

AIR QUALITY ASSESSMENT

on behalf of

INFINITY (MIOC) LLP

for

**MANCHESTER INTERNATIONAL OFFICE
CENTRE**

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Summary

This air quality assessment has been undertaken to accompany a planning application for a proposed coffee shop drive-thru at Manchester International Office Centre.

This report provides a review of existing air quality in the vicinity of the proposed development and its suitability for the proposed use. It also provides a simple assessment of the impact of the proposed development on local air quality during both its construction and operational phases.

With the implementation of mitigation measures, the dust impacts from the construction are considered to have no residual effects when considered following IAQM guidance.

Existing air quality around the development has been reviewed. Concentrations of NO₂, PM₁₀ and PM_{2.5} are likely to be below their respective long and short-term objectives at the proposed development site which is therefore considered suitable for commercial use with regards to air quality.

The traffic associated with the proposed development is not expected to have a significant impact on local air quality.

There is, therefore no reason for this application to be refused on the grounds of air quality.

Prepared By Philip Walton

Reviewed By

Lesley Goodall

Signed



Signed



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1 Introduction

- 1.1 This air quality assessment has been undertaken to accompany a planning application for commercial development at Manchester International Office Centre (MIOC). The site lies within the administrative boundary of Manchester City Council (MCC).
- 1.2 The report provides a review of the existing air quality in proximity to the proposed development site and assesses the potential impact of the proposed development on local air quality following Local Air Quality Management Technical Guidance¹.
- 1.3 The main pollutants of health concern from road traffic exhaust releases are nitrogen dioxide (NO₂) and fine particulates – normally assessed as the fraction of airborne particles of mean aerodynamic diameter less than ten micrometres (PM₁₀), since these pollutants are most likely to approach their respective air quality objectives in proximity to major roads and congested areas. This assessment has therefore focused on the impact of the proposed development on concentrations of NO₂ and PM₁₀.

2 Site Description

- 2.1 The site is located approximately 12.5 km to the south of Manchester City Centre and to the west of the Manchester International Office Centre building.
- 2.2 The site is currently a car park. A car park is located to the north of the site. Manchester International Office Centre building is located to the east of the site, beyond which there are railway tracks. A green space is located to the south of the site, beyond which is the new Manchester Airport Eastern link road. The site is bounded to the west by Styal Road (B5166).
- 2.3 The site is located approximately 25 m to the northeast of a pocket of the Greater Manchester Air Quality Management Area (AQMA), declared on B5166 Styal Road. The site location and its relationship to the AQMA is shown in **Appendix A**.

3 Proposed Development

- 3.1 The proposed development consists of a coffee shop drive thru.
- 3.2 The transport consultant for the proposed development, SCP Transport Planning: Infrastructure Design, advises that the proposed development is expected to introduce an increase in Annual Average Daily Traffic (AADT) of approximately 66 light-duty vehicles (LDV). Only 10% of the total development traffic is classified as new trips, the remainder is classed as 'pass by' traffic. These are vehicles that are already present on the road network for an existing trip and would merely pass through the proposed development.

¹ Department for the Environment Food and Rural Affairs (2018) 'Local Air Quality Management Technical Guidance Document LAQM.TG (16)', London: Defra.

4 Policy Context

4.1 Air Quality Objectives

4.1.1 The standards and objectives relevant to the Local Air Quality Management (LAQM) framework have been prescribed through the Air Quality (England) Regulations (2000) and the Air Quality (England) (Amendment) Regulations 2002; the Air Quality Standards Regulations 2010 set out the combined Daughter Directive limit values and interim targets for Member State compliance. The UK left the EU on 31st January 2020 and is no longer a member state. However, the current framework of air quality legislation was converted into domestic law through the European Union (Withdrawal) Act 2018².

4.1.2 The current air quality standards and objectives (for the purpose of LAQM) are presented in **Table 1**. Pollutant standards relate to ambient pollutant concentrations in air, set on the basis of medical and scientific evidence of how each pollutant affects human health. Pollutant objectives, however, incorporate target dates and averaging periods which take into account economic considerations, practicability and technical feasibility.

Table 1: Air Quality Strategy Objectives (England) for the Purposes of Local Air Quality Management

Pollutant	Air Quality Objective	
	Concentration	Measured As*
Nitrogen dioxide (NO ₂)	200 µg/m ³	1-hour mean not to be exceeded more than 18 times per year
	40 µg/m ³	Annual mean
Particles (PM ₁₀)	50 µg/m ³	24-hour mean not to be exceeded more than 35 per year
	40 µg/m ³	Annual mean
Particles (PM _{2.5})	25 µg/m ³	Annual mean (target) (encouraged in Wales)
	15% cut in annual mean (urban background exposure)	

4.1.3 Where an air quality objective is unlikely to be met by the relevant deadline, local authorities must designate those areas as Air Quality Management Areas (AQMAs) and take action to work towards meeting the objectives. Following the designation of an AQMA, local authorities are required to develop an Air Quality Action Plan (AQAP) to work towards meeting the objectives and to improve air quality locally.

4.1.4 Possible exceedances of air quality objectives are generally assessed in relation to those locations where members of the public are likely to be regularly present and are likely to be exposed for a period of time appropriate to the averaging period of the objective.

² UK Parliament. (2018): <http://www.legislation.gov.uk/ukpga/2018/16/contents/enacted>

- 4.1.5 As the proposed development is for commercial use, the annual mean air quality objectives do not apply; however, the short-term objectives still apply¹.

4.2 Greater Manchester Action Plan 2016-2021

- 4.2.1 The Greater Manchester Combined Authority (GMCA) Air Quality Action Plan 2016-2021 provides information in respect of the actions planned by the Greater Manchester Authorities concerning AQMAs. Action Plans are the mechanism by which the local authorities, in collaboration with national agencies and others, outline their plans for working towards achieving the air quality objectives through the powers available to them. In relation to managing new development, the action plan states that:

“Action 1.1

Greater Manchester (GM)councils to adopt the most recent IAQM Guidance on the Assessment of Dust from Demolition and Construction as current best practice to assess and mitigate emissions from construction sites. i. Where a key priority area is affected by a proposed scheme, a high level of mitigation control will be requested.

Action 1.2

GM local authorities will adopt the most recent IAQM/EPUK guidance for air quality assessment as current best practice, to help ensure that planning applications consider potential local air quality impacts and opportunities to improve air quality are realised. i. Where a Key Priority Area is significantly adversely affected by a proposed scheme, a high level of mitigation control will be requested. ii. The IAQM/EPUK guidance will also be used to screen and assess industrial sources, such as boilers or large stationary engines. GM local authorities to recommend mitigation controls in accordance with the most recent guidance and the other actions in this document for new developments that contribute to a deterioration of air quality in Air Quality Management Areas (AQMAs). Where an air quality assessment is triggered, it should include a review of monitoring data. Where monitoring is not currently undertaken, it may be requested to inform the application or to confirm the effects.”

5 Methodology

5.1 Data Sources

- 5.1.1 The air quality assessment of the proposed development was undertaken with reference to information from a number of sources, as detailed in **Table 2**.

Table 2: Key Information Sources

Data Source	Reference
Greater Manchester Combined Authority (GMCA)	GMCA (2020) <i>2019 Air Quality Annual Status Report (ASR) for Greater Manchester</i> GMCA (2016) <i>Greater Manchester Air Quality Action Plan 2016-2021</i> GMCA (2020) Monitoring results website (hyperlinked)
Department for Environment Food and Rural Affairs (Defra)	Defra (2018) <i>Local Air Quality Management Technical Guidance TG(16)</i>
Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM)	EPUK and IAQM (January 2017) <i>Land Use Planning and Development Control: Planning for Air Quality (v1.2)</i>
Defra's LAQM Support Tools	Local Air Quality Management 1 km x 1 km grid background pollutant maps
Institute of Air Quality Management (IAQM)	IAQM (2014) <i>Assessment of Dust from Demolition and Construction (v1.1)</i>
SCP Transport Planning: Infrastructure Design	Traffic Data

5.2 Consultation

- 5.2.1 Consultation in respect of the scope of this assessment and the methodology to be used was undertaken with Ms Rebecca Twigg-Purcell of MCC by emails exchanged between 24th June 2021 to 29th June 2021. Ms Twigg-Purcell confirmed that the proposed methodology was suitable³. It was agreed that both a construction phase assessment and a simple air quality assessment reviewing existing air quality and the impact of the proposed development on local air quality would be undertaken.

5.3 Construction Dust Assessment

- 5.3.1 The Institute of Air Quality Management (IAQM) provide guidance⁴ on the assessment of air quality impacts arising from construction and demolition activities and has been used in this assessment. This section follows a risk assessment to determine the likely impact of the development on nearby receptor location during the construction phase and goes on to recommend mitigation measures that should be implemented to reduce any impact. The methodology for the assessment is shown in **Appendix B**. The study area in relation to the construction dust and the areas within less than 20 m, 20 m – 50 m and 50 – 100 m from the proposed

³ Email Miller Goodall Ltd. to MCC 24th June.

⁴ Institute of Air Quality Management (2014) *Assessment of Dust from Demolition and Construction*

development site are shown in **Appendix C**. The nearest receptors, and those most at risk, are located within 100m of the construction site.

5.4 Air Quality Assessment

5.4.1 A simple air quality assessment has been completed to review the potential impact of vehicular emissions of NO₂, PM₁₀ and PM_{2.5} arising from road vehicles associated with the development on existing sensitive receptors, as well as a review of potential exposure of proposed sensitive receptors to existing air quality concentrations of NO₂, PM₁₀ and PM_{2.5}. Desktop information sources from LAQM and traffic generation and routing are reviewed to conclude these assessments.

5.4.2 A simple assessment of air quality in terms of the impact of the proposed development on concentrations of NO₂, PM₁₀ and PM_{2.5}, which relies on already published information and without quantification of impacts, has been completed using sources such as the Local Authority's monitoring network and the Defra LAQM support tools.

6 Baseline Air Quality

6.1 Local Air Quality Management

6.1.1 The proposed development site is located to the east of Styal Road and is not located within an AQMA. The nearest AQMA is on Styal Road, approximately 25 m to the southwest of the site. It should be noted that this AQMA is declared within the road boundaries and does not extend to a residential dwelling. The nearest residential dwelling is located on the opposite side of the road from the proposed development, approximately 30 m to the north of the AQMA.

6.2 Air Quality Monitoring

Nitrogen Dioxide (NO₂)

6.2.1 MCC operates automatic and non-automatic monitors within their administrative area. There is one automatic monitoring station and three diffusion tubes within 1 km of the development site. The automatic monitor reference is Manchester Sharston (MAHG).

6.2.2 The results from these monitoring points are shown in

6.2.3 **Table 3** ^[5]; the monitoring locations are shown in **Appendix A**.

⁵ GMCA (2020) [Monitoring results website](#) (hyperlinked)

Table 3: Annual Mean NO₂ Concentrations Monitored by the LA within the Study Area

Site ID and Type	Location		Annual Mean NO ₂ Concentrations (µg/m ³)			
			2016	2017	2018	2019
MAHG (Suburban)	384179	386086	23	24	24	23
MAN90 (Suburban)	384202	386121	23.0	22.0	20.4	19.4
MAN91 (Suburban)	384202	386121	22.2	22.3	19.7	18.2
MAN92 (Suburban)	384202	386121	22.3	21.7	20.1	18.9
Annual Mean NO ₂ air quality objective			40 µg/m ³			

6.2.4 The monitoring results in **Table 3** indicate that annual mean concentrations of NO₂ have been below the NO₂ annual mean objective at these monitoring locations since 2016.

6.2.5 The results indicate that the short-term objective for NO₂ is unlikely to be exceeded at the monitoring sites as annual mean concentrations are less than 60 µg/m³ ¹.

Particulate Matter (PM₁₀ & PM_{2.5})

6.2.6 MCC also undertakes PM₁₀ and PM_{2.5} monitoring at MAHG. The results from MAHG are shown in **Table 4**.

Table 4: Annual Mean PM₁₀ Concentrations Monitored by the LA within the Study Area

Site ID and Type	Location		Annual Mean PM ₁₀ & PM _{2.5} Concentrations (µg/m ³)			
			2016	2017	2018	2019
MAHG – PM ₁₀	384179	386086	13.6	13.4	14.24	14.2
MAHG – PM _{2.5}	384179	386086	8.2	7.6	8.1	-
Annual Mean PM ₁₀ Air Quality Objective			40 µg/m ³			
Annual Mean PM _{2.5} Target Level			25 µg/m ³			

6.2.7 The monitoring results in **Table 4** indicate that annual mean concentrations of PM₁₀ and PM_{2.5} were below the air quality objective and target level respectively since 2016.

6.3 TfGM NO₂ Modelling

6.3.1 The declaration and extent of the GMCA AQMA was finalised based on predictions made from air dispersion modelling work completed by Transport for Greater Manchester (TfGM). The AQMA is declared in locations that were shown to have a NO₂ annual mean that exceeds 35 µg/m³. Declaration at this criterion, which is below the annual mean air quality objective, accounts for potential model uncertainty.

6.3.2 A screenshot of the model outputs at and in the vicinity of the development site is shown in **Appendix D**. The screenshot indicates that NO₂ concentrations across the proposed development site are well below the 40 µg/m³ NO₂ annual mean air quality objective.

6.4 Background Concentrations

- 6.4.1 There are no representative background monitoring locations in the vicinity of the proposed development site. Background concentrations of NO₂, PM₁₀ and PM_{2.5} were therefore obtained from the background concentration maps provided by Defra for the grid squares covering the proposed development and receptor locations⁶. These are shown in **Table 5** below.

Table 5: Background Pollutant Concentrations Obtained for the 1km x 1km Grid Squares Covering the Site and Receptor Locations*

Grid Square	Pollutant	2021
		(µg/m ³)
384500, 385500	NO ₂	13.80
	PM ₁₀	9.91
	PM _{2.5}	6.77

* Background concentrations obtained from the latest 2018 based background maps

7 Construction Dust Impact Risk Assessment

7.1 Step 1 – The Need for a Detailed Assessment

- 7.1.1 There are sensitive receptors located within 350m of the site boundary, therefore, a detailed assessment of the construction phase of the development has been undertaken. There are no ecological designations within 50m of the site boundary or trackout route which require assessment.

7.2 Step 2 – Assess the Risk of Dust Impacts

Step 2A Dust Emission Magnitude

- 7.2.1 The potential dust emission magnitude in relation to the development has been determined using the criteria detailed in **Table B1** in **Appendix B**. The scale and nature of works onsite were considered to determine the potential dust emission magnitude for earthwork activities, construction and trackout activities. No demolition is to be undertaken at the site. Information to determine the classification has been estimated from the site plans, Google Earth and information provided by the Applicant. The dust emission magnitude is outlined in

⁶ <http://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>

7.2.2 Table 6.

Table 6: Dust Emission Magnitudes for Each Activity

Activity	Dust Emission Magnitudes	Justification for Sensitivity Classification
Demolition	N/A	N/A
Earthworks	Small	the site area is <2,500 m²
Construction	Small	total building volume to be constructed is <25,000 m³
Trackout	Small	there are likely to be <10 HDV outward movements in any one day

Step 2B Sensitivity of the Receptors to Dust Soiling and Health Effects

- 7.2.3 The nearest sensitive receptors are commercial receptors within the MIOC, located approximately 30 m from the development site. There is also 1 – 10 highly sensitive receptors located approximately 45 m from the site. Both sensitive uses equate to the same 'low' risk in accordance with the IAQM Construction Guidance. In accordance with the criteria in **Table B2** in **Appendix B** and the IAQM guidance, the sensitivity of human receptors is **high**.

Step 2B Sensitivity of the Area to Dust Soiling and Human Health Effects of PM₁₀

- 7.2.4 The sensitivity of the area for dust soiling and human health effects has been determined using the criteria detailed in **Table B3** and **Table B4** respectively in **Appendix B**.
- 7.2.5 The sensitivity of the area to dust soiling and human health for each activity is summarised in **Table 7**.

Table 7: Outcome of Defining the Sensitivity of the Area

Pollution	Activity	Sensitivity of the Surrounding Area	Justification for for Sensitivity Classification
Dust Soiling	Demolition	N/A	N/A
	Earthworks	Low	There are 1 – 10 highly sensitive residential receptors within 50 m of the site boundary.
	Construction	Low	There are 1 – 10 highly sensitive residential receptors within 50 m of the site boundary.
	Trackout	Low	There are 1 – 10 highly sensitive residential receptors within 50 m of a trackout route, up to 50 m from the site exit.
Human Health	Demolition	N/A	N/A
	Earthworks	Low	There are 1 – 10 highly sensitive residential receptors within 50 m of the site boundary. Background pollutant concentrations are below 24 µg/m ³
	Construction	Low	There are 1 – 10 highly sensitive residential receptors within 50 m of the site boundary. Background pollutant concentrations are below 24 µg/m ³
	Trackout	Low	There are 1 – 10 highly sensitive residential receptors within 50 m of a trackout route. Background pollutant concentrations are below 24 µg/m ³

Step 2C Risk of Impacts

- 7.2.6 The dust emission magnitude and sensitivity of the area were combined and the risk of impacts determined using the criteria detailed in **Table B5** to **Table B8** in **Appendix B**.
- 7.2.7 A summary of the risks, before mitigation measures are applied, for dust soiling and human health are shown in **Table 8**.

Table 8: Risk of Dust Impacts

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

7.3 Step 3 – Site-Specific Mitigation

- 7.3.1 Step 3 of the IAQM guidance identifies appropriate site-specific mitigation. These measures are related to the site risk for each activity. Mitigation measures specific to earthworks, construction and trackout are based on the risk classifications in **Table 8**.
- 7.3.2 The risk assessment has identified negligible impacts for dust soiling and human health for earthworks, construction and trackout activities. No specific mitigation will be required in relation to dust control, based on the IAQM Construction Guidance.
- 7.3.3 Whilst no mitigation is recommended, it is acknowledged that activities in most construction sites have various best practice controls, which are still likely to be carried out during the construction phase. These may include actions such as solid site barriers, speed limits and laden delivery lorries being covered.
- 7.3.4 The risk of dust during the construction phase is concluded to be negligible.

7.4 Step 4 – Determine Significant Effects

- 7.4.1 The characteristics of the site and the surrounding area suggest that mitigation would not be impracticable or ineffective. With the implementation of the above mitigation measures, therefore, the residual impacts from the construction are considered to be not significant, in accordance with IAQM guidance.

8 Effect of Air Quality on the Proposed Development

- 8.1 The background concentrations in **Table 5** show that background concentrations of NO₂ and PM₁₀ are well below health-based air quality objectives of 40 µg/m³ for both pollutants, and below the annual mean target level for PM_{2.5}. However, it is likely that the site is experiencing higher concentrations due to its proximity to the road network.
- 8.2 As the development is for commercial use, the annual mean air quality objectives do not apply at the site; however, the short-term NO₂ one-hour objective is still relevant.

- 8.3 LAQM.TG(16) provides a qualitative screening approach to determine whether there is a risk of exceedance of the one-hour NO₂ air quality objective. If the ambient NO₂ annual mean concentration is above 60 µg/m³ there is a risk that the one-hour objective (200 µg/m³) may be exceeded.
- 8.3.1 Pollutant concentrations recorded at the nearby air quality monitors(MAHG, MAN 90 - 92) indicate NO₂ concentrations are well below 60 µg/m³. The TfGM model screenshot indicates that NO₂ concentrations across the proposed development site are well below the 40 µg/m³ NO₂ annual mean air quality objective.
- 8.4 Based on the review of the local air quality, the NO₂ concentrations at the site are expected to be below 60 µg/m³ and therefore, when considered in light of guidance in LAQM.TG (16), the 1-hour mean objective is unlikely to be exceeded. The site is therefore considered suitable for commercial use with regard to air quality.

9 Impact of the Proposed Development on Existing Air Quality

- 9.1 The proposed development is expected to introduce an increase in AADT flows of approximately 66 LDV. As these changes are less than 100 LDV AADT within or near to an AQMA, EPUK/IAQM guidance⁷ indicates that the impact of road traffic associated with the development is likely to have an insignificant impact on local air quality.

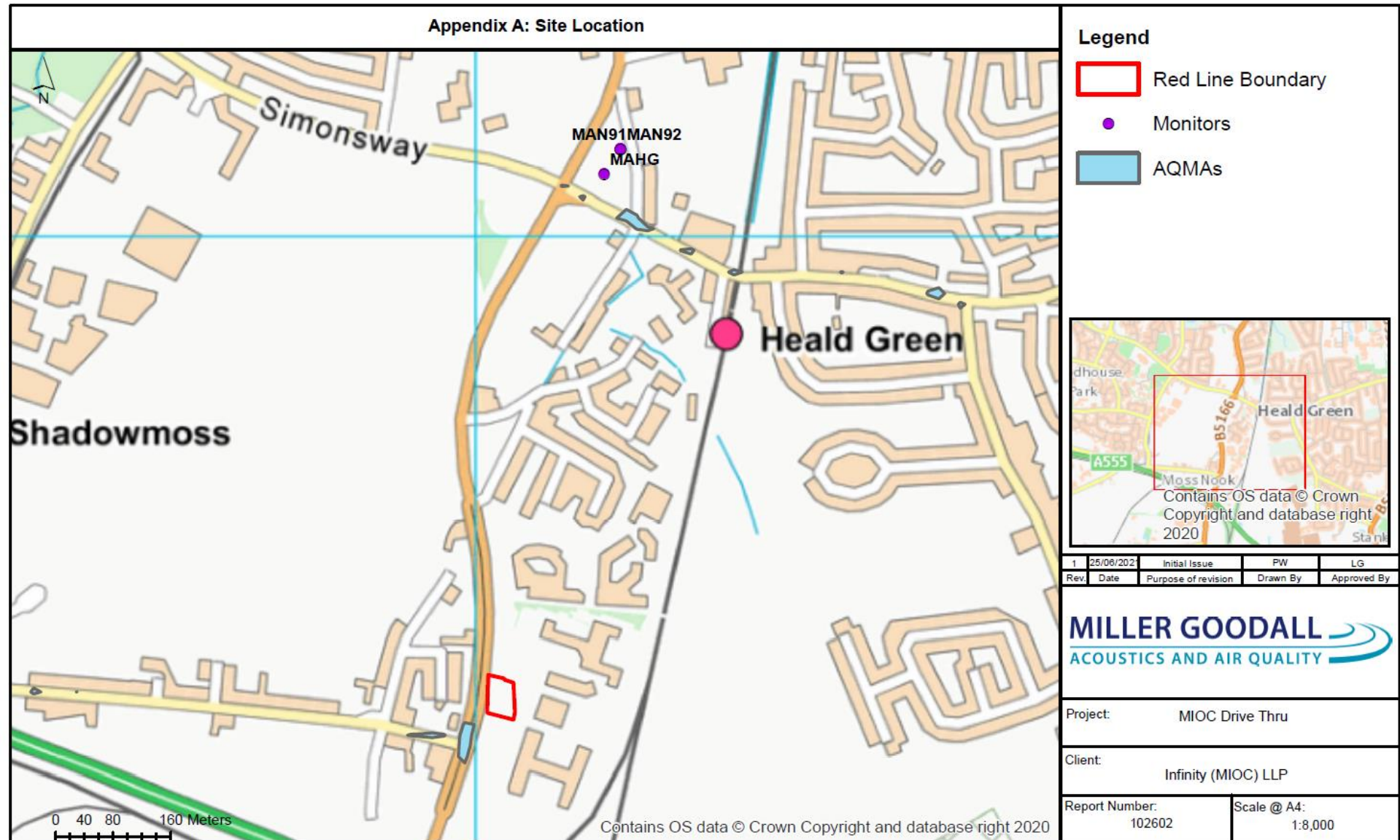
10 Summary of Impacts and Conclusion

- 10.1 A road traffic emissions assessment was undertaken to consider the impact of vehicle exhaust emissions associated with the proposed development, on identified receptor locations within the study area.
- 10.2 The assessment considered whether the proposed development could significantly change air quality during the construction phase. With the implementation of mitigation measures, the dust impacts from the construction are considered to have no residual effects in accordance with IAQM guidance.
- 10.3 Concentrations of NO₂, PM₁₀ and PM_{2.5} are likely to be below their respective long-term and short-term objectives at the proposed development site which is therefore considered suitable for commercial use with regards to air quality.
- 10.4 The traffic associated with the proposed development is not expected to have a significant impact on local air quality when considered in accordance with IAQM Guidance⁷.
- 10.5 There is, therefore no reason for this application to be refused on the grounds of air quality.

⁷ EPUK and IAQM (January 2017) *Land Use Planning and Development Control: Planning for Air Quality (v1.2)*

APPENDICES

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Appendix B: Dust Risk Assessment Methodology

The following section outlines criteria developed by the IAQM for the assessment of air quality impacts arising from construction and demolition activities^{Error! Bookmark not defined.}. The assessment procedure is divided into four steps and is summarised below:

Step 1: Screen the Need for a Detailed Assessment

An assessment will normally be required where there are human receptors within 350 m of the site boundary and/or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s). Ecological receptors within 50 m of the site boundary or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s), are also identified at this stage. An ecological receptor refers to any sensitive habitat affected by dust soiling. For locations with a statutory designation, such as a Site of Specific Scientific Interest (SSSI), Special Area of Conservation (SACs) and Special Protection Areas (SPAs), consideration should be given as to whether the particular site is sensitive to dust. Some non-statutory sites may also be considered if appropriate.

Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is 'negligible' and any effects will not be significant.

Step 2: Assess the Risk of Dust Impacts

In step two, a site is allocated to a risk category on the basis of the scale and nature of the works (Step 2A) and the sensitivity of the area to dust impacts (Step 2B). These two factors are combined in Step 2C to determine the risk of dust impacts before the implementation of mitigation measures. The assigned risk categories may be different for each of the construction activities outlined by the IAQM (construction, demolition, earthworks and trackout). A site can be divided into zones, for example on a large site where there are differing distances to the nearest receptors.

Step 2A: Define the Potential Dust Emission Magnitude

Dust emission magnitude is based on the scale of the anticipated works and is classified as Small, Medium or Large. The IAQM guidance recommends that the dust emission magnitude is determined separately for demolition, earthworks, construction and trackout. **Table B1** describes the potential dust emission class criteria for each outlined activity.

Table B1: Criteria Used in the Determination of Dust Emission Magnitude

Activity	Criteria used to Determine Dust Emission Magnitude		
	Small	Medium	Large
Demolition	Total building volume <20,000 m ³ , construction materials with low potential for dust release.	Total building volume 20,000 m ³ – 50,000 m ³ , potential dusty construction material.	Total building volume >50,000 m ³ , potentially dusty construction material.
Earthworks	Total site area <2,500 m ² , soil type with large grain	Total site area 2,500 – 10,000 m ² , moderately dusty soil type	Total site area >10,000 m ² , potentially dusty soil type
Construction	Total building volume <25,000 m ³ .	Total building volume 25,000 – 100,000 m ³ .	Total building volume >100,000 m ³ .
Trackout	<10 outward HDV trips in any one day. Unpaved road length <50 m.	10-50 outward HDV trips in any one day. Unpaved road length 50-100 m.	>50 outward HDV trips in any one day. Unpaved road length >100 m.

Step 2B: Define the Sensitivity of the Area

The sensitivity of the area takes into account the following factors:

- the specific sensitivities of receptors in the area;
- the proximity and number of receptors;
- the local background PM₁₀ concentration; and
- site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of windblown dust.

The criteria detailed in **Table B2** is used to determine the sensitivity of the receptor in relation to dust soiling, health effects and ecological effects.

Table B2: Criteria for Determining Sensitivity of Receptors

Sensitivity of Receptor	Criteria for Determining Sensitivity		
	Dust Soiling Effects	Health Effects of PM ₁₀	Ecological Sites
High	Dwellings, museums and other culturally important collections, medium and long-term car parks and car showrooms	Residential properties, hospitals, schools and residential care homes	International or national designation <i>and</i> the features may be affected by dust soiling
Medium	Parks, places of work	Office and shop workers not occupationally exposed to PM ₁₀	Presence of an important plant species where dust sensitivity is uncertain or locations with a national designation with features that may be affected by dust deposition
Low	Playing fields, farmland, footpaths, short-term car parks and roads	Public footpaths, playing fields, parks and shopping streets	Local designation where features may be affected by dust deposition

Table B3 and **Table B4** are then used to define the sensitivity of the area to dust soiling and human health effects. This should be derived for each of construction, demolition, earthworks and trackout.

Table B3: Sensitivity of the Area to Dust Soiling Effects on People and Property.

Receptor Sensitivity	Number of Receptors	Distance from 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

*distances considered are to the dust source

Table B4: 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	>32 µg/m ³	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32 µg/m ³	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28 µg/m ³	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24 µg/m ³	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>32 µg/m ³	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	28-32 µg/m ³	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	24-28 µg/m ³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<24 µg/m ³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

The sensitivity of the area is then summarised.

Step 2C Define the Risks of Impacts

The dust emission magnitude from **Table B1** and sensitivity of the area and receptors from **Table B2**, **Table B3** and **Table B4** are combined, and the risk of impacts from each activity (demolition, earthworks, construction and trackout) before mitigation is applied, is determined using the criteria detailed in **Table B5** to **Table B8**.

Table B5: Risk of Dust Impacts - Demolition

Potential Impact Sensitivity of the 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 B6: Risk of Dust Impacts- Earthworks

Potential Impact Sensitivity of the 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 B7: Risk of Dust Impacts- Construction

Potential Impact Sensitivity of the 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 B8: Risk of Dust Impacts- Trackout

Potential Impact Sensitivity of the 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

Step 3 Determine Site Specific Mitigation

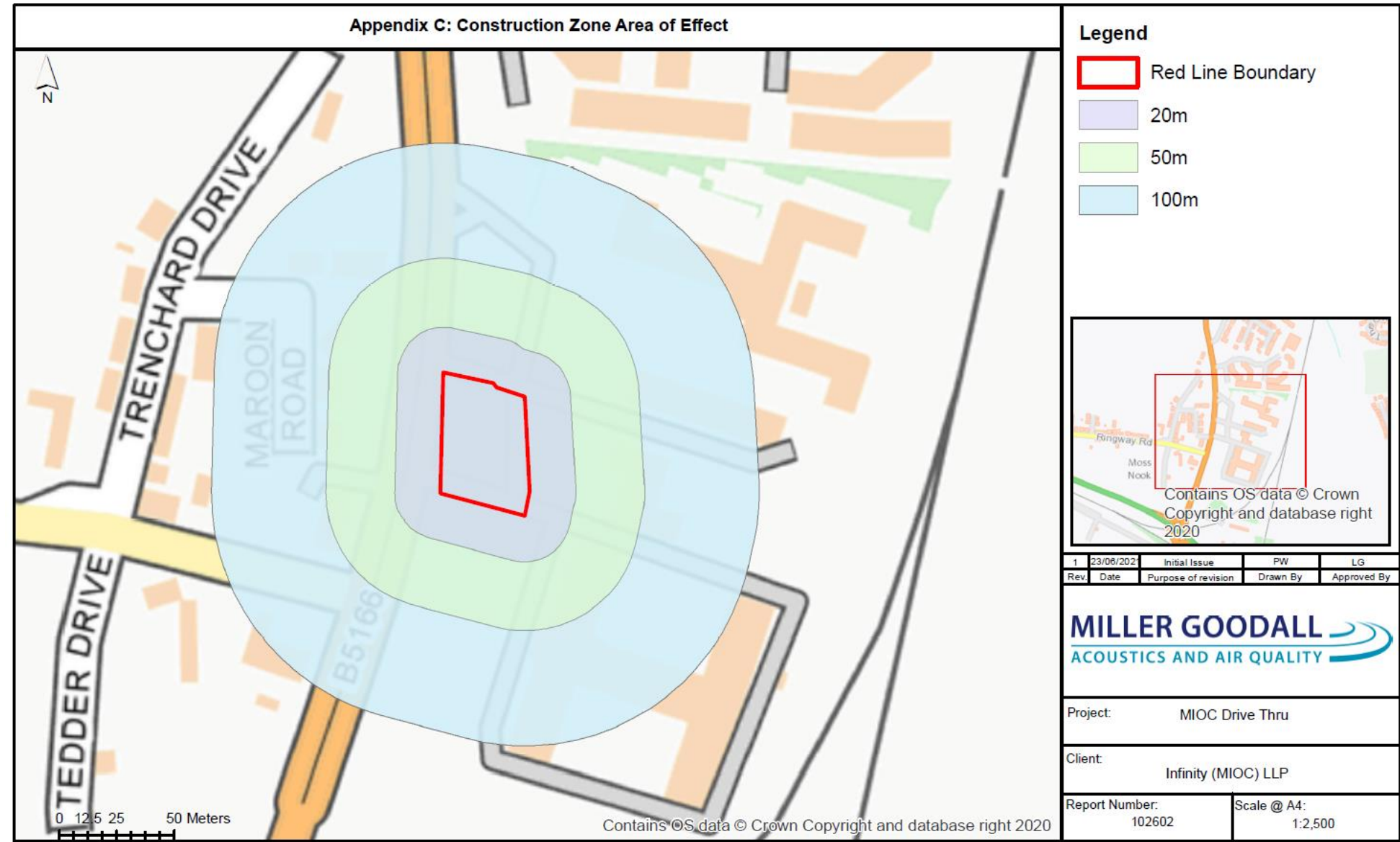
Step three of the IAQM guidance identifies appropriate site-specific mitigation. These measures are related to whether the site is a low, medium or high risk site.

Step 4 Determine Significance of Residual Effects

At step four the significance of residual effects is assessed. For almost all construction activity, the aim should be to prevent significant effects on receptors through the use of effective mitigation. Experience shows that this is normally possible. Hence the residual effect will normally be 'not significant'.

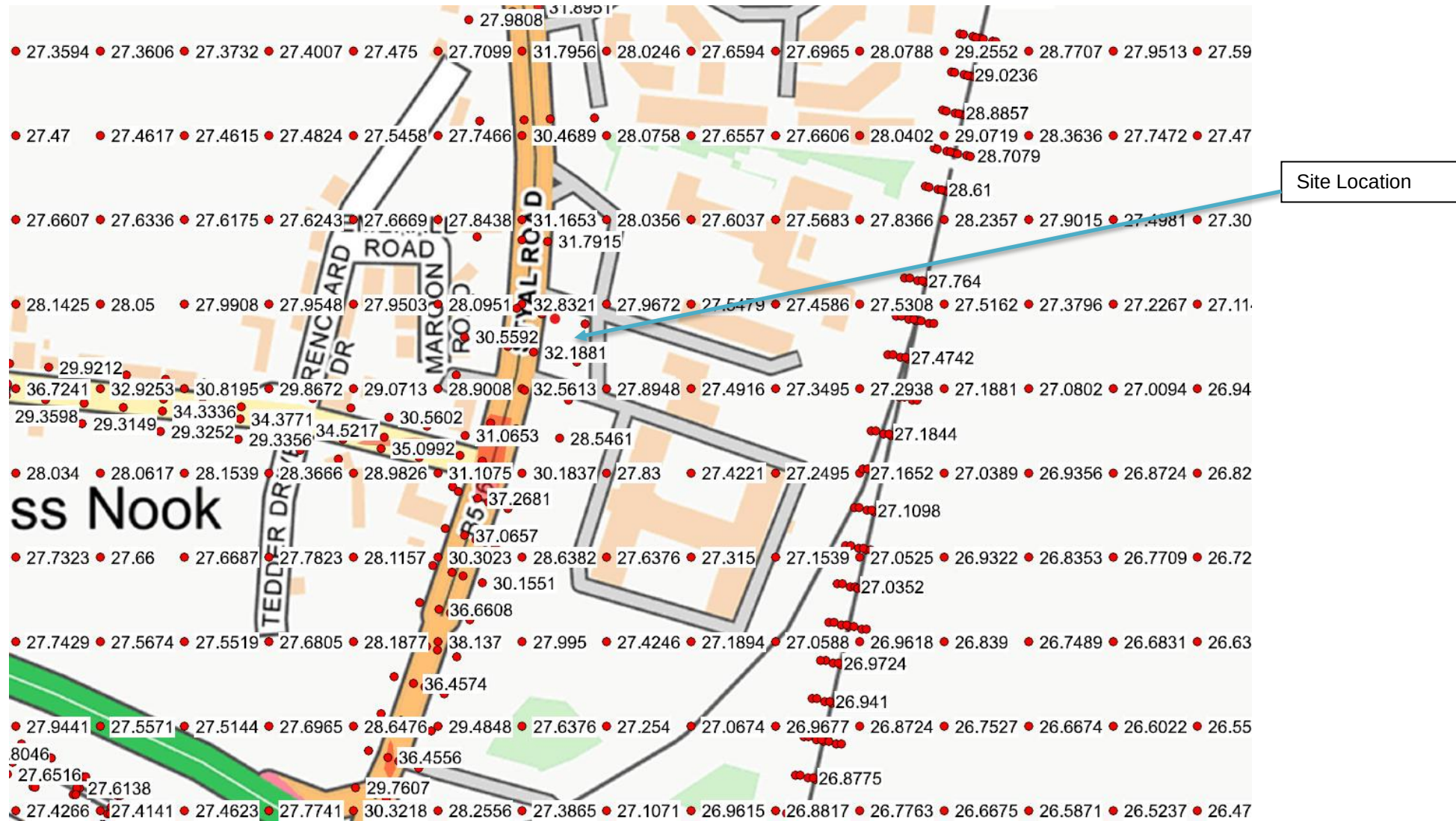
There may be cases where, for example, there is inadequate access to water for dust suppression to be effective, and even with other mitigation measures in place there may be a significant effect. Therefore, it is important to consider the specific characteristics of the site and the surrounding area to ensure that a conclusion of no significant effect is robust.

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Appendix D: 2016 NO₂ concentrations, taken from Transport for Greater Manchester Air Quality Model



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Glossary of Terms

AADT Annual Average Daily Traffic flow

Air Quality Standard Pollutant standards relate to ambient pollutant concentrations in air, set on the basis of medical and scientific evidence of how each pollutant affects human health and the environment

Air Quality Objective Pollutant Objectives incorporate future dates by which a standard is to be achieved, taking into account economic considerations, practicability and technical feasibility

Annual Mean A mean pollutant concentration value in air which is calculated on a yearly basis, yielding one annual mean per calendar year. In the UK air quality regulations, the annual mean for a particular substance at a particular location for a particular calendar year is:

- (a) in the case of lead, the mean of the daily levels for that year;
- (b) in the case of nitrogen dioxide, the mean of the hourly means for that year;
- (c) in the case of PM₁₀, the mean of the 24-hour means for that year.

Annoyance (Dust) Loss of amenity due to dust deposition or visible dust plumes, often related to people making complaints, but not necessarily sufficient to be a legal nuisance.

AQAP Air Quality Action Plan

AQEG Air Quality Expert Group

AQMA Air Quality Management Area

AQMP Air Quality Management Plan

AQO Air Quality Objective

AQS Air Quality Strategy for England, Scotland, Wales and Northern Ireland

Background Concentrations The term used to describe pollutant concentrations which exist in the ambient atmosphere, excluding local pollution sources such as roads and stacks

CO Carbon monoxide

Construction Any activity involved with the provision of a new structure (or structures), its modification or refurbishment. A structure will include a residential dwelling, office building, retail outlet, road, etc.

Construction Impact Assessment An assessment of the impacts of demolition, earthworks, construction and trackout. In this Guidance, specifically the air quality impacts.

Defra Department for Environment, Food and Rural Affairs

Demolition Any activity involved with the removal of an existing structure (or structures). This may also be referred to as de-construction, specifically when a building is to be removed a small part at a time.

Deposited Dust that is no longer in the air and which has settled onto a surface. Deposited dust is also sometimes called amenity dust or nuisance dust, with the term nuisance applied in the general sense rather than the specific legal definition.

DMRB Design Manual for Roads and Bridges

DMP Dust Management Plan; a document that describes the site-specific methods to be used to control dust emissions.

Dust Solid particles that are suspended in air, or have settled out onto a surface after having been suspended in air. The terms dust and particulate matter (PM) are often used interchangeably, although in some contexts one term tends to be used in preference to the other. In this guidance the term 'dust' has been used to include the particles that give rise to soiling, and to other human health and ecological effects. Note: this is different to the definition given in BS 6069, where dust refers to particles up to 75 µm in diameter.

Earthworks Covers the processes of soil-stripping, ground-levelling, excavation and landscaping.

Effects The consequences of the changes in airborne concentration and/or dust deposition for a receptor. These might manifest as annoyance due to soiling, increased morbidity or mortality due to exposure to PM₁₀ or PM_{2.5} or plant dieback due to reduced photosynthesis. The term 'significant effect' has a specific meaning in EIA regulations. The opposite is an insignificant effect. In the context of construction impacts any effect will usually be adverse, however, professional judgement is required to determine whether this adverse effect is significant based in the evidence presented.

EPAQS Expert Panel on Air Quality Standards

EPUK Environmental Protection UK

HDV Heavy Duty Vehicle

Impacts The changes in airborne concentrations and/or dust deposition. A scheme can have an 'impact' on airborne dust without having any 'effects', for instance if there are no receptors to experience the impact.

LAQM Local Air Quality Management

LDF Local Development Framework

LDV Light Duty Vehicle

Mg/m³ Microgrammes (of pollutant) per cubic metre of air. A measure of concentration in terms of mass per unit volume. A concentration of 1 µg/m³ means that one cubic metre of air contains one microgramme (millionth of a gramme) of pollutant

NO₂ Nitrogen Dioxide

NO_x A collective term used to represent the mixture of nitrogen oxides in the atmosphere, as nitric oxide (NO) and nitrogen dioxide (NO₂)

NPPF National Planning Policy Framework

Nuisance The term nuisance dust is often used in a general sense when describing amenity dust. However, this term also has specific meanings in environmental law:

Statutory nuisance, as defined in S79(1) of the Environmental Protection Act 1990 (as amended from time to time).

Private nuisance, arising from substantial interference with a person's enjoyment and use of his land.

Public nuisance, arising from an act or omission that obstructs, damages or inconveniences the right of the community.

Each of these applying in so far as the nuisance relates to the unacceptable effects of emissions. It is recognised that a significant loss of amenity may occur at lower levels of emission than would constitute a statutory nuisance.

Note: as nuisance has a specific meaning in environmental law, and to avoid confusion, it is recommended that the term is not used in a more general sense.

PM_{2.5} The fraction of particles with a mean aerodynamic diameter equal to, or less than, 2.5 µm. More strictly, particulate matter which passes through a size selective inlet as defined in the reference method for the sampling and measurement of PM_{2.5}, EN 14907, with a 50% efficiency cut-off at 2.5 µm aerodynamic diameter

PM₁₀ The fraction of particles with a mean aerodynamic diameter equal to, or less than, 10 µm. More strictly, particulate matter which passes through a size selective inlet as defined in the reference method for the sampling and measurement of PM₁₀, EN 12341, with a 50% efficiency cut-off at 10 µm aerodynamic diameter

RSS Regional Spatial Strategy

Running Annual Mean A mean pollutant concentration value in air which is calculated on an hourly basis, yielding one running annual mean per hour. The running annual mean for a particular substance at a particular location for a particular hour is the mean of the hourly levels for that substance at that location for that hour and the preceding 8759 hours

Trackout The transport of dust and dirt from the construction/demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. This arises when heavy duty vehicles (HDVs) leave the construction/demolition site with dusty materials, which may then spill onto the road, and/or when HDVs transfer dust and dirt onto the road having travelled over muddy ground on site.

VoGC Vale of Glamorgan Council

