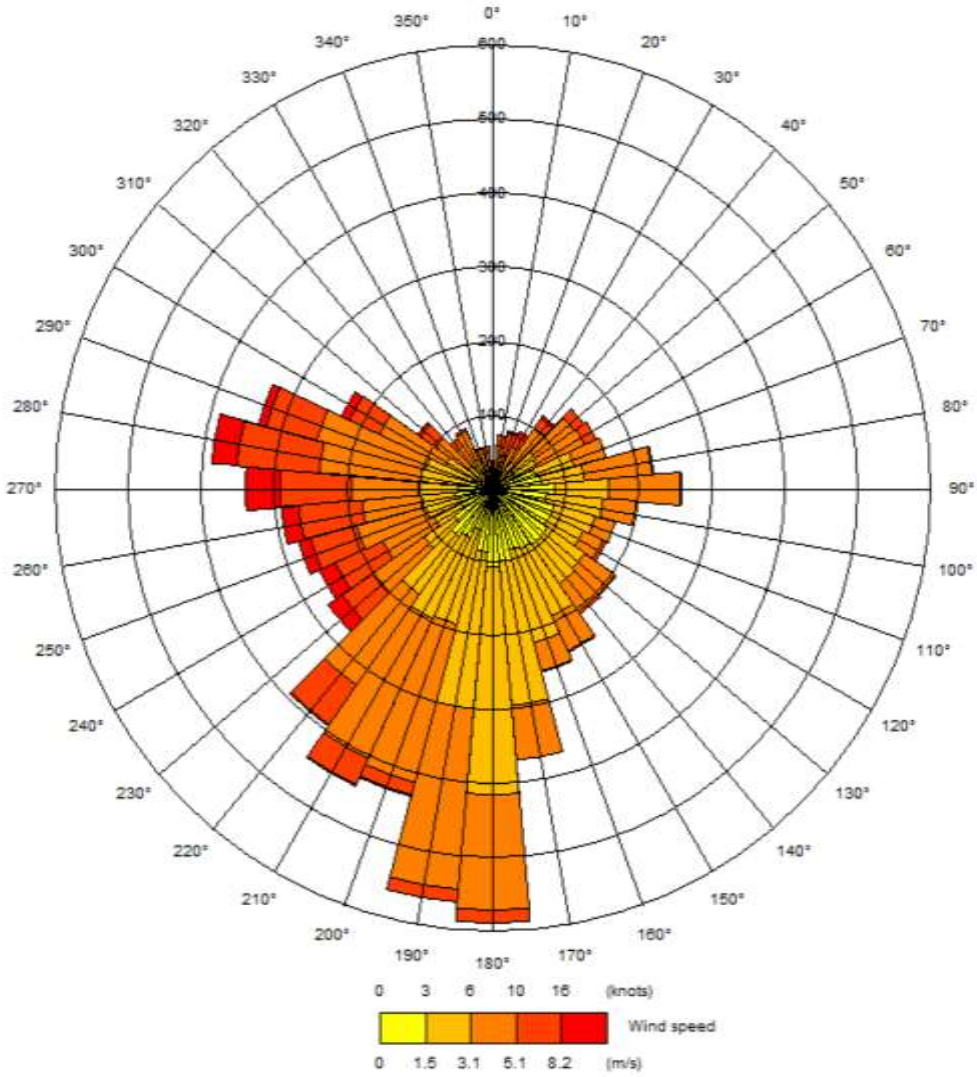
Monitoring Location	Calculated Road NOx Concentration (µg/m3)	Modelled Road NOx Concentration (µg/m3)
SA14NO	28.58	7.25

STAGE 1: VERIFICATION FACTOR = 3.9421

Following verification, the adjusted predicted NO2 concentration was compared with the measured concentration to ensure that the modelled concentration was within the recommended 25% criteria, which is demonstrated below.

Monitoring Location	Measured NO2 Concentration (µg/m3)	Adjusted Modelled NO2 Concentration (µg/m3)	Difference
SA14NO	31.6	31.53	-0.175%

APPENDIX 3 TRAFFIC DATA

Link	2019 AADT	2023 AADT	Development AADT
New Bury Road (North of Site Access)	14,841 (1.4% HGV)	15,827 (1.4% HGV)	362
New Bury Road (South of Site Access)	14,841 (1.4% HGV)	15,827 (1.4% HGV)	373

APPENDIX 4 MANCHESTER RINGWAY WINDROSE 2019