

Air Quality Assessment

DATE OF ISSUE: 28 JUNE 2022
ISSUE: P04
HM REFERENCE: 30098-RP-IE-001
CLIENT REF: ALBH-HMM-ZZ-ZZ-RP-Y-0004

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PROJECT NAME: **ALBERTON HOUSE**
REPORT NAME: **Air Quality Assessment**

ISSUE STATUS: **ISSUED FOR RIBA STAGE 3**
HM REFERENCE: **30098-RP-IE-001**
CLIENT REF: **ALBH-HMM-ZZ-ZZ-RP-Y-0004**

DATE OF ISSUE: **28 JUNE 2022**
ISSUE: **P04**

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Date: 2022.06.28 15:34:13+01'00'
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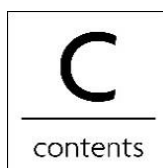
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DOCUMENT HISTORY:

ISSUE	DATE	DETAILS
P01	18/10/2021	ISSUED FOR RIBA STAGE 2
P02	27/5/2022	REISSUED FOR RIBA STAGE 3 PACKAGE
P03	21/6/2022	REISSUED FOR RIBA STAGE 3 UPDATED
P04	28/6/2022	REISSUED FOR RIBA STAGE 3 UPDATED

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Executive Summary

Hilson Moran has been instructed by Bruntwood, to undertake an Air Quality Assessment (AQA) for the Proposed Development known as Alberton House in Manchester.

This report presents the findings of the assessment, which addresses the potential air quality impacts during both the construction and operational stages of the Proposed Development. The assessment has been undertaken in line with the relevant policy and guidance, and where necessary outlines the required mitigation measures to minimise impacts.

A qualitative assessment of construction phase impacts has been carried out. There is a Medium risk of dust soiling during demolition, earthworks and construction activities, and Low risk during trackout activities. There is a Low risk to human health during all phases of construction activities. Through good site practice, the implementation of suitable mitigation measures, the impact of dust and PM₁₀ releases will be minimised. The residual effect of the construction phase on air quality is therefore not significant.

The road traffic generated by the Proposed Development does not breach the threshold detailed in the IAQM and EPUK Air Quality Planning Guidance and there is no proposed onsite combustion plant for the provision of heating and hot water. Therefore, detailed dispersion modelling has been scoped out of the assessment and a qualitative assessment of likely current and future baseline concentrations based on local authority monitoring data has been undertaken.

The findings of the assessment included:

- Local air quality monitoring indicates a statistically significant downward trend in annual mean NO₂ concentrations at two locations in the vicinity of the Application Site.
- Local air quality monitoring indicates that PM₁₀ concentrations are well below the annual AQS objective (40µg/m³) and the daily PM₁₀ AQS objective was achieved at monitoring locations in the vicinity of the Site between 2016-2019.
- Local air quality monitoring indications that PM_{2.5} concentrations are well below the annual AQS objective (25µg/m³).

Based on the findings of the assessment site specific mitigation to protect existing receptors and future users of the Proposed Development from poor air quality are not required.

The residual effect is not significant.

Overall, with the recommended mitigation measure in place the proposals would be compliant with legislation and policy.

1. Introduction

Hilson Moran has been instructed by Bruntwood, to undertake an Air Quality Impact Assessment (AQA) for the Proposed Development at Alberton House, Manchester, hereafter referred to as the 'Proposed Development' or 'Application Site'. The Site is located in the administrative area of Manchester City Council (MCC), close to the river Irwell, adjacent to Cardinal House on St Mary's Parsonage (National Grid Reference SJ 383500 398500) – as identified in **Figure 1.1**.

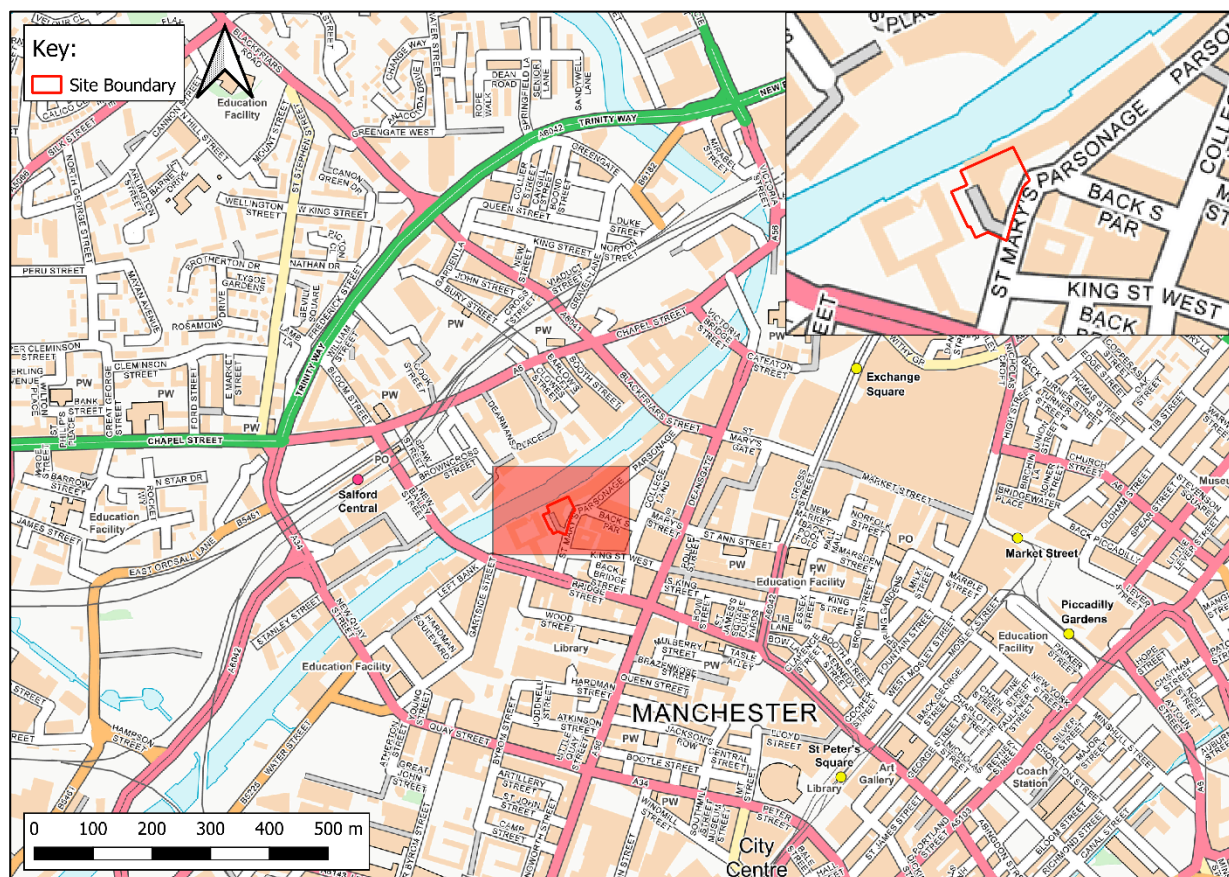


Figure 1.1 Site Boundary (Contains Ordnance Survey Data © Crown copyright database right 2021)

1.1. Proposed Development

The proposals consist of the following:

'Demolition of existing building and erection of a 19 storey (basement, ground including mezzanine, plus 18) building comprising ground floor food and beverage (Use Class E, Sui Generis), 16 floors of office (Class E), and two floors of wellness centre (Sui Generis) including ancillary food and beverage (Use Class E), landscaping, highways and other associated works.'

1.2. Potential Impacts

This report presents the findings of the AQA for both the operational and construction phases. During the construction phase, activities on the Application Site could give rise to dust, which, if transported beyond the site boundary, could have an adverse effect on local air quality and cause a statutory 'nuisance'. During the operational phase, emissions from road traffic has the potential to affect local pollution levels at existing and proposed receptors. For both phases, the impacts are identified and the mitigation measures that should be implemented to minimise the impact are described.

The AQA considers the potential impact on future users of the Proposed Development as the site is located within an existing Air Quality Management Area (AQMA).

A glossary of terms is provided in **Appendix A**.

2. Legislation, Policy and Guidance

2.1. Legislation

A summary of relevant air quality legislation is provided below.

2.1.1. Air Quality Strategy for England, Scotland, Wales and Northern Ireland

The Government's policy on air quality within the UK is set out in the Air Quality Strategy (AQS) for England, Scotland, Wales and Northern Ireland¹, most recently updated in July 2007. The AQS sets out a framework for reducing hazards to health from air pollution and ensuring that the European Union and International agreements are met in the UK.

The AQS covers the following air pollutants: ammonia (NH₃), benzene (C₆H₆), 1,3 butadiene (C₄H₆), carbon monoxide (CO), lead (Pb), oxides of nitrogen (NO_x) (including nitrogen dioxide (NO₂)), particulate matter (PM₁₀ and PM_{2.5}), sulphur dioxide (SO₂), ozone (O₃) and polycyclic aromatic hydrocarbons (PAHs).

The AQS sets standards and objectives for the listed pollutants for the protection of human health, vegetation and ecosystems. The standards are based on recommendations by the Expert Panel on Air Quality Standards (EPAQS) and the World Health Organisation (WHO) based on current understanding and scientific knowledge about the effects of air pollution on health and the environment. The air quality objectives are policy based targets set by the UK Government that are often expressed as maximum concentrations not to be exceeded either without exception or with a limited number of exceedances within a specified timescale.

For the pollutants considered in this assessment, there are both a long-term (e.g. annual mean) and short-term (e.g. one hour mean) standard. In the case of NO₂, the short-term standard is for a 1-hour averaging period (no more than 18 exceedances of 200 µg/m³ per year), whereas for PM₁₀ it is a 24-hour averaging period (no more than 35 exceedances of 50 µg/m³ per year). The variation in time period reflects the varying impacts on health of differing exposures to pollutants.

2.1.2. Air Quality Standards Regulations

The air quality objectives in the AQS are statutory in England with the Air Quality (England) Regulations 2000² and the Air Quality (England) (Amendment) Regulations 2002³ for the purpose of Local Air Quality Management (LAQM).

The Regulations require likely exceedances of the AQS objectives to be assessed in relation to:

"...the quality of air at locations which are situated outside of buildings or other natural or man-made structures, above or below ground, and where members of the public are regularly present..."

The Air Quality Standards (Amendment) Regulations 2016⁴ transpose the European Union Ambient Air Quality Directive (2008/50/EC) into law in England, with the Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019 ensuring continuation of the transposition of the Directive. This Directive sets legally binding limit values for concentrations in outdoor air of major air pollutants that impact public health such as NO₂, PM₁₀ and PM_{2.5}. The limit values for NO₂ and PM₁₀ are the same concentration levels as the relevant AQS objectives and the limit value for PM_{2.5} is a concentration of 25 µg/m³. The relevant air quality objectives are presented in Table 2.1.

Table 2.1 Air Quality Objectives for Relevant Pollutants

Pollutant	UK AQS Objective	Measured as
NO ₂	200 µg/m ³	1-hour mean, not to be exceeded more than 18 times a year (99.79 %ile)
	40 µg/m ³	Annual mean
PM ₁₀	50 µg/m ³	24-hour mean, not to be exceeded more than 35 times a year (90.41 %ile) for UK
	40 µg/m ³	Annual mean
PM _{2.5}	25 µg/m ³	Annual mean

2.1.3. Environment Act

Part IV of the Environment Act 1995⁵ requires local authorities to periodically review and assess the quality of air within their administrative area. The reviews have to consider both the air quality at the time of review and likely future air quality during the 'relevant period' and whether any air quality objectives prescribed in regulations are being achieved or are likely to be achieved in the future. Where the objectives are not likely to be achieved, an authority is required to designate an Air Quality Management Area (AQMA). For each designated AQMA the local authority is required to produce an Air Quality Action Plan (AQAP) that works to ensure compliance with the objectives by implementing a number of air quality improvement measures.

2.1.4. Environment Protection Act

Section 79 of the Environmental Protection Act 1990 (as amended)⁶ makes provision for the identification and control of statutory nuisances. The Act identifies statutory nuisance, in relation to air quality, as:

- 'Any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance'; and,
- 'Any accumulation or deposit which is prejudicial to health or a nuisance'.

As a result, the level at which a nuisance occurs is highly variable and dependent on perception, with effects influenced by existing conditions and the degree of change that has occurred.

Where a statutory nuisance has been demonstrated the local authority must serve an abatement notice, non-compliance with which would constitute a legal offence. The abatement notice may prevent or restrict occurrence or re-occurrence of the nuisance or the local authority may, itself, undertake action to abate the nuisance and recover any associated expenses.

2.1.5. WHO Guidelines

Table 2.2 states the WHO Air Quality Guidelines for NO₂, PM₁₀ and PM_{2.5}. Whilst these guidelines are not targeted in the UK there is a push meet them guidelines and be more stringent with air quality control.

Table 2.2 WHO Guidelines for Relevant Pollutants

Pollutant	WHO Guidelines	Measured as
NO ₂	200 µg/m ³	1-hour mean, not to be exceeded more than 18 times a year (99.79 %ile)
	25 µg/m ³	24-hour mean, not to exceeded more than 3 to 4 times a year (99th %ile)
	10 µg/m ³	Annual mean
PM ₁₀	45 µg/m ³	24-hour mean, not to be exceeded more than 35 times a year (90.41 %ile) for UK, not to exceeded more than 3 to 4 times a year (99th %ile) under WHO
	15 µg/m ³	Annual mean
PM _{2.5}	15 µg/m ³	24-hour mean, not to exceeded more than 3 to 4 times a year (99th %ile)
	5 µg/m ³	Annual mean

2.2. Planning Policy

A summary of the national and local planning policy relevant to air quality and the Proposed Development is detailed below.

2.2.1. National

2.2.1.1. National Planning Policy Framework

The National Planning Policy Framework (NPPF)⁷ sets out policies, which apply to the preparation of local plans and to development management decisions. This framework sets out the Government’s economic, environmental and social planning policies for England. Taken together, these policies articulate the Government’s vision of sustainable development, which should be interpreted and applied locally to meet local aspirations.

The NPPF sets out the Government’s planning policies on the conservation and enhancement of the natural environment, with the following paragraphs relating to air quality:

- Paragraph 8c, which states ‘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’;
- Paragraph 55, which states ‘Local planning authorities should consider whether otherwise unacceptable development could be made acceptable through the use of conditions or planning obligations. Planning obligations should only be used where it is not possible to address unacceptable impacts through a planning condition’;
- Paragraph 105, which states ‘the planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations, which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and

public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making’;

- Paragraph 174e, which states ‘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, taking into account relevant information such as river basin management plans’;
- Paragraph 186, which states ‘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’;
- Paragraph 188, which states ‘The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities’; and,
- Paragraph 211c, which states ‘ensure that any unavoidable noise, dust and particulate emissions and any blasting vibrations are controlled, mitigated or removed at sources, and establish appropriate noise limits for extraction in proximity to noise sensitive properties’.

2.2.2. Local

2.2.3. Manchester Local Plan

Local planning policy is provided in Manchester City Council’s Local Plan, with the Core Strategy Development Plan Document⁸ comprising the key document in the Local Plan outlining the Council’s vision for Manchester in 2027 and identifying the planning policies, which will be used to deliver that vision.

The main planning policy relating to air quality is provided by Policy EN16 of the Core Strategy, which states that

“...the Council will seek to improve the air quality within Manchester, and particularly within Air Quality Management Areas, located along Manchester’s principal traffic routes and at Manchester Airport. Developers will be expected to take measures to minimise and mitigate the local impact of emissions from traffic generated by the development, as well as emissions created by the use of the development itself, including from Combined Heat and Power and biomass plant. When assessing the appropriateness of locations for new development the Council will consider the impacts on air quality,

alongside other plan objectives. This includes cumulative impacts, particularly in Air Quality Management Areas.”

Further this, Policy EN7 on energy infrastructure opportunities identifies that

“...there will be a presumption in favour of low and zero carbon decentralised energy schemes, subject to the following considerations... the cumulative impact of energy schemes will be taken into account when consideration applications, to include modelled impacts on air quality and landscape character, with reference to Policy EN16.”

2.3. Guidance

2.3.1. National Planning Practice Guidance

The NPPF is supported by Planning Practice Guidance⁹, which outlines how the planning process can address potential air quality impacts associated with new development. It provides guidance on the level of detail required, how impacts can be mitigated and provides information on how local authorities may take air quality as a specific consideration in a planning decision.

2.3.2. Local Air Quality Management Review and Assessment Technical Guidance

The Department for Environment, Food and Rural Affairs (Defra) has published technical guidance for use by local authorities. This technical guidance, identified as LAQM.TG¹⁰, is for used by local authorities for their review and assessment work and has been applied where appropriate to this assessment.

2.3.3. Land-Use Planning and Development Control: Planning for Air Quality

Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have published guidance¹¹, which offers advice as to when an air quality assessment may or may not be required. The guidance document details what should be included within an assessment, how to determine the significance of impacts and the likely mitigation measures required to minimise the impacts.

2.3.4. Guidance on the Assessment of Dust from Demolition and Construction

This document¹², published by the IAQM, provides guidance on how to assess the impact of construction activities on air quality associated with new developments. The methodology prescribed within the document allows the impacts to be categorised based on risk (with particular reference to dust and PM₁₀ on sensitive human and ecological receptors) and, where applicable, identify mitigation measures associated to the risk classification determined.

3. Assessment Methodology

3.1. Scope of the Assessment

The scope of the assessment has been determined in the following way:

- Consultation with the Environmental Health Officer (EHO) at MCC Council to agree the scope of the assessment and the methodology to be applied;
- Review of MCC's latest review and assessment reports and the air quality data for the area surrounding the Application Site, including MCC and Defra;
- Desk study to confirm the locations of nearby existing receptors that may be sensitive to changes in local air quality, and a review of the Proposed Development to establish the location of new sensitive receptors; and,
- Review of the traffic data provided by Curtins (the Applications Transport Consultant).

The scope of the assessment includes consideration of the potential impacts on local air quality resulting from:

- Dust and particulate matter generated by on-site activities during the construction phase;
- Increases in pollutant concentrations as a result of exhaust emissions arising from construction traffic and plant; and
- Increases in pollutant concentrations as a result of exhaust emissions arising from traffic generated by the Proposed Development once operational.

It is understood that there is no proposed onsite combustion plant including Combined Heat and Power (CHP) Units, gas-fired boilers or diesel generators for the provision of heating and hot water, therefore an assessment of this source has been scoped out.

3.2. Construction Phase

Assessment of the risk of impact associated with the generation of dust during the construction phase of the Proposed Development and determination of subsequent mitigation measures necessary has been undertaken following IAQM guidelines.

The assessment is based on a series of steps: screening the requirement for a detailed assessment, classification of the likely magnitude of dust emissions; characterisation of the area of influence and establishment of its sensitivity to dust; and establishment of the overall risk of impact. The risk of impact from dust emissions from the Proposed Development considers effects on human health, nuisance as a result of dust soiling and ecological receptors from four main activities: demolition; earthworks; construction; and trackout. The potential for dust emissions from each activity should be considered, unless any of them are not relevant to the Proposed Development.

3.2.1. Identification of Receptors

The guidelines identify appropriate screening criteria for the identification of potential receptors, based on a conservative approach and in consideration of the exponential decline in both airborne concentrations and the rate of deposition with distance. A detailed assessment of the impact of dust from construction sites will be required where:

- A 'human receptor' is located within 350 m of the boundary of the site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance;
- An 'ecological receptor' is located within 50 m of the boundary of the site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance.

3.2.2. Identification of Impact Magnitude

The magnitude of dust emissions for each activity is classified as small, medium or large depending upon the scale of the works proposed, materials involved and level of activity required. The IAQM guidelines provide examples of how the magnitude of emission can be defined, which are identified in Table 3.1. The Proposed Development is unlikely to satisfy all criteria within the examples, therefore professional judgement and site specific information are used to identify appropriate emission magnitude.

Table 3.1 Dust Emission Magnitude (Source: IAQM Guidance, v1.1 Updated June 2016)

Activity	Small	Medium	Large
Demolition	• Total building volume <20,000 m³ • Construction material with low potential for dust release (e.g. metal cladding or timber) • Demolition activities <10 m above ground level • Demolition during wetter months	• Total building volume 20,000 – 50,000 m³ • Potentially dusty construction material • Demolition activities 10-20 m above ground level	• Total building volume >50,000 m³ • Potentially dusty construction material (e.g. concrete) • On-site crushing and screening • Demolition activities >20 m above ground
Earthworks	• Total site area <2,500 m² • Soil type with large grain size (e.g. sand) • <5 heavy earth moving vehicles active at any one time • Formation of bunds <4 m in height • Total material moved <20,000 tonnes • Earthworks during wetter months	• Total site area 2,500 – 10,000 m² • Moderately dusty soil type (e.g. silt) • 5-10 heavy earth moving vehicles active at any one time • Formation of bunds 4-8 m in height • Total material moved 20,000-100,000 tonnes	• Total site area >10,000 m² • 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 <25,000 m³ • Construction material with low potential for dust (e.g. metal cladding or timber)	• Total building volume 25,000 – 100,000 m³ • Potentially dusty construction material (e.g. concrete) • On-site concrete batching	• Total building volume >100,000 m³ • On-site concrete batching, sandblasting

Activity	Small	Medium	Large
Trackout	<10 HDV (>3.5t) outward movements* in any one day# - Surface material with low potential for dust release - Unpaved road length <50 m	10 – 50 HDV (>3.5t) outward movements* in any one day# - Moderately dusty surface material (e.g. high clay content) - Unpaved road length 50 – 100 m	>50 HDV (3.5t) outward movements* in any one day# - Potentially dusty surface material (e.g. high clay content) - Unpaved road length >100 m
* A vehicle movement is a one way journey, i.e. from A to B, and excludes the return journey # HDV movements during a construction project vary over its lifetime, and the number of movements is the maximum not the average.			

3.2.3. Identification of Receptor Sensitivity

Consideration is given to the likely sensitivity of the area to the impacts of dust, establishing a sensitivity of low, medium or high for dust soiling, human health and ecological receptors. The sensitivity of the area considers a number of factors, including the specific sensitivities of receptors in the area, the proximity and number of those receptors, local baseline conditions such as background concentrations and site-specific factors.

The first step in identifying the sensitivity of the area is to establish the sensitivity of the receptor, based on the presence or level of activity associated with the area of influence of the Proposed Development. Professional judgement and site-specific information are used to assign an appropriate level of receptor sensitivity using the principles outlined in Table 3.2. Following this, the sensitivity of the area can be established from Tables 3.3 to 3.5 based on the sensitivity of the receptor, number of receptors (in the case of human health and dust soiling) and the distance from source.

Table 3.2 *Receptor Sensitivity Definitions (Source: IAQM Guidance, v1.1 Updated June 2016)*

Impact	Low	Medium	High
Dust Soiling	- Enjoyment of amenity would not reasonably be expected; - There is property that would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; - Transient exposure, where people or property is only expected to be present for limited periods of	- Users would expect to enjoy a reasonable level of amenity, but not reasonably at same level as in their home; - The appearance, aesthetics or value of property could be diminished by soiling; - Indicative examples include parks and places or work	- Users can reasonably expect enjoyment of a high level of amenity; - The appearance, aesthetics or value of property would be diminished by soiling, and continuous or regularly extended periods of presence expected during normal pattern of land use;

Impact	Low	Medium	High
	- time as part of the normal pattern of use; - Indicative examples include playing fields, farmland, footpaths, short-term car parks and roads.		Indicative examples include dwellings, museums and other culturally important collections, medium and long term car parks and car showrooms.
Human Health	- Locations where human exposure is transient; - Indicative examples include public footpaths, playing fields, parks and shopping streets.	- Locations where people exposed are workers#, and exposure is over a time period relevant to the air quality objective for PM10*; - Indicative examples including office and shop workers, but not those occupationally exposed to dust.	- Locations where members of the public are exposed over a period of time relevant to the air quality objective for PM10*; - Indicative examples include residential properties, hospitals, schools and residential care homes.
Ecological	Locations with a local designation where the features may be affected by dust deposition, e.g. Local Nature Reserve.	- Locations 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, e.g. Site of Special Scientific Interest.	- Locations with an international or national designation and the designated features may be affected by dust soiling, e.g. Special Area of Conservation with acid heathland; - Location where there is a community of a particularly dust sensitive species such as vascular species including in the Red Data List for Great Britain.
* In the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day, following Defra Guidance. # Workers are considered to be less sensitive than the general public as a whole because those most sensitive to the effects of air pollution, such as young children, are not normally workers.			

Table 3.3 Sensitivity of the Area to Dust Soiling Effects on People and Property (Source: IAQM Guidance, v1.1 Updated June 2016)

Receptor Sensitivity	Number of Receptors	Distance from Source			
		<20m	<50m	<100m	<350m
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 3.4 Sensitivity of the Area to Human Health Impacts (Source: IAQM Guidance, v1.1 Updated June 2016)

Receptor Sensitivity	Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance of Source				
			<20m	<50m	<100m	<200m	<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

Table 3.5 Sensitivity of the Area to Ecological Impacts (Source: IAQM Guidance, v1.1 Updated June 2016)

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

Receptor Sensitivity	Distance from Source	
	<20m	<50m
Low	Low	Low

3.2.4. Establishing Significance

The risk of dust related impacts from the Proposed Development is established from the sensitivity of the area and the likely dust emission magnitude. The risk should be established, on the worst-case area sensitivity and in the absence of mitigation, for each of the construction related activities (demolition, earthworks, construction and trackout) following the matrix in Table 3.6.

Table 3.6 Risk of Dust Impacts from Each Activity (Source: IAQM Guidance, v1.1 Updated June 2016)

Sensitivity of Area	Activity	Dust Emission Magnitude		
High	Demolition	High Risk	Medium Risk	Medium Risk
	Earthworks	High Risk	Medium Risk	Low Risk
	Construction	High Risk	Medium Risk	Low Risk
	Trackout	High Risk	Medium Risk	Low Risk
Medium	Demolition	High Risk	Medium Risk	Low Risk
	Earthworks	Medium Risk	Medium Risk	Low Risk
	Construction	Medium Risk	Medium Risk	Low Risk
	Trackout	Medium Risk	Low Risk	Negligible
Low	Demolition	Medium Risk	Low Risk	Negligible
	Earthworks	Low Risk	Low Risk	Negligible
	Construction	Low Risk	Low Risk	Negligible
	Trackout	Low Risk	Low Risk	Negligible

The IAQM guidelines identify a range of mitigation measures intended to reduce the emission and effects of dust from construction sites and identify their likely applicability to a development based on the level of impact risk attributed. Consideration is given to these in the development of mitigation measures, with the significance of the residual effect based on professional judgement.

3.3. Operational Phase

3.3.1. Road Traffic Emissions

Following consultation with Curtins it has been confirmed that the Proposed Development will result in a trip generation of less than 100 LGV and 25 HGV movements per day.

In accordance with the EPUK & IAQM air quality planning guidance, the additional vehicle trips generated by the Proposed Development do not breach the criteria detailed in Table 6.2 for development sites located within an AQMA. On this basis, a detailed road traffic assessment of development-generated traffic has been scoped out. Instead an appraisal of the current and potential future baseline concentrations using trend analysis of local air quality monitoring data in the vicinity of the Application Site has been provided in Section 5.2.

3.3.2. Point Sources

It is understood that there is no onsite proposed combustion plant for the provision of heating and hot water, with an all-electric approach being adopted through air source heat pumps.

As part of the Proposed Development there is an onsite diesel fired life safety generator which is proposed to run in case of emergencies. At this stage the size of the back up generator is not known, however if this exceeds 1Mw thermal, this may trigger further air quality assessment work associated with the Medium Combustion Plant Directive (MCPD). However, under the MCPD back up emergency generators are excluded from the specified generator controls provided that compliance of the following is met:

- Balancing services (whether procured or not) are not provided;
- Demand side response operations such as triad avoidance or fast frequency response are provided; and
- Testing of this generator does not exceed 50 hours per year.

Although the current size of the backup generator is unknown, it is understood that the operation will be compliant with the above criteria and therefore a detailed assessment of this has been scoped out.

As noted above, where the generator equals or exceeds 1Mw thermal a permit or registration may be required with the Environment Agency as the regulator under the MCPD, to which a number of conditions may be attached, these include, but are not limited to:

- A limit of 50 hours testing a year for each backup generator; and,
- For each backup generator, a record of the number of testing hours per year must be kept demonstrating that you meet the exclusion criteria.

If the number of testing hours needs to be increased above the limit of 50 or there is a required change of use for the generator, agreement in writing with the regulator is required. Such changes may lead to the requirement of a new permit for which more detailed air quality analysis would be required. Should any of the permit conditions be breached without written agreement the regulator will take appropriate enforcement action.

3.4. Limitations & Assumptions

Professional judgement has been used in the completion of the construction phase dust assessment for the Proposed Development.

It is assumed that the information provided by the transport consultants (Curtins) and M&E engineers (Hilson Moran) to scope out detailed assessments is accurate.

Hilson Moran consider the assumptions made in the assessment to be reasonable and robust is accurate.

4. Baseline Conditions

4.1. Local Air Quality Information

The Greater Manchester Combined Authority (GMCA) have declared an Air Quality Management Area encompassing the airport, arterial routes and district centres across the ten local districts of Manchester. The AQMA was declared in 2016 for exceedances of Nitrogen Dioxide (NO₂), and subsequent reviews including the latest GMCA Annual Status Report¹³, consider the AQMA to continue to be appropriate in both extent and declared pollutants. The extent of the AQMA is shown in **Figure 4.1** – as shown the Application Site is located within the AQMA.

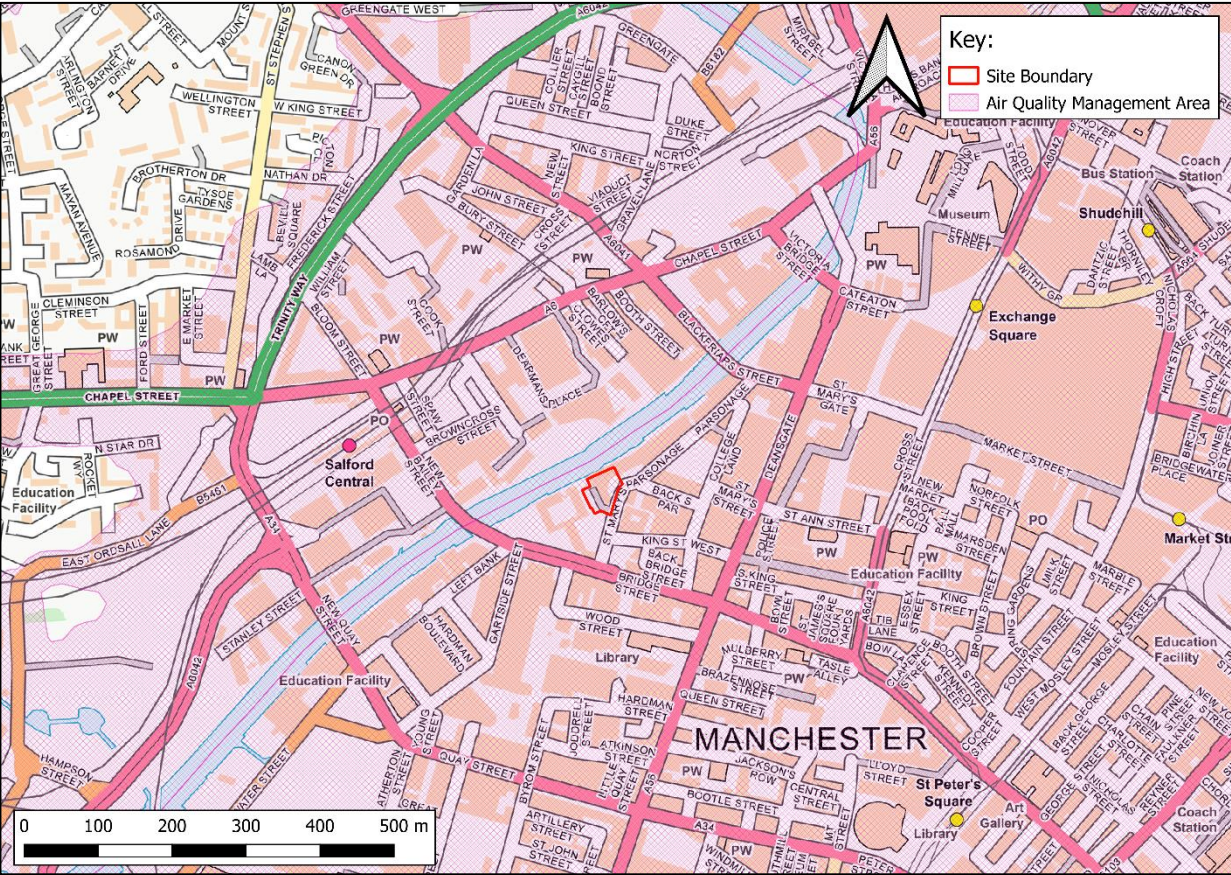


Figure 4.1 Air Quality Management Area (Contains Ordnance Survey Data © Crown copyright database right 2021)

4.1.1. Defra Background Concentrations

The UK Air Information Resource (AIR) is operated by Defra and includes computer modelled predictions of background concentrations of air pollutants over the whole of the UK with a grid resolution of 1km². The background concentrations for relevant pollutants in the grid square in which the Proposed Development is located (SJ 383500 398500) are presented in Table 4.1.

Table 4.1 Defra Background Concentrations (µg/m³)

Pollutant	Pollutant Concentrations (µg/m ³)							
	2019	2020	2021	2022	2023	2024	2025	2026
NO ₂	28.19	26.93	26.05	25.22	24.54	23.81	23.16	22.72
NO _x	44.64	42.02	40.36	38.81	37.57	36.25	35.08	34.34
PM ₁₀	13.07	12.75	12.64	12.52	12.40	12.28	12.17	12.15
PM _{2.5}	8.49	8.27	8.18	8.09	8.00	7.91	7.82	7.81
*Bold indicates an exceedance of the relevant AQS objective.								

The Defra background concentrations for NO₂, PM₁₀ and PM_{2.5} for 2019 are below the relevant AQS objectives (40µg/m³ for NO₂ and PM₁₀, and 25µg/m³ for PM_{2.5}).

4.1.2. Local Air Quality Monitoring Data

As part of the Greater Manchester Air Quality Action Plan, a network of automated and non-automated air quality monitoring stations have been set up. In MCC this network includes three automated monitors and 46 diffusion tubes. The Site is located in close proximity to the administrative boundary of Salford City Council (SCC) and a number of SCC's air quality monitoring sites. SCC's air quality monitoring network includes three automatic monitors and 48 diffusion tubes. A summary of the monitor locations in the vicinity of the Proposed Development are identified **Figure 4.2** in Tables 4.2, 4.3, 4.4, 4.5 and 4.6.

4.1.2.1. Nitrogen Dioxide

The annual mean NO₂ concentrations and the number of exceedances of the 1-hour NO₂ objective at automatic monitoring site MAN3 at Manchester Piccadilly are presented in Tables 4.2 and 4.3, respectively. Automated survey results from Manchester Piccadilly demonstrate an exceedance of the annual mean AQS objective in 2016, with 2017-2019 demonstrating compliance with the annual mean AQS objective.

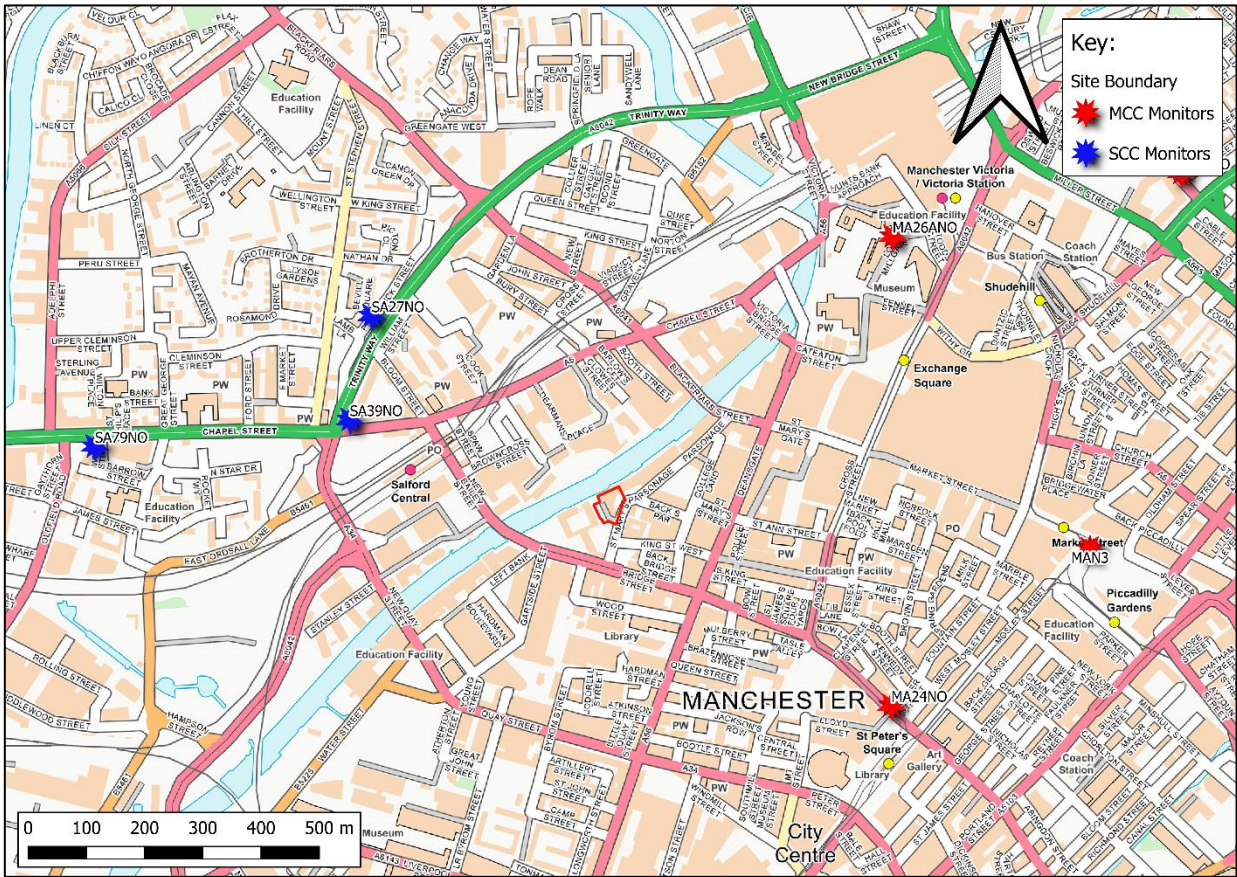


Figure 4.2 Local Air Quality Monitoring Locations (Contains Ordnance Survey Data © Crown copyright database right 2021)

The monitoring data also indicates compliance with the 1-hour AQS objective at Manchester Piccadilly between 2016-2019.

Table 4.2 MCC Continuous Monitoring – Annual Mean NO₂

Monitoring Site	X, Y	Type	Annual Mean Concentration (µg/m ³)			
			2016	2017	2018	2019
MAN3 – Manchester Piccadilly	384310, 398337	Urban Centre	40	36	35	36

*Bold indicates an exceedance of the relevant AQS objective.

Table 4.3 MCC Continuous Monitoring – 1 Hour Mean NO₂

Monitoring Site	X, Y	Type	Number of Exceedances of 1-Hour Mean NO ₂ Objective Threshold of 200 µg/m ³			
			2016	2017	2018	2019
MAN3 – Manchester Piccadilly	384310, 398337	Urban Centre	0	1	0	0

*Bold indicates an exceedance of the relevant AQS objective.

The annual mean NO₂ concentrations and the number of exceedances of the annual mean NO₂ objective at all diffusion tube locations within the vicinity of the Application Site are presented in Table 4.4.

The results indicate that annual mean NO₂ concentrations exceed the relevant AQS objective a number of locations in the vicinity of the Site between 2016-2019, with the exception of MA26ANO at Chethams School and SA27NO at Trinity Way. These monitoring locations are located at roadside and kerbside locations within an existing AQMA; therefore, concentrations are expected to be elevated. Comparatively, we would expect concentrations at the Application Site to be lower than those indicated in Table 4.4.

Table 4.4 MCC & SCC Diffusion Tube Monitoring – Annual Mean NO₂

Monitoring Site	X, Y	Type	Annual Mean Concentration (µg/m³)			
			2016	2017	2018	2019
Manchester City Council Monitors						
MA24NO – Princess Street	383968, 398070	Kerbside	45.3	44.7	40.3	40.8
MA26ANO – Chethams School	383973, 398874	Urban Background	37.1	35.5	33.4	33.0
MA88NO – Hyde Road/Clowes Street	386536, 396699	Roadside	52.7	47.5	44.3	43.3
MA9ANO – Newton Street	384601, 398303	Kerbside	51.9	51.1	45.8	44.9
Salford City Council Monitors						
SA27NO – Trinity Way	383078, 398741	Roadside	39.8	36.8	34.1	37.2
SA39NO – Trinity Way/Chapel Street	383040, 398563	Roadside	46.8	41.6	39.1	41.7
SA79NO – Chapel Street	382602, 398519	Roadside	-	-	-	41.1
*Bold indicates an exceedance of the relevant AQS objective.						

*Bold indicates an exceedance of the relevant AQS objective.

4.1.2.2. Particulate Matter (PM₁₀ & PM_{2.5})

The annual mean PM₁₀ and PM_{2.5} concentrations at automatic monitoring site MAN3 at Manchester Piccadilly are presented in Table 4.5. The number of exceedances of the 24-hour PM10 objective at this monitoring site are presented in Table 4.6.

The annual mean PM₁₀ and PM_{2.5} AQS objectives are not exceeded between 2014-2019 at MAN3, Manchester Piccadilly.

Table 4.5 MCC Continuous Monitoring Results – Annual Mean PM₁₀ & PM_{2.5}

Monitoring Site	X, Y	Type	Annual Mean Concentration (µg/m ³)
-----------------	------	------	--

			2016	2017	2018	2019
PM ₁₀						
MAN3 – Manchester Piccadilly	384310, 398337	Urban Centre	20	20	21	20
PM _{2.5}						
MAN3 – Manchester Piccadilly	384310, 398337	Urban Centre	10	8	11	12
*Bold indicates an exceedance of the relevant AQS objective.						

The 24-hour PM₁₀ AQS objective is achieved at MAN3, Manchester Piccadilly between 2016—2019.

Table 4.6 MCC Continuous Monitoring Results – Daily PM₁₀

Monitoring Site	X, Y	Type	Number of Exceedances of 1-Hour Mean NO ₂ Objective Threshold of 50 µg/m ³			
			2016	2017	2018	2019
MAN3 – Manchester Piccadilly	384310, 398337	Urban Centre	3	3	2	7
*Bold indicates an exceedance of the relevant AQS objective.						

4.2. Sensitive Receptors

Defra provides guidance on locations where the air quality objectives should apply and Table 4.7 and professional judgement have been used to select receptors where likely significant exposure to pollutant concentrations may occur.

Averaging Period	Objectives Should Apply	Objectives Should Generally Not Apply
Annual Mean	All locations where members of the public might be regularly exposed. Building facades of residential properties, schools, hospitals, care homes etc.	Building facades 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 locations 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 locations where public exposure is expected to be short-term.

Averaging Period	Objectives Should Apply	Objectives Should Generally Not Apply
1-Hour Mean	All locations where the annual mean and 24-hour mean objectives apply. Kerbside sites (for example pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more. Any outdoor locations where members of the public might reasonably be expected to spend 1 hour or longer.	Kerbside sites where the public would not be expected to have regular access.
15-Minute Mean	All locations where members of the public might reasonably be exposed for a period of 15 minutes or longer.	

5. Effects Appraisal & Site Suitability

5.1. Construction

5.1.1. Assessment of Potential Dust Emission Magnitude

The likely magnitude of dust emissions from the Proposed Development for the four main activities has been assessed, as identified in Table 5.1.

It is understood that construction will be relatively confined as the majority of construction activities will take place internally within the Proposed Development. Any external works are likely to include only minor changes to the façade of the building.

Table 5.1 Predicted Magnitude of Dust Emissions from Proposed Development

Activity	Magnitude	Justification
Demolition	Medium	It is understood that the existing building at the Application Site will be fully demolished. The existing building volume is between 20,000-50,000m ³ – based on this demolition works have been classified as Medium.
Earthworks	Medium	The site area is estimated 3350m ² . The soil type is potentially dusty. There is likely to be excavation works with the total material to be moved estimated to be 20,000-100,000 tonnes. At this stage the number of heavy earth moving vehicles has not been confirmed, but it is estimated to be between 5 and 10 based up on the site locale. Based up on the above the Site has been classified as Medium.
Construction	Medium	The total building volume is estimated to fall between 25,000-100,000m ³ based up on the floor area and height which corresponds in the IAQM Guidance as Medium threshold. The material to be used in the construction stage includes steel and brick/masonry products – the dust release potential is Medium.
Trackout	Medium	Given the size of the site, the proposed haul roads are expected to be less than 100m in length. These roads are expected to be unpaved, therefore there is potential for dust releases. It is estimated that there would be <10 HDV movements per day. Based on the above, trackout works have been classified as Medium.

5.1.2. Sensitivity of the Area

A wind rose for London Heathrow 2019 is provided in **Appendix B** and this indicates that the prevailing wind direction is from the south-west. Therefore, existing receptors that are located to the north and east are most likely to fall within the area of influence from dust emissions generated by the construction phase.

The majority of dust generated by the construction phase is likely to be deposited in close proximity to the source (see **Figure 5.1**). Surrounding the Application Site there are a number of highly sensitive existing residential receptors (>100 within 100m). There are no ecological receptors located within 50m

of the Application Site, or within 500m of the likely construction traffic route and therefore consideration of these receptors has been scoped out.

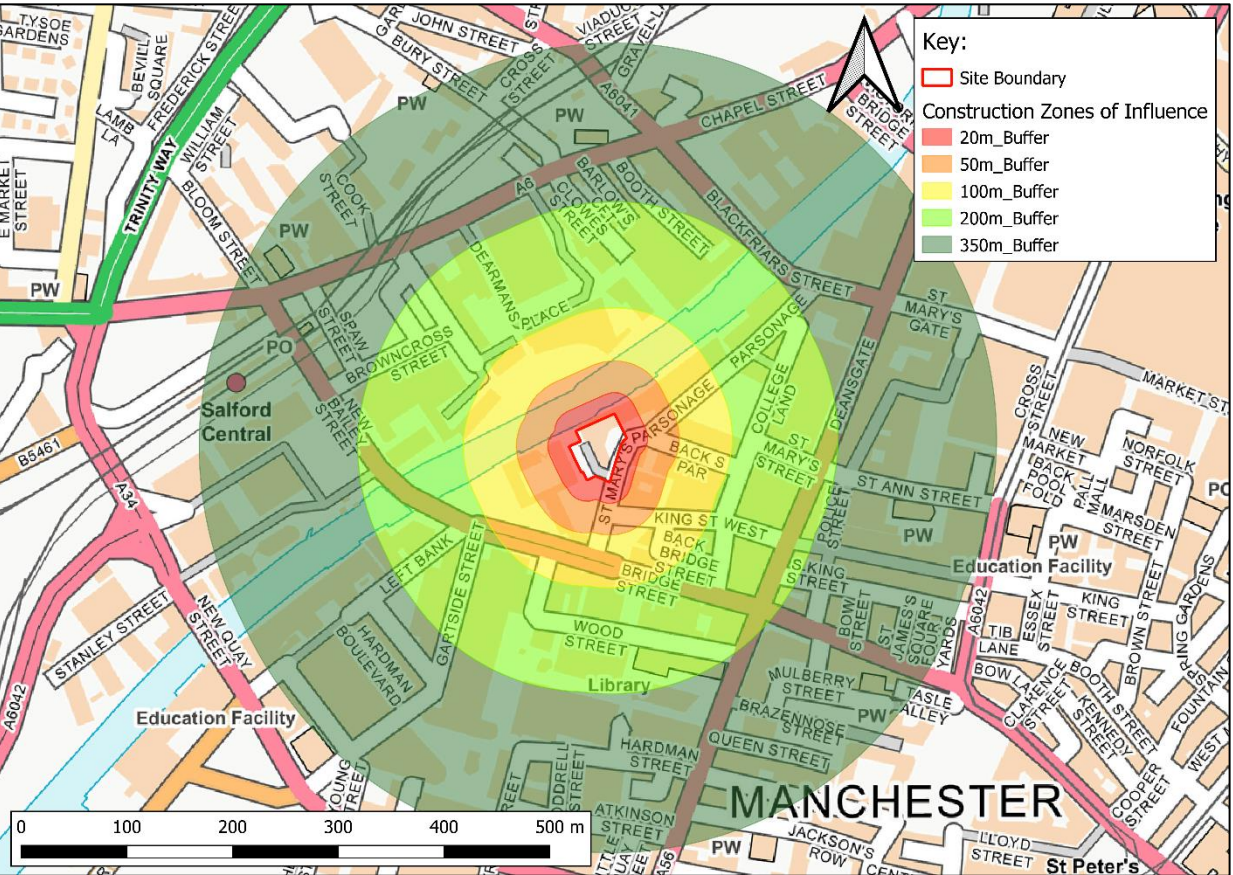


Figure 5.1 Zone of Construction Influence (Contains Ordnance Survey Data © Crown copyright database right 2021)

The Defra background PM₁₀ concentration is 12.15µg/m³ in 2019 which is well below the annual mean air quality objective.

The sensitivity of the area to each of the previously identified impact types associated with the Proposed Development are identified in Table 5.2.

Table 5.2 Sensitivity of Receptors to Dust Emission Effects

Impact Type	Sensitivity of Surrounding Area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium	Medium	Medium	Medium
Human Health	Low	Low	Low	Low
Ecological	N/A	N/A	N/A	N/A

To determine the risk of impacts prior to the implementation of mitigation the dust emission magnitude and the sensitivity of the area have been combined. Table 5.3 below summaries the potential risk of impacts during the construction phase.

Table 5.3 Risk of Dust Related Impacts from the Proposed Development

Impact Type	Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium	Medium	Medium	Low
Human Health	Low	Low	Low	Low
Ecological	N/A	N/A	N/A	N/A

The risk of dust soiling impacts on the Proposed Development on existing receptors in the vicinity of the Application Site is Medium Risk for demolition, earthworks and construction activities, and low for trackout activities, without the implementation of mitigation. The risk of human health impacts from the Proposed Development on existing receptors is low for all types of activity without the implementation of mitigation.

5.1.3. Construction Road Traffic & Non-Road Mobile Machinery (NRMM)

The greatest impact on air quality due to construction traffic and NRMM is likely to be along roads in the vicinity of the Application Site. It is likely that construction traffic will enter the Application Site via Derry Street, Young Street and Kensington High Street. It is likely that the volume of construction traffic will be low compared to the existing traffic flows.

Based on the current local air quality in the area, the proximity of sensitive receptors to the roads likely to be used by construction vehicles, the impacts are therefore considered to be slight adverse without the implementation of mitigation.

5.2. Operational

As the road traffic generated by the Proposed Development does not breach the threshold detailed in the IAQM and EPUK Air Quality Planning Guidance (see Table 3.7) and there is no on-site combustion plant for the purpose of heating and hot water detailed modelling has been scoped out of the assessment. However, a summary of the current and potential future baseline concentrations using trend analysis of local air quality monitoring data in the vicinity of the Application Site has been provided below.

5.2.1. Trend Analysis of Local Authority Monitoring Data

Trend analysis has been undertaken for annual mean monitoring data for NO₂, PM₁₀ and PM_{2.5} using the Mann-Kendall Test and Sen's Slope Estimates for the Trend of Annual Data (version 1.0) available from the Finnish Meteorological Institute. The annual mean data utilised is presented in Tables 4.2, 4.4 and 4.5.

5.2.1.1. Annual Mean NO₂ Concentrations

Trend analysis undertaken for annual mean NO₂ indicates that monitoring data collected at Chethams School (MA26ANO) and Newton Street (MA9ANO) recorded a statistically significant (at a 0.1 significance level or 90% confidence level) reduction in pollution between 2016-2019.

Remaining locations including have measured concentrations that have remained largely static or have slight decreases. Monitor locations at Chethams School (MA26ANO) and Trinity Way (SA27NO) located within 500m and 600m the Site, respectively, have recorded concentrations below the AQS objective of 40µg/m³ in all years monitored.

5.2.1.2. Annual Mean PM₁₀ Concentrations

The trend analysis undertaken for annual mean PM₁₀ for the monitoring data collected at Manchester Piccadilly (MAN3) indicates that no statistically significant trend exists between 2016 and 2019. The measured concentrations are relatively static or have slight decreases, but remain well below the AQS objective of 40µg/m³ in all years monitored.

5.2.1.3. Annual Mean PM_{2.5} Concentrations

The trend analysis undertaken for annual mean PM_{2.5} for the monitoring data collected at Manchester Piccadilly (MAN3) indicates that no statistically significant trend exists between 2016 and 2019. The measured concentrations are relatively static or have slight decreases, but remain well below the AQS objective of 25µg/m³ in all years monitored.

5.2.1.4. Summary

As summarised above, air quality in the vicinity of the Application Site, based on current monitoring data, is compliant with the relevant AQS objectives for NO₂, PM₁₀ and PM_{2.5}. In the future, we would expect further reductions with the implementation of the Greater Manchester Clean Air Zone in 2022 alongside other local initiatives to improve air quality in the district.

On this basis, it is not anticipated that existing and future sensitive receptors will experience elevated NO₂, PM₁₀ or PM_{2.5} concentrations resulting from the operation of the Proposed Development. Therefore, site-specific mitigation to protect existing and future users of the Proposed Development from poor air quality is not required.

6. Mitigation

6.1. Construction Phase

The IAQM guidelines provide an indication of the mitigation measures that would be appropriate for inclusion within the Proposed Development, based on the level of risk of dust related impacts identified for each of the activities. Consequently, the following mitigation measures should be incorporated into the Proposed Development, and delivered through the implementation of a Construction Environment Management Plan (CEMP).

Mitigation measures that are generic to each of the activities, and therefore should be implemented for the duration of the construction related works where applicable are identified in Table 6.1, whilst activity specific mitigation measures are identified in Table 6.2.

Table 6.1 Mitigation to be implemented during the Construction Phase

Development Element	Mitigation Measure
Communication	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.
Planning	Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the measures recommended in this table.
Site Management	Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. Make the complaints log available to the local authority when asked. Record any exceptional incidents that cause dust and/or emissions, either on- or off- site, and the action taken to resolve the situation in the log book.
Monitoring	Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of the site boundary, with cleaning provided if necessary. Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked. Increase the frequency of site inspections by the person accountable for air quality and dust issues on site 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	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 site or specific operations where there is a high potential for dust production and the site is active for an extensive period.

Development Element	Mitigation Measure
	Avoid site run-off 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 on site. If they are being re-used on-site cover as described below. Cover, seed or fence stockpiles to prevent wind whipping.
Operating Vehicle/ Vehicle Movements	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. Impose and signpost a maximum speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate). Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials. Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking and car-sharing).
Operations	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems. Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, 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 fin 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.

Table 6.2 Activity Specific Mitigation Measures to be implemented during the Construction Phase

Development Element	Mitigation Measure
Earthworks	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable. Only remove the cover in small areas during work and not all at once.
Construction	Avoid scabbling (roughening of concrete surfaces) if possible. Ensure sand and other aggregates are stored in bunds in areas that are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.

Development Element	Mitigation Measure
	Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery. For small supplies of fine powder materials, ensure bags are sealed after use and stored appropriately to prevent dust.
Trackout	Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use. Avoid dry sweeping of large areas. Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport. Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. Record all inspections of haul routes and any subsequent action in a site log book. Install hard surface haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned. Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable). Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.

- Be mindful of the location of air intakes at roof level – where roof level intakes are necessary it is important to consider existing flues (energy plant/kitchen extracts) associated with any neighbouring buildings and any exhausts (kitchen or ventilation) associated with the Proposed Development itself. This will reduce the likelihood of recirculating ‘dirty’ air. Where possible air intakes should be located approximately 20m from any exhausts (See Part F of the Building Regulations).

6.2.2. Residual Effects

The overall residual effect for the operational phase is not significant.

6.1.1. Residual Effects

The residual effects of dust and PM₁₀ generated by construction activities following the application of the mitigation measures described above and good site practice is not significant.

The residual effects of emissions to air from construction vehicles and NRMM on local air quality is not significant following the implementation of the recommended mitigation measures

6.2. Operational Phase

6.2.1. Summary

As summarised above, air quality in the vicinity of the Application Site, based on current monitoring data, is compliant with the relevant AQS objectives for NO₂, PM₁₀ and PM_{2.5}. In the future, we would expect further reductions with the implementation of the Greater Manchester Clean Air Zone in 2022 alongside other local initiatives to improve air quality in the district. Therefore, site specific mitigation is not required.

However, this does not deter from best practise design, and therefore the following recommendations are made:

- Where possible locate air intake along facades that face away from roads;
- Locate air intakes at height; and,

7. Conclusion

A qualitative assessment of construction phase impacts has been carried out. There is a Medium risk of dust soiling during demolition, earthworks and construction activities, and Low risk during trackout activities. There is a Low risk to human health during all phases of construction activities. Through good site practice, the implementation of suitable mitigation measures, the impact of dust and PM₁₀ releases will be minimised. The residual effect of the construction phase on air quality is therefore not significant.

The road traffic generated by the Proposed Development does not breach the threshold detailed in the IAQM and EPUK Air Quality Planning Guidance and there is no proposed onsite combustion plant for the provision of heating and hot water. Therefore, detailed dispersion modelling has been scoped out of the assessment and a qualitative assessment of likely current and future baseline concentrations based on local authority monitoring data has been undertaken.

The findings of the assessment included:

- Local air quality monitoring indicates a statistically significant downward trend in annual mean NO₂ concentrations at two locations in the vicinity of the Site.
- Local air quality monitoring indicates that PM₁₀ concentrations are well below the annual AQS objective (40µg/m³) and the daily PM₁₀ AQS objective was achieved at monitoring locations in the vicinity of the Site between 2016-2019.
- Local air quality monitoring indications that PM_{2.5} concentrations are well below the annual AQS objective (25µg/m³).

Based on the findings of the assessment site specific mitigation to protect existing receptors and future users of the Proposed Development from poor air quality are not required.

The residual effect is not significant.

Overall, with the recommended mitigation measure in place the proposals would be compliant with legislation and policy.

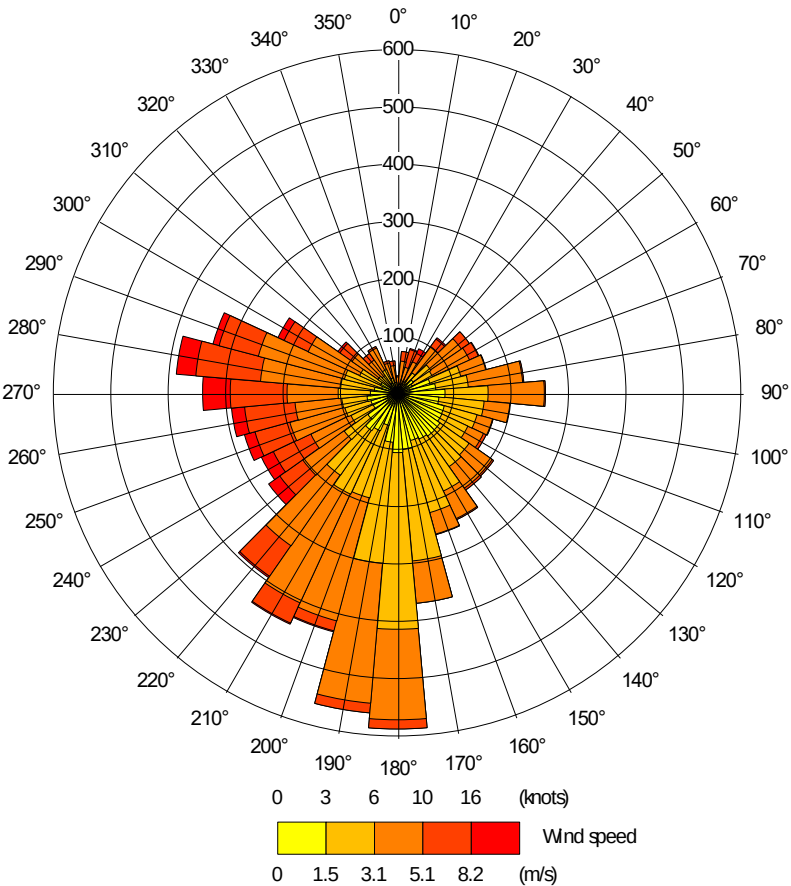
Appendix A

Glossary

Term	Definition
AADT (Annual Average Daily Traffic)	A daily total traffic flow (24 hrs), expressed as a mean daily flow across all 365 days of the year.
Air Quality Objective	Policy target generally expressed as a maximum ambient concentration to be achieved, either without exception or with a permitted number of exceedances within a specific timescale (see also air quality standard).
Air Quality Standard	The concentrations of pollutants in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. The standards are based on the assessment of the effects of each pollutant on human health including the effects on sensitive sub groups (see also air quality objective)
Ambient Air	Outdoor air in the troposphere, excluding workplace air.
Annual Mean	The average (mean) of the concentrations measured for each pollutant for one year.
AQMA	Air Quality Management Area
Conservative	Tending to over-predict the impact rather than under-predict.
Data Capture	The percentage of all the possible measurements for a given period that were validly measured.
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport.
Dust	Dust comprises particles typically in the size range 1-75 micrometres (µm) in aerodynamic diameter and is created through the action of crushing and abrasive forces on materials.
Exceedance	A period of time where the concentrations of a pollutant is greater than the appropriate air quality standard.
HDV/HGV	Heavy Duty Vehicle/Heavy Goods Vehicle
LAQM	Local Air Quality Management
NO ₂	Nitrogen dioxide
NO _x	Nitrogen oxides
PM ₁₀	Particulate matter with an aerodynamic diameter of less than 10 micrometres (µm)
PM _{2.5}	Particulate matter with an aerodynamic diameter of less than 2.5 micrometres (µm)
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 HDV's transfer dust and dirt onto the road having travelled over muddy ground on site.

Appendix B

2019 Windrose Manchester



References

- ¹ Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007).
² The Air Quality (England) Regulations 2000 – Statutory Instrument 2000 No. 928.
³ The Air Quality (England) (Amendment) Regulations 2002 – Statutory Instrument 2002 No. 3043.
⁴ The Air Quality Standards (Amendment) Regulations 2016 – Statutory Instrument 2016 No. 1184.
⁵ The Environment Act 1995.
⁶ The Environmental Protection Act 1990.
⁷ Ministry of House Communities and Local Government (July 2021). National Planning Policy Framework

- ⁸ Manchester City Council. Manchester Local Plan (2017-2027).
⁹ National Planning Practice Guidance (October 2019).
¹⁰ Local Air Quality Management Review and Assessment Technical Guidance (LAQM. TG16) (April 2016).
¹¹ IAQM. Land-Use Planning and Development Control: Planning for Air Quality (v1.2) (2017).
¹² IAQM. Guidance on the Assessment of Dust from Demolition and Construction. (v1.1) (2016).
¹³ Greater Manchester Combined Authority. 2021 Air Quality Annual Status Report (July 2021).