BURO HAPPOLD

All Saints Library

Air Quality Assessment

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1 Executive Summary

Buro Happold has been appointed by Manchester Metropolitan University (the 'Client') to undertake an air quality assessment to support the Planning Application for the proposed development of All Saints Library, Manchester (referred to as the 'Site').

The proposals comprise the construction of a nine storey library building (Use Class F1), public realm, access and servicing arrangements and other associated works (referred to as the 'Proposed Development').

This 0.6 hectare Site in Manchester City Centre is bound by Oxford Road to the east, by the Mancunian Way to the north, Manchester Metropolitan University's Faculty of Business and Law to the west, and All Saints Park to the south. The Site currently comprises the vacant All Saints Library Building - a seven-storey brick building. The building on site is considered no longer fit for purpose and has been vacant since summer 2024. The Site is subject to a planning application (submitted August 2025) for demolition – due to be determined early December 2025.

The Site is located within the Greater Manchester combined authority (GMCA) air quality management areas (AQMAs). A review of local monitoring data indicates that there have been exceedance of national air quality objectives (AQOs) for nitrogen dioxide (NO_2) at the Site during the baseline year. Particulate matter (PM_{10} and $PM_{2.5}$) concentrations have been in compliance national AQOs at the Site.

A Site Suitability Assessment has shown that NO_2 concentrations at the Proposed Development's locale, has the potential for exceedance of the annual mean NO_2 AQOs, from emissions associated with Oxford Road and Mancunian Way. Compliance of the annual mean PM_{10} and $PM_{2.5}$ is anticipated at the at the Proposed Development, with $PM_{2.5}$ concentration likely to meet the 2028 and 2040 $PM_{2.5}$ targets. The Proposed Development is to be mechanically ventilated, with air intakes located at roof level (~37m).

The impacts of construction work on dust soiling and human health have been assessed. This assessment identified activities are likely to pose high risk to dust soiling effects and to human health for construction; mitigation measures are recommended within the assessment based on the level of risk identified. Provided these are included in the dust management strategy as part of the submission within the Construction Management Plan, for example through a planning condition, the residual impacts are considered to be not significant.

Potential operational impacts are possible from emissions from the proposed energy strategy and trip generation of the Proposed Development. Based on information provided by Buro Happold, the projects transport consultants, the Proposed Development will not lead to the production of any additional traffic compared to the existing use, as such, falls below the EPUK and IAQM screening criteria for a detailed assessment. Whilst the existing building has been unoccupied since Summer 2024, the library has been temporarily relocated to the John Dalton building, directly adjacent to the Proposed Development and still generating trips in the baseline. Therefore, the potential impact of additional road traffic on local air quality is considered insignificant, and a detailed assessment is not required.

The energy strategy for the Proposed Development is primarily all-electric energy supply, utilising zero-emission technologies such as a centralised air source heat pump (ASHP). A life-safety generator is to be provided and is to be tested less than 18 hours testing per year.

Based on the assessment results, the Site is considered suitable for the Proposed Development without the inclusion of operational mitigation. Therefore, air quality should not be considered as a constraint to the planning consent as the Proposed Development conforms to the principles of the National Planning Policy Framework, Local Plan policy and Manchester City Council Air Quality and Planning Technical Guidance.

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2 Introduction

Buro Happold has been appointed by Manchester Metropolitan University (the 'Client') to undertake an air quality assessment to support the Full Planning Application for the proposed development at All Saints Library, Manchester (referred to as the 'Site').

This report reviews applicable legislation and guidance regarding air quality, appraises baseline air quality conditions at the Site, and assesses the potential impact of the Proposed Development on air quality during both the construction and operation phases. Relevant mitigation measures are also recommended for implementation where necessary.

2.1 Proposed Development

The proposals comprise the development of a nine storey library building (Use Class F1), public realm, access and servicing arrangements and other associated works. (referred to as the 'Proposed Development').

2.2 Site Context

The Site is located within Manchester City Council (MCC) administrative area at the approximate National Grid Reference (NGR):X 384230, Y 397165.

This 0.6 hectare Site in Manchester City Centre is bound by Oxford Road to the east, by the Mancunian Way to the north, Manchester Metropolitan University's Faculty of Business and Law to the west, and All Saints Park to the south. The Site currently comprises the vacant All Saints Library Building - a seven-storey brick building. The building on site is considered no longer fit for purpose and has been vacant since summer 2024. The Site is subject to a planning application (submitted August 2025) for demolition which is due to be determined early December 2025.

A visual representation of the Site boundary is displayed in Figure 2-1.

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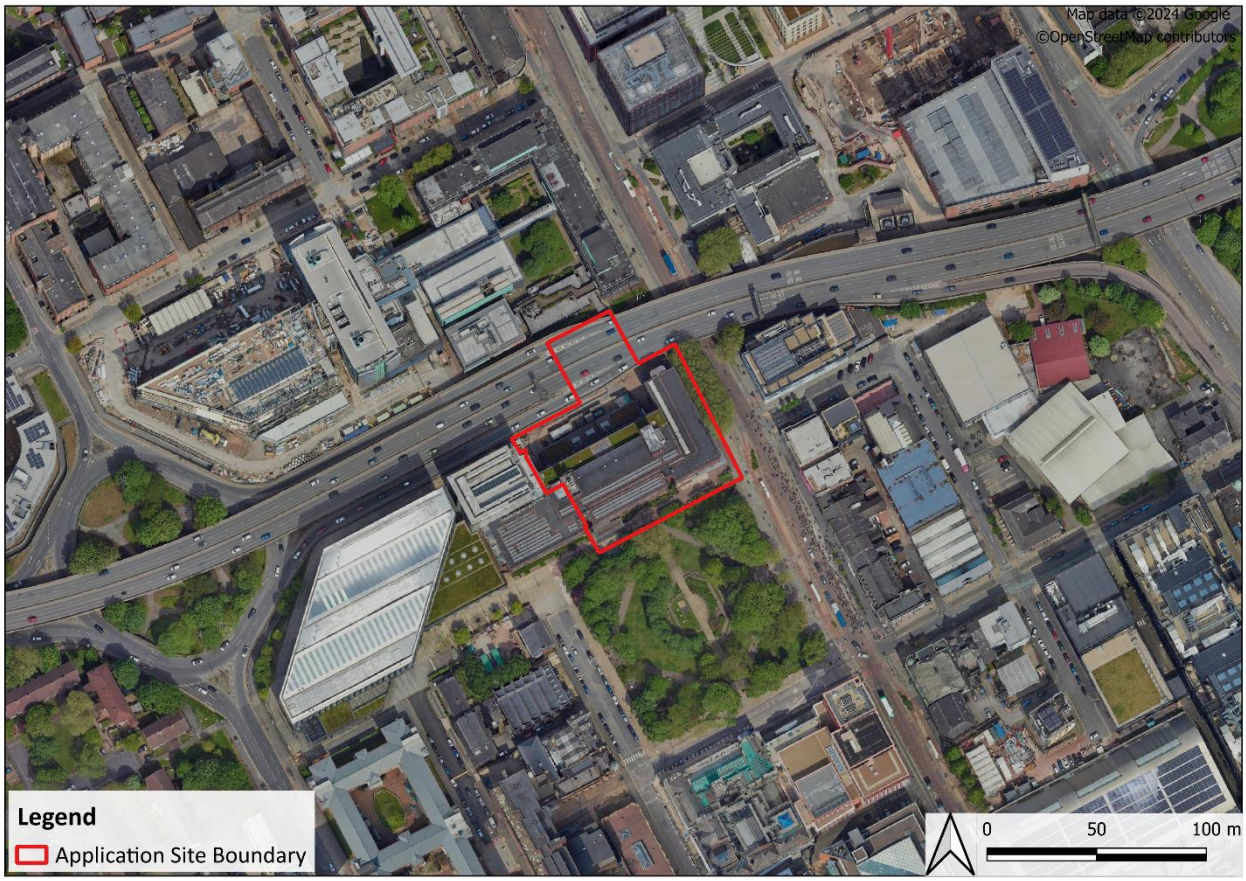


Figure 2-1 Site location and the surrounding area.

2.3 Scope of Assessment

The proposed methodology for this Assessment was issued to the MCC Environmental Protection Team. MCC agreed to the approach via email on the 1st of October 2025. A summary of the scope of the assessment methodology for the assessment is as follows:

- Determination of baseline scenario, using MCC monitoring data;
- Assessment of potential air quality impacts during the construction phase;
- Assessment of potential air quality impacts during the operational phase;
- Assessment of the suitability of the Site for the Proposed Development; and
- Identification of required mitigation measures.

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3 Legislation and Guidance

3.1 Legislation

This section appraises the current legislation used to inform the Air Quality Assessment:

- The Environment Act[1,2];
- Part III of the Environmental Protection Act (EPA) 1990 (as amended)[3]
- The Air Quality (England) Regulations 2000[4];
- The Air Quality (England) (Amendment) Regulations 2002[5];
- The Air Quality Standards Regulations 2010[6];
- The Air Quality Standards (Amendment) Regulations 2016[7];
- Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019[8]; and
- Environmental Targets (Fine Particulate Matter) (England) Regulations 2023[9].

3.1.1 Air Quality Objectives

The Air Quality Strategy[14] (AQS) provides the framework for ensuring the air quality limit values are complied with based on a combination of international, national and local measures to reduce emissions and improve air quality. The Strategy also sets out how the different sectors of industry, transport and local government, can contribute to achieving these Air Quality Objectives (AQOs).

The AQOs set out the extent to which the Government expects the standards to be achieved by a certain date. They take account of economic efficiency, practicability, technical feasibility and timescale. The AQOs for use by local authorities are prescribed within the Air Quality (England) Regulations 2000[4], and the Air Quality (England) (Amendment) Regulations 2002[5]. The national air quality objectives (AQOs) for Nitrogen Dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$) are detailed in Table 3-1.

[1]The Stationery Office (1995) The Environment Act 1995 (Part IV), London
[2]The Stationary Office (2021) Statutory Instrument 2021, The Environment Act 2021, London
[3]The Stationery Office (1990) Environmental Protection Act 1990 - [online] (Last accessed: 16/10/2024), Available at: legislation.gov.uk/ukpga/1990/43/part/III
[4]The Stationery Office (2000) Statutory Instrument 2000, No 928, The Air Quality (England) Regulations 2000, London
[5]The Stationery Office (2002) Statutory Instrument 2002, No 3043, The Air Quality (England) (Amendment) Regulations 2002, London
[6]The Stationery Office (2010) Statutory Instrument 2010, No 1001, The Air Quality Standards Regulations 2010, London
[7]The Stationery Office (2016) Statutory Instrument 2016, No 1184, The Air Quality Standards (Amendment) Regulations 2016, London
[8]The Stationary Office (2019) Statutory Instrument 2019, No 74, The Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019
[9]The Stationery Office (2023) Statutory Instrument 2023, No 96, The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023

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Table 3-1 National Air Quality Objectives relevant to the assessment.

Pollutant	Objective
Nitrogen dioxide (NO_2)	200 µg/m^3 measured as a 1-hour mean, not to be exceeded more than 18 times a year
	40 µg/m^3 measured as an annual mean
Particulate Matter (PM_{10})	50 µg/m^3 measured as a 24-hour mean, not to be exceeded more than 35 times a year
	40 µg/m^3 measured as an annual mean
Particulate Matter ($PM_{2.5}$)	20 µg/m^3 measured as an annual mean

The objectives apply at locations where members of the public are likely to be regularly present and exposed over the averaging period of the objective. Examples of where the annual mean objectives should apply are provided in Defra's Local Air Quality Management Technical Guidance (LAQM.TG (22))[10] and include building facades of residential properties, schools, and hospitals. The annual mean objectives are irrelevant for the building facades of offices or other places of work where members of the public do not have regular access, kerbsides or gardens.

The 24-hour objective for PM_{10} applies at the same locations as the annual mean objective, in gardens of residential properties and at hotels. The 1-hour objective for NO_2 also applies wherever members of the public might regularly spend one hour or more, including outdoor eating locations, pavements of busy shopping streets, carparks and bus stations which are not fully enclosed. The 1-hour objective does not apply at kerbside sites where the public does not have regular access.

3.1.2 $PM_{2.5}$ Interim Targets

The Environment Act was amended in 2021, requiring the government to set new targets for fine particulate matter ($PM_{2.5}$). The subsequent Environmental Targets (Fine Particulate Matter) (England) Regulations 2023[11] set the following targets:

- Annual mean $PM_{2.5}$ concentration of 10 µg/m^3 by 2040; and
- At least a 35% reduction in population exposure of $PM_{2.5}$ by the end of 2040.

The Environment Act 2021 requires the publication of an Environmental Improvement Plan every five years, with progress against the set targets reported on annually. The Environmental Improvement Plan 2023[12] sets the following interim target for $PM_{2.5}$:

- Annual mean $PM_{2.5}$ concentration of 12 µg/m^3 by 2028; and
- At least a 22% reduction in population exposure of $PM_{2.5}$ by the end of 2028.

[10]Defra. (2022). Local Air Quality Management Technical Guidance (TG22). Retrieved from https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf
[11]HM Government. (2023). The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023.
[12]Defra. (2023). The Environmental Improvement Plan 2023. https://www.gov.uk/government/publications/environmental-improvement-plan

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The $PM_{2.5}$ Targets: Interim Guidance[13] was published in 2024 and outlines some actions to be taken by applicants and local authorities in addressing the new $PM_{2.5}$ target. Air quality assessment reports would need to include evidence of identifying key pollution sources within their schemes and proof of actions taken to minimise $PM_{2.5}$ emissions.

3.2 Policy

The following policy has informed the Air Quality Assessment:

- The Air Quality Strategy[14];
- The Environmental Improvement Plan[12];
- The Clean Air Strategy (CAS)[15];
- The National Planning Policy Framework (NPPF) 2024[16]; and
- The Planning Practice Guidance (PPG)[17].

3.3 Guidance

The following guidance has informed the Air Quality Assessment and is detailed further in Appendix 2:

- Defra's Local Air Quality Management Technical Guidance (LAQM.TG.22)[10];
- The Environmental Protection UK (EPUK) and the Institute of Air Quality Management's (IAQM) Air Quality Guidance for Planning (EPUK and IAQM planning guidance)[18]; and
- The IAQM 'Guidance on the assessment of dust from demolition and construction'[19].

3.4 Regional Policy and Guidance

3.5 The Greater Manchester Strategy (2021-2031)

The Greater Manchester Strategy 2021-2031[20] is the Greater Manchester Combined Authority's (GMCA) plan for recovery and renewal following the pandemic. It provides a clear direction of travel for the city-region, focused on those areas where all parts of the conurbation need to work together to achieve the shared vision of Good Lives for

[13]Defra. (2024). $PM_{2.5}$ Targets: Interim Planning Guidance. https://uk-air.defra.gov.uk/pm25targets/planning
[14]Defra. (2007). The Air Quality Strategy for England, Scotland, Wales and Northern Ireland – [online] (Last accessed: 16/10/2024), Available at: www.gov.uk/government/publications/the-air-quality-strategy-for-england-scotland-wales-and-northern-ireland-volume-1
[15]Defra. (2019). The Clean Air Strategy – [online] (Last accessed: 16/10/2024), Available at: www.gov.uk/government/publications/clean-air-strategy-2019
[16]Ministry of Housing, Communities & Local Government. (2024). National Planning Policy Framework, Department for Communities and Local Governments, London
[17]Ministry of Housing, Communities & Local Government. (2019). Planning Practice Guidance, London
[18]Environmental Protection UK and Institute of Air Quality Management. (2017). Land-Use Planning & Development Control: Planning for Air Quality v1.2 – [online] (Last accessed 30/10/2023), Available at: iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf
[19]Institute of Air Quality Management. (2024). Guidance on the assessment of dust from demolition and construction v2.2 Available at: https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf
[20]GMCA. (2021). Greater Manchester Strategy 2021-2031. Available at: https://greatermanchester-ca.gov.uk/media/dacn40l3/gms-strategy-2021-to-2031-good-lives-for-all-previous-strategy.pdf

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All: that Greater Manchester is a great place to grow up, get on and grow old; a great place to invest, do business, visit and study.

With regards to improving the environmental conditions of GM, particularly air quality, the following statement is made in the strategy:

Greater Manchester's system-wide priorities:

'We will create a carbon neutral Greater Manchester by 2038, with better air quality and natural environment.'

3.5.1 Further regional guidance

Further relevant regional guidance includes:

- Greater Manchester Transport Strategy 2040[21] and Our Five-Year Transport Delivery Plan 2021-2026[22];
- GMCA 5-year Environment Plan 2025-2030[23];
- GMCA Air Quality Action Plan[24]; and
- GM Clean Air Plan[25].

3.6 Local Policy and Guidance

3.6.1 Manchester Core Strategy (2012)

The Manchester Core Strategy Development Plan[26] is the primary strategic planning document in the City's Local Development Framework. It outlines the council's vision for Manchester from 2012 to 2027 and sets out planning policies that aim to help the city achieve the Local Development Framework's vision.

The Manchester Core Strategy Development Plan has adopted a number of policies relevant to air quality, including the following:

Policy EN 16 (Air Quality)

'The Council will seek to improve the air quality within Manchester, and particularly within Air Quality Management Areas, located along Manchester's principal traffic routes and at Manchester Airport. Developers will be expected to take measures to minimise and mitigate the local 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 plants.

[21]TfGM. (2021a). Greater Manchester Transport Strategy 2040. Retrieved 2 12, 2023, from https://assets.ctfassets.net/nv7y93idf4jq/01xbKQQNW0ZYLzYvcj1z7c/4b6804acd572f00d8d728194ef62bb89/Greater_Manchester_Transport_Strategy
[22]TfGM. (2021b). Our Five Year Transport Delivery Plan. Retrieved February 11, 2023, from https://downloads.ctfassets.net/nv7y93idf4jq/5Y95swfmf42WVZozNA4fE/84092928376473c507ec000098b18c35/Delivery_Plan_2021-2026_Jan_2021_Final.p
[23]GMCA. (2024). 5-year Environment Plan 2025-2030. Retrieved February 11, 2023, from https://democracy.greatermanchester-ca.gov.uk/documents/s34876/13A%205YEP%20Draft.pdf
[24]GMCA/TfGM. (2016). Greater Manchester Air Quality Action Plan. Retrieved February 11, 2023, from https://www.manchester.gov.uk/download/downloads/id/24676/greater_manchester_air_quality_action_plan_-_2016-2021.pdf
[25]GMCA. (2023). Greater Manchester Clean Air Plan. Retrieved February 11, 2023, from https://cleanairgm.com/clean-air-plan/
[26]MCC. (2012). Manchester Core Strategy Development Plan. Retrieved from https://www.manchester.gov.uk/info/200074/planning/3301/core_strategy

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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.'

Policy DM 1 (Development Management)

Policy DM 1 outlines the key parameters that should be addressed as part of the planning proposal, those relevant to Air Quality include:

'Effects on amenity, including privacy, light, noise, vibration, air quality, odours, litter, vermin, birds, road safety and traffic generation. This could also include proposals, which would be sensitive to existing environmental conditions, such as noise.

- *Design for health*
- *Vehicular access and parking*
- *Effects relating to biodiversity, landscape, archaeological or built heritage.*
- *Green infrastructure including open space, both public and private.'*

3.6.2 Addendum to Manchester Core Strategy (2024)

The GMCA launched the Places for Everyone Joint Development Plan Document (PfE)[27] to create a comprehensive, long-term strategy for sustainable growth across nine Greater Manchester districts: Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford, and Wigan. This plan aims to promote sustainable development, support infrastructure development, provide housing and employment and protect environmental assets. The Manchester Core Strategy was updated in March 2024 to align with the Places for Everyone Plan. This ensures that local policies in Manchester are consistent with the regional strategy.

Amendments in Manchester Core Strategy that are relevant to Air Quality include:

CS Policy EN 16 Air Quality

Section to be replaced:

', and particularly within Air Quality Management Areas, located along Manchester's principal traffic routes and at Manchester Airport' from the first sentence:

Replaced by PfE Policy JP-S5: Clean Air

'Policy JP-S5: Clean Air A comprehensive range of measures will be taken to support improvements in air quality, focusing particularly on locations where people live, where children learn and play, where there are impacts on the green infrastructure network and where air quality targets are not being met, including:

[…]

Determining planning applications having regard to the most recent development and planning control guidance published jointly by the Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK), and the

[27]MCC. (2024). Places for Everyone Joint Development Plan Document for Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan 2022 To 2039. Retrieved from: https://www.greatermanchester-ca.gov.uk/media/3ccbetc4/post-adoption-places-for-everyone-joint-development-plan.pdf

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most recent IAQM Guidance on the Assessment of Dust from Demolition and Construction, or relevant successor guidance, including the requirement for developers to submit construction management plans as appropriate;

Requiring applications for developments that could have an adverse impact on air quality to submit relevant air pollution data so that adverse impacts on air quality can be fully assessed and development only permitted where they are acceptable and/or suitable mitigation can be provided;

[…]

3.6.3 MCC Air Quality and Planning Technical Guidance (2022)

One of the actions outlined in the GM air quality action plan is to develop air quality and planning guidance. The Air Quality and Planning Technical Guidance document[28] aims to encourage developers to follow good practice and to mitigate impacts. It outlines the expectations of MCC with regards to air quality in the planning context for both the construction and operation of a development.

The guidance recommends following IAQM and EPUK guidance when assessing impacts associated with both construction and demolition. It also recommends usage of Defra's damage cost calculations (for additional pollutant population exposure emissions costs) for major developments and/or where there may be a cumulative impact.

[28]MCC. (2022). Air Quality & Planning Technical Guidance. Retrieved June 2023, from: https://www.manchester.gov.uk/downloads/download/5199/information_for_developers

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4 Baseline Assessment

4.1 Baseline Assessment methodology

This section appraises the baseline air quality conditions at the Site, based on information from the following sources:

- GMCA 2024 Air Quality Annual Status Report[29];
- Defra-modelled background air pollution map[30];
- UK Pollutant Release and Transfer Register (PRTR)[31];
- Part A1 permitted installations regulated by Environmental Agency[32];
- Ordnance Survey data[33] and aerial photography from Google Maps[34];
- Automatic Urban and Rural Monitoring Network (AURN)[35];
- UK Air Interactive monitoring networks map[36]; and
- National Atmospheric Emission Inventory (NAEI)[37].

For this assessment, 2024 is considered the most representative typical baseline year as it is the latest year with fully ratified air quality monitoring data representing the post-pandemic baseline, following the Institute of Air Quality Management (IAQM) recommendation[38].

4.2 Local Air Quality Management

An AQMA has been declared across Manchester city centre and surrounding arterial roads owing to consistent exceedances of the AQO for the annual average concentration of NO_2. The entirety of the Site is within the AQMA.

It should be noted that the pollutant concentrations recorded in 2020 and 2021 are lower than previous years as a direct result of reduced traffic levels during the COVID-19 pandemic. As such, the pollutant concentrations recorded in 2020 and 2021 are not considered to be representative of 'normal' air quality conditions but have been presented for information purposes only.

[29]MCA. (2025). Greater Manchester Combined Authority 2024 Air Quality Annual Status Report. Retrieved June 2023, from https://downloads.ctfassets.net/tlpgbvy1k6h2/1DjJeKrzEKA1elyT5pVcAI/8494037e574f88380d1b25149b99ff6b/Greater_Manchester_Air_Quality_Annual_Status_Report_2024.pdf
[30]Defra. (2024). Background Mapping data for local authorities - 2021. https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021
[31]UK Pollutant Release and Transfer Register. Defra. https://www.gov.uk/guidance/uk-pollutant-release-and-transfer-register-prtr-data-sets
[32]Public Registers Online. Environmental Agency. https://environment.data.gov.uk/public-register/view/index
[33]Ordnance Survey data. https://www.ordnancesurvey.co.uk/.
[34]Google Earth. https://www.google.com/intl/en_uk/earth/about/
[35]Defra. (2022). UK Air Information Resource. Automatic Urban and Rural Network (AURN). https://uk-air.defra.gov.uk/networks/network-info?view=aurn
[36]UK Air. Interactive monitoring networks map. https://uk-air.defra.gov.uk/interactive-map
[37]National Atmospheric Emission Inventory. https://naei.beis.gov.uk/
[38]IAQM. (2023). Use of 2020 and 2021 Monitoring Datasets. https://iaqm.co.uk/wp-content/uploads/2013/02/IAQM_2020_and_2021_monitoring_datasets_v1.1EC2.pdf

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4.3 Local Authority Air Quality Monitoring

GMCA has established an extensive monitoring network for Local Air Quality Management (LAQM) purposes and to support the Greater Manchester Clean Air Plan (GM CAP). According to the latest annual status report (ASR)[29], GMCA has deployed 24 automatic monitoring locations and 337 non-automatic (diffusion tube) monitoring locations for LAQM. In addition, 267 non-automatic roadside monitoring locations have been operated for monitoring and evaluation purposes under the GM CAP. Monitoring locations within representation of monitoring data in the vicinity of the Site are presented in Figure 4-1.

Monitoring data from 2024 is considered the most appropriate year for determining baseline air quality conditions in the aftermath of the COVID-19 pandemic.

Recent NO_2 monitoring data for the automatic monitoring stations within the vicinity of the Site is detailed in Table 4-1.

Table 4-1 Annual average NO_2 concentration and number of exceedances of the short-term AQO at automatic monitors in proximity to the Site.

Station ID	Distance from proposed project (m)	Station Type	Air Quality Objectives	Annual average concentration (µg/m³)					
				2019	2020	2021	2022	2023	2024
NO_2									
MAN1	301	Kerbside	Annual Mean (40 µg/m³)	**59**	36	**44**	**43**	**41**	**44**
			Number of hours with concentrations >200 µg/m³ (18 allowable)	1	0	0	3	0	0
MAN3	755	Urban Centre	Annual Mean (40 µg/m³)	36	27	30	29	27	27
			Number of hours with concentrations >200 µg/m³ (18 allowable)	0	0	0	0	0	0
PM_{10}									

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Station ID	Distance from proposed project (m)	Station Type	Air Quality Objectives	Annual average concentration (µg/m³)					
				2019	2020	2021	2022	2023	2024
MAN1	301	Kerbside	Annual Mean (40 µg/m³)	26	18	18	18	18	21
			Number of hours >50 µg/m³ (35 allowable)	18	5	2	8	4	0
MAN3	755	Urban Centre	Annual Mean (40 µg/m³)	20	15	15	17	15	15
			Number of hours >50 µg/m³ (35 allowable)	7	1	2	4	1	0
$PM_{2.5}$									
MAN3	755	Urban Centre	Annual Mean (20 µg/m³)	12	8	9	10	9	9

As shown in Table 4-1, there were exceedances of the annual mean (40 µg/m³) NO_2 AQOs in 2024 at Manchester Oxford Road (MAN1), the closest automatic monitoring location to the Site. The 2024 NO_2 annual mean concentration at this location is 44 µg/m³, exceeding the AQO level. The 1-hour mean NO_2 concentration at this location did not exceed the threshold of 200 µg/m³ in 2024, although there were three recorded exceedances in 2022. This is less than the allowable exceedances defined in the AQO (18 times per year).

For particulate matter, the 2024 annual mean concentration of PM_{10} measured at MAN1 is 21 µg/m³, which is below the annual average AQO (40 µg/m³). Hourly mean PM_{10} concentrations exceeded the threshold of 50 µg/m³ four times, which complies with the allowable 35 times. MAN3 is the only nearby automatic monitoring station that monitors $PM_{2.5}$. Results at this location have not exceeded the annual average $PM_{2.5}$ AQO (20 µg/m³) since 2019. MAN3 currently meets the 2028 and 2040 $PM_{2.5}$ targets of 12 µg/m³ and 10 µg/m³, respectively.

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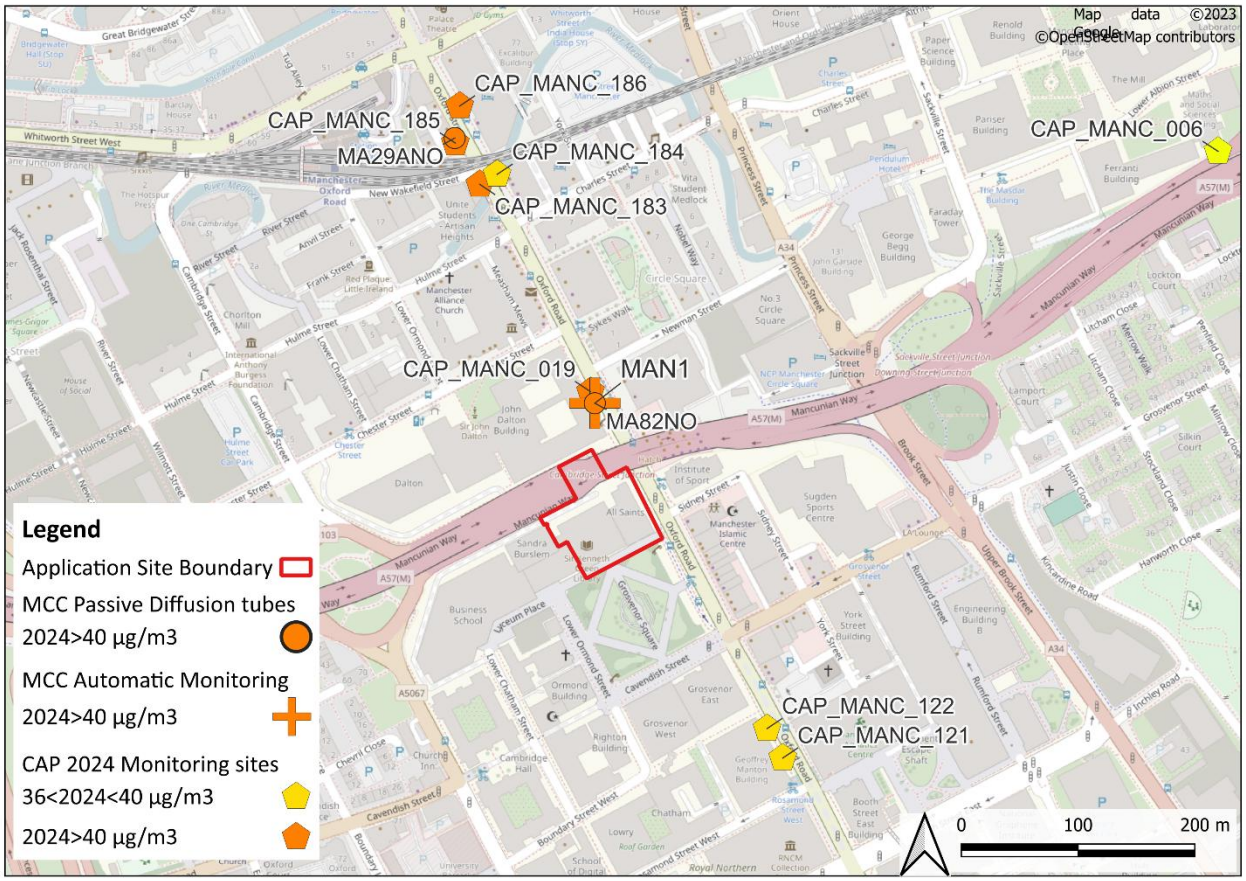


Figure 4-1 MCC and CAP Annual Mean NO_2 concentrations in 2024 at Monitoring Locations in the vicinity of the Site.

As shown in Figure 4-1, the closest passive monitoring locations to the Proposed Development are CAP_MANC_019 and MAN82NO which have exceeded the annual mean NO_2 AQO, with monitored concentrations of 40.9 µg/m^3 and 41.7 µg/m^3 respectively. To the south of the Proposed Development CAP_MANC_121/122 both monitored below the annual mean NO_2 AQO at 36.8 µg/m^3 and 37.5 µg/m^3 respectively.

A five-year regression analysis has been undertaken on the average annual NO_2 concentrations recorded at all passive diffusion tube monitoring locations with 5 years' worth of data within GMCA's administrative area between 2019 and 2024 (Figure 4-2), excluding 2020 and 2021 which were heavily influenced by the COVID-19 pandemic. Figure 4-2 demonstrates the annual average NO_2 concentrations at all nearby monitoring locations during 2020-2024. Overall, pollution concentrations have remained stable over the five years, with a slight increase from 2021 to 2024 following the COVID-19. The lowest concentrations were recorded in 2020, attributed to behavioural changes during the COVID-19 pandemic.

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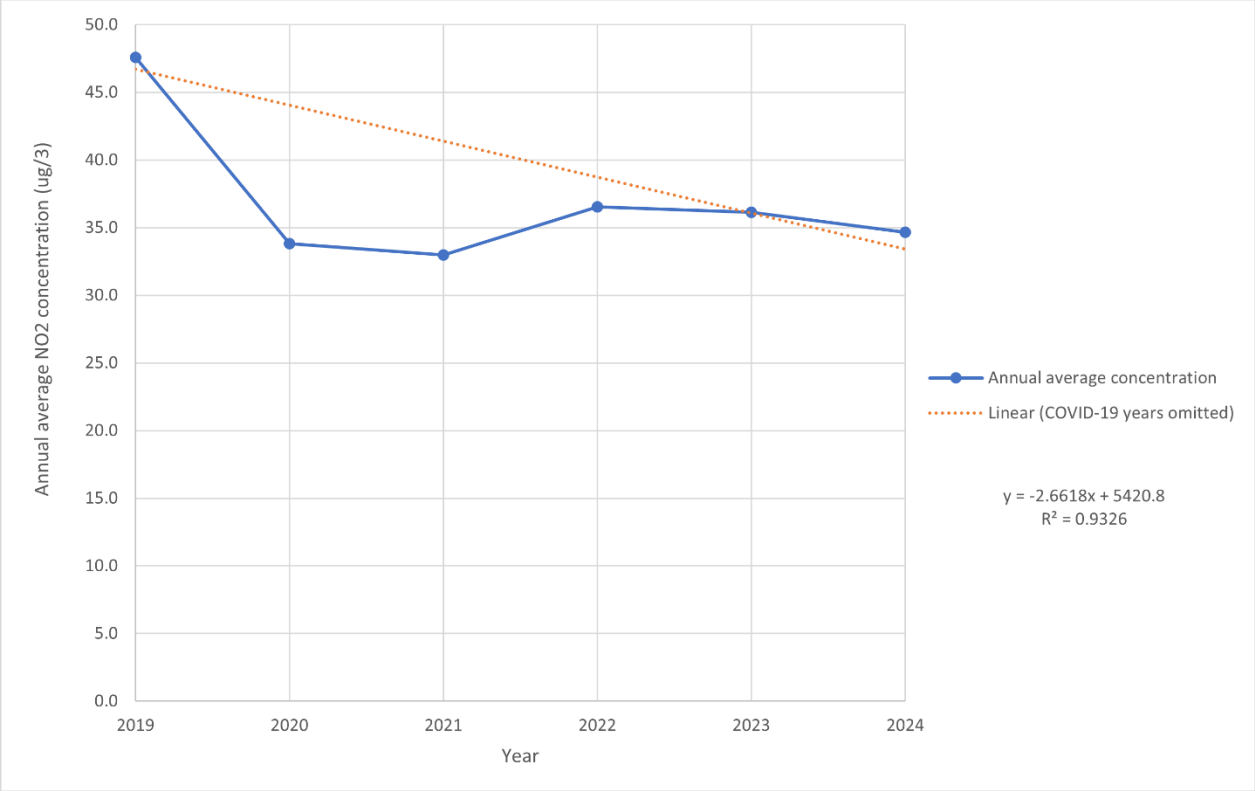


Figure 4-2 Linear Regression Analysis

4.4 Nearby Point Source Emission

There is one point source located adjacent to the Site operated by Manchester Metropolitan University registered under the National Atmospheric Emission Inventory (NAEI)[39], with another operated by University of Manchester located approximately 470 m southeast of the Site. Due to the nature of the facility and the urban fabric between the facility and the Site, it is assumed that there will not be significant impacts on air quality at the Site. There are no UK pollutant release and transfer register (PRTR) registered emission sources[40] or Defra registered Part A1 air pollution emission sources[41] within 500 m from the Site. The nearest facilities registered under Part B Environmental Permits[42] are more than 500 m away and therefore will not have a significant impact on air quality at the Site, so have been scoped out.

The prevailing wind is from the south-west, which will transport pollutants to the north-east of the stack, away from the Proposed Development. There are multiple residential properties close to and downwind of the stack. It is assumed that the environmental permit will ensure that the operation of the facility does not significantly adversely impact air quality at these receptors. As these receptors are in a worst-case location (i.e. closer to and downwind of the

[39]National Atmospheric Emission Inventory. https://naei.beis.gov.uk/
[40]Defra. (2025). The UK Pollutant Release and Transfer Register. https://www.gov.uk/guidance/uk-pollutant-release-and-transfer-register-prtr-data-sets
[41]Environmental Agency. Public Registers Online. https://environment.data.gov.uk/public-register/view/index
[42]MCC. (2025). Environmental permit register. https://www.manchester.gov.uk/info/500217/licence_-_public_registers/8272/environmental_permit_register/3

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stack) than the Site, it is assumed that the facility will not have a significant impact on air quality at the Site. Therefore, these installations are not considered further.

4.5 Background Air Quality Data

Defra model background air pollution data[30] for NO_2, PM_{10}, and $PM_{2.5}$ for each 1km-by-1km OS grid square. Background pollutant concentrations are modelled from the reference year of 2021 and based upon ambient monitoring and meteorological data from 2021 with projections for future years up to 2040. Modelled background concentrations for 2024 in the grid square where the Site lies (NGR: X 384500, Y 397500) are presented in Table 4-2, and the modelled background concentrations are well below the long-term AQO for each pollutant.

Table 4-2 Modelled Defra background concentrations of NO_2, PM_{10}, and $PM_{2.5}$ at grid square (428500, 431500).

Year	Annual mean background concentrations (µg/m^3)			
	NO_2	NO_x	PM_{10}	$PM_{2.5}$
Baseline year (2024)	22.5	32.9	15.1	8.1
Monitoring Station (MAN3)(2024)	27.0	-	15.0	9.0
Future year (2030)	17.8	25.1	14.8	7.8

Background pollution concentration data from both sources are below AQOs. Annual average NO_2, $PM_{2.5}$ 2024 concentrations measured at the nearest in-situ air quality monitoring station, MAN3 (Table 4-1), are higher by ~18% compared to the Defra model, while the PM_{10} concentration are comparable. The decrease in background concentrations measured at MAN3 in 2019-2024 and modelled by Defra suggests that air quality is expected to improve, and compliance of the AQO are likely to continue to occur in future years.

4.6 Summary of Baseline Data

The baseline assessment has shown that monitored baseline concentrations (2024) at monitoring locations within the vicinity of the Site, along the Oxford Road, currently exceed with the UK NO_2 AQO (>40 µg/m^3), with the exception of two monitoring locations CAP_MANC_121/122 both monitoring below the annual mean NO_2 AQO at 36.8 µg/m^3 and 37.5 µg/m^3 respectively.

The nearest automatic monitoring site location (MAN1) has been in compliance with the PM_{10} AQOs, with urban background monitor MAN3 in compliance with both PM_{10} and $PM_{2.5}$ AQOs in recent years, including compliance with the 2028 interim $PM_{2.5}$ targets and 2040 $PM_{2.5}$ targets.

There are no sources of industrial pollution that are likely to impact air quality at the Site. Furthermore, the Defra predicted background concentrations for NO_2, PM_{10} and $PM_{2.5}$ are predicted to be in compliance with the relevant air quality objectives at the Site in 2024.

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5 Construction Impact Assessment

5.1 Construction Assessment Methodology

The assessment of construction dust impacts has been undertaken in line with the methodology outlined in the IAQM Guidance on the assessment of dust from demolition and construction[43].

An application (Ref:143943/FO/2025) for the demolition of the existing building was submitted in August 2025, which is due to be determined early December 2025. As such, demolition is not considered further within this report. Activities on the proposed construction site have been divided into three types to reflect their different potential impacts. These are:

- Earthworks;
- Construction; and
- Trackout.

The risk of dust emissions was assessed for each activity with respect to:

- Potential loss of amenities due to dust soiling; and
- The risk of health effects due to a significant increase in exposure to PM_{10}.

The first stage of the assessment involves screening to determine whether there are any sensitive receptors within the threshold distances defined by the IAQM guidance. A detailed assessment of the impact of dust from construction sites will be required where:

- A 'human receptor' is located within 250 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 250 m from the Site entrance; and/or
- 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 250 m from the Site entrance.

The magnitude of dust emission for each activity is determined based on the guidance, indicative thresholds, information available relating to the project and expert judgement. The risk of dust effects arising is based on the relationship between the dust emission magnitude and the sensitivity of the area. The risk of impact is then used to determine the mitigation requirements. Descriptors for magnitude of impact and impact significance used in this assessment of construction phase dust are given in the IAQM guidance on the assessment of dust from demolition and construction.

The IAQM guidance states that the primary aim of the risk assessment is to identify site-specific mitigation that, once implemented, should ensure that there will be no significant effect. Therefore, the assessment has been used to determine an appropriate level of mitigation for the construction phase. The determination of which mitigation measures are recommended includes elements of professional judgement.

[43] IAQM. (2024). Guidance on the assessment of dust from demolition and construction. https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf

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5.2 Construction Traffic Screening

A screening assessment has been undertaken with reference to the following EPUK and IAQM guidance indicative criteria. As the Site is located within an AQMA, a detailed assessment of the air quality impacts of construction vehicles is required if the construction traffic meets any of the criteria:

- A change of Light Duty Vehicle (LDV) flows of more than 100 AADT (inside an AQMA); and/or
- A change of HDV flows of more than 25 AADT (inside an AQMA).

5.3 Construction Impact Assessment

In accordance with screening criteria in the IAQM guidance, an assessment is required as sensitive human receptors are located within 250 m of the Site boundary. A receptor refers to a location that may be affected by dust emissions during construction. The Proposed Development requires a detailed assessment as there are a residential, educational and commercial buildings within the 250 m radius, as shown in Figure 5-1.

There are no designated ecological sites within 50 m of the Site boundary or 50 m of the routes used by construction vehicles on the public highway. Hence, the ecological impacts of construction dust are screened out of this assessment.

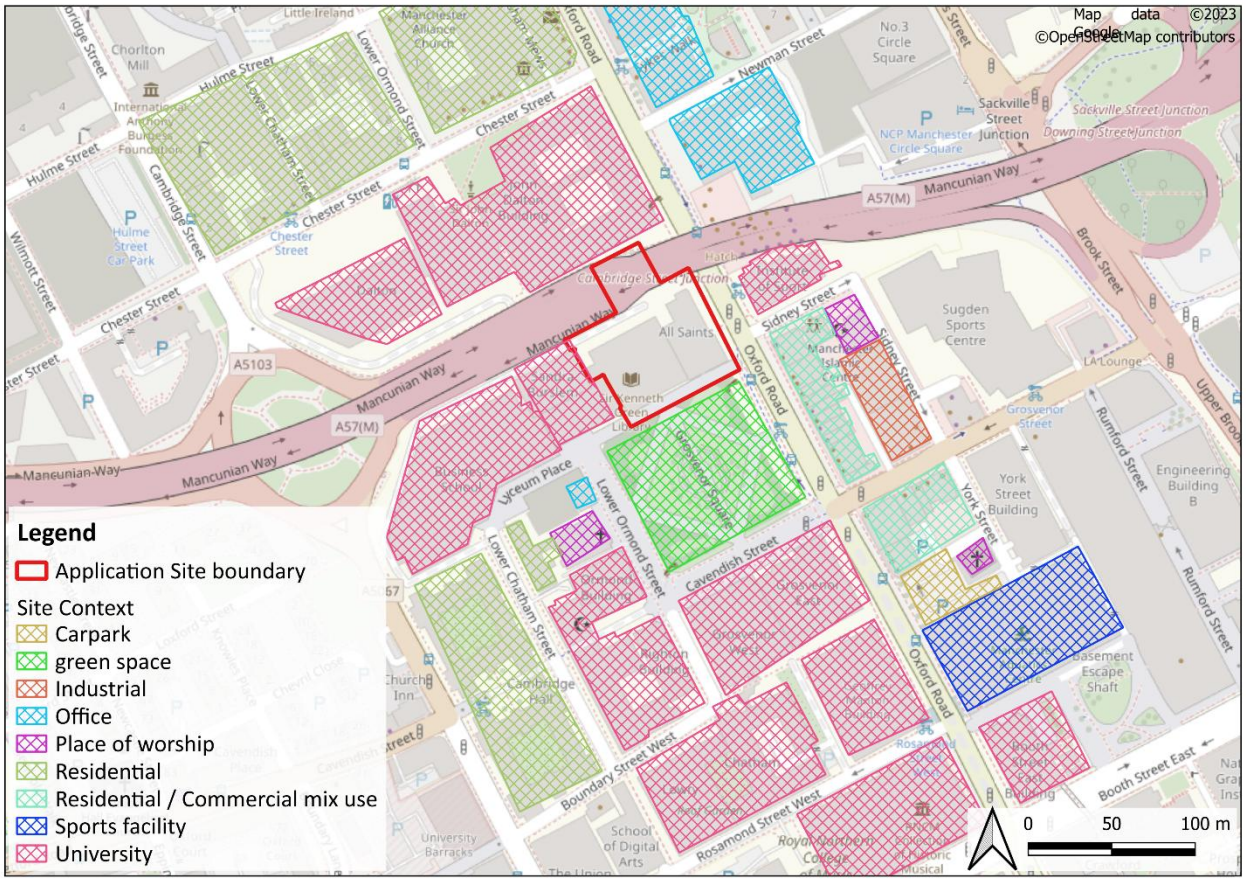


Figure 5-1 Surrounding Site Content.

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5.3.1 Potential dust emission magnitude

Dust emission magnitudes for construction activities and relevant justification are summarised in Table 5-1.

Table 5-1 Dust emission magnitudes and justifications.

Activity	Dust emission magnitude	Justification
Earthworks	Small	The total site area is within the IAQM threshold for Small magnitude of impact from earthworks is anticipated to be less than 6,000 m^2. The number of HDVs during earthworks is currently unknown, however all on-site HDV movements will be controlled within a CEMP. The soil type at the Site is loamy, some clayey, which is not considered dusty.
Construction	Large	The total building volume of the Proposed Development exceeds the IAQM threshold for large impact from construction (greater than 75,000 m^3). The Proposed Development is to utilise concrete which is a potentially dusty construction material. No onsite concrete batching or sandblasting is predicted. Therefore, the magnitude of impacts is considered to be large.
Trackout	Medium	Detailed construction traffic information is not available at this stage as a contractor has not yet been appointed. Based on the scale of the development and professional judgement, the maximum number of outward movements during peak construction is estimated maximum to be between 20 and 50 per day, as a reasonable worst-case assumption. Therefore, the magnitude of impacts is considered to be Medium.

5.3.2 Sensitivity of the study 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 those receptors;
- In the case of PM_{10}, the local background concentration; and
- Site-specific factors, such as whether there are natural shelters, such as trees or other vegetation, to reduce the risk of wind-blown dust.

Figure 5-2 presents an overview of identified construction dust receptors within 250 m of the Site. In determining the area sensitivity, the following has been considered:

- Sensitive receptors, of which there are more than 100 within 50 m to the Site; including a mix of educational, residential or places of work, with further sensitive receptors (educational, residential or places of work) within 100m to the north, west and east of the Proposed Development.
- All Saints Park located directly south of the Proposed Development; it's potential sensitivity to potential dust impacts as an amenity space has been acknowledged during the construction phase; and
- The background PM_{10} level in the existing baseline year (2024) at the Site is 15.1 µg/m^3 as monitored by automatic station MAN3 (Urban Background).

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Mayfield Park is located more than 500 m away from the Site and is therefore located outside of the 250 m for assessment screening criteria within the IAQM construction guidance and construction phase dust effects are not considered to be significant.

Considering the number and sensitivity of receptors, the sensitivity of the surrounding area to potential construction impacts is presented in Table 5-2, which is in line with the IAQM criteria.

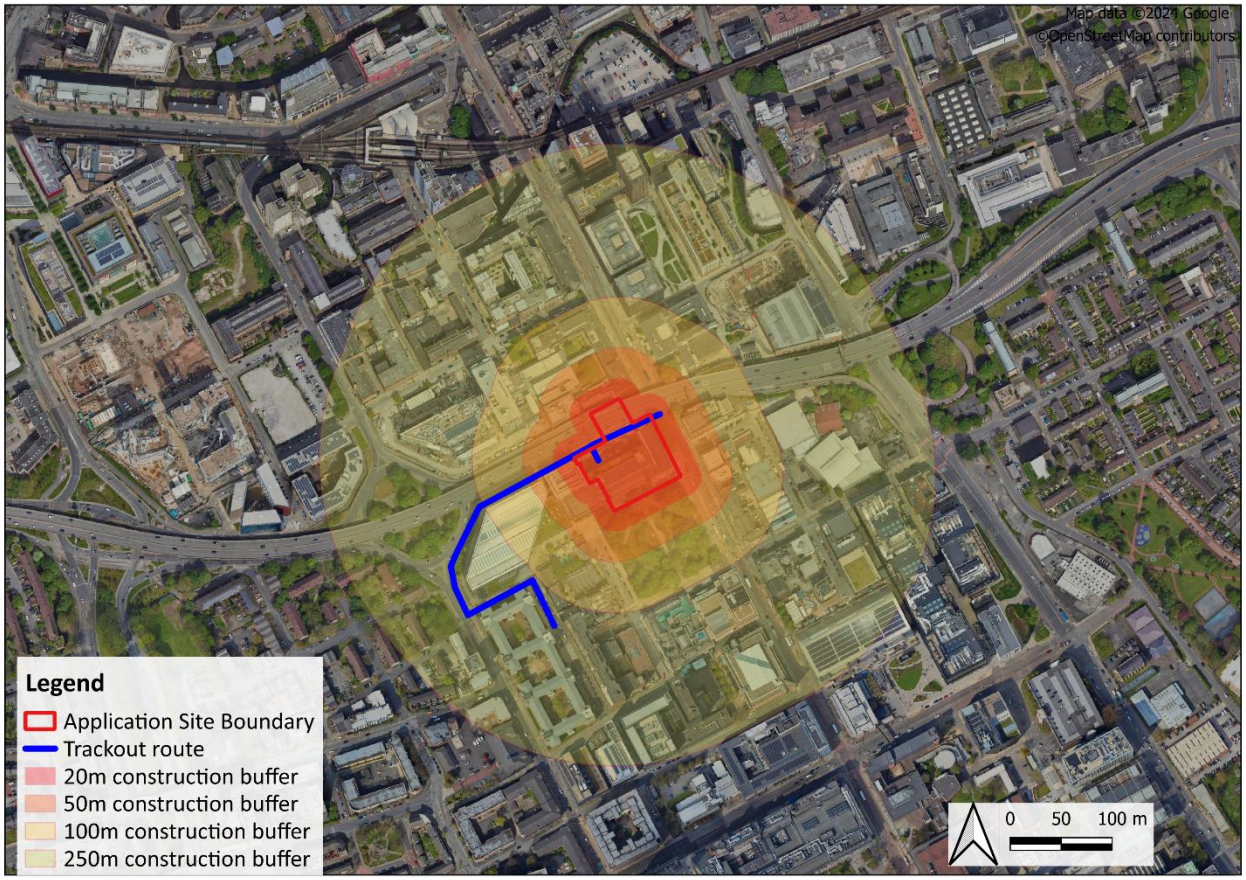


Figure 5-2 Areas within various distances from the construction site.

Table 5-2 Area sensitivity to human health.

Potential impact	Sensitivity of surrounding	
	On-site activities	Trackout
Dust soiling	High	High
Human health	Medium	Medium

5.4 Risks of dust impacts

The risks of dust impacts for relevant construction activities are summarised in Table 5-3. These results consider both the potential dust emission magnitude and the sensitivity of the area. It should be noted that activities on-site will be temporary in nature, and mitigation appropriate to the level of risk and in line with good industry practices will be

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implemented across the Site to ensure any adverse effects are minimised. Section 7 sets out appropriate mitigation measures to ensure the impact of construction activities will not be significant.

Table 5-3 Risk of dust impact.

Source	Sensitivity	Earthworks	Construction	Trackout
Magnitude	**On-site activities**	**Small**	**Large**	**Medium**
Dust soiling	High	Low Risk	Large Risk	Medium Risk
Human health	Medium	Low Risk	Medium Risk	Medium Risk

5.5 Construction Traffic Emissions

Information on traffic movements anticipated during construction works was unavailable for the completion of the Air Quality Assessment. However, the development quantum is not anticipated to result in a significant increase in movements above the EPUK and IAQM criterion. The duration of movements will be short-term in nature and are not considered further within the context of this assessment. Therefore, in accordance with the criterion presented within EPUK and IAQM guidance, additional road vehicle trips during the construction phase of the Proposed Development can be considered to have an insignificant effect on air quality.

5.6 NRMM Mobile Machinery

Exhaust emissions of NO_x and fine particulate matter (PM_{10} and $PM_{2.5}$) from NRMM associated with construction sites, may have a significant adverse effect on local air quality. LAQM.TG (22)[7] states that, with the application of suitable control measures and site management, exhaust emissions from on-site NRMM are *"unlikely to make a significant impact on local air quality. In the vast majority of cases, they will not need to be quantitatively assessed". Therefore, the potential impacts from NRMM are screened out as not significant.*

5.7 Cumulative Developments

The closest cumulative development to the Site is Cambridge Halls located approximately 85m to the south west of the Site, which has the potential to be undergoing construction concurrently with the Proposed Development. A CEMP has been submitted for this scheme as part of the planning application (Planning Ref: 142888/FO/2025) and outlines the mitigations measures to be implemented during construction. In addition it is anticipated that there will be a maximum HDV trip generation of 36 AADT associated with the Cambridge Hall development that are to be controlled via the DMP and a dust management plan to include dust management measures in line with appropriate guidance and implementation of trigger and action levels. As such, mitigation for this Proposed Development will therefore compliment the mitigation identified for the other cumulative developments, and ensure cumulative impacts are negligible.

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6 Operational Phase Assessment

6.1 Operational Phase Methodology

6.1.1 Road Traffic Emissions

The screening assessment has been undertaken following the EPUK and IAQM planning guidance indicative criteria:

- a change of LDV flows of more than 100 AADT (within an AQMA); and/or
- a change of HDV flows of more than 25 AADT (within an AQMA).

Where these criteria are exceeded, a detailed assessment is required, although the guidance advises that "the criteria provided are precautionary and should be treated as indicative", and "it may be appropriate to amend them on the basis of professional judgement".

Where impacts can be screened out there is no need to progress to a more detailed assessment.

6.1.2 Site Suitability

A qualitative Site Suitability Assessment has been undertaken to consider the exposure of future occupants, introduced by the Proposed Development, to current air quality. Site Suitability will be assessed qualitatively using monitoring data from MCC and Defra predicted background concentrations within the development locale.

To determine the significance of predicted air quality impacts based upon a Site Suitability Assessment, the EPUK and IAQM guidance states: "Where the air quality is such that an air quality objective at the building façade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means."

It has been confirmed by Buro Happold, the project engineers, that the current design utilises mechanical ventilation with air handling units (AHU's) and associated intakes located roof level (~37m) of the Proposed Development.

6.2 Operational Phase Impacts

The potential for air quality impacts during the operation of the Proposed Development are assessed in this section.

6.2.1 Road Traffic Emissions

Traffic generated by the Proposed Development during the operational phase can give rise to emissions of NO_x and particulate matter (PM_{10} and $PM_{2.5}$), which can potentially impact air quality at nearby sensitive receptors.

According to the information provided by Buro Happold, the project transport consultants, the operation of the Proposed Development will not generate any additional LDV or HDV movements on Site when compared with the existing building operation of the Proposed Development, as no new parking is to be provided. Whilst the existing building has been unoccupied since Summer 2024, the library has been temporarily relocated to the John Dalton building, directly adjacent to the Proposed Development and still generating trips in the baseline. As such, the trip generation is in line with the EPUK and IAQM criteria for screening out the requirement for a detailed operational traffic assessment (100 LDVs or 25 HDVs). Therefore, there is a predicted negligible effect, and operational traffic will not lead to significant impacts.

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6.2.2 Building Emission

The proposed building energy strategy for the primary energy supply is all-electric, utilising zero-emission technologies such as air source heat pumps (ASHPs), which will not lead to any on-site air pollution emissions. The Proposed development will include life safety generators for fire safety; these life safety generators will be tested for maintenance purposes for fewer than 18 hours per year. As no combustion sources are proposed for the primary energy supply, no local air quality impacts are anticipated, and a detailed assessment of the impacts of combustion emissions from the energy plant has been screened out of this assessment.

6.2.3 Future Site User Exposure

In line with LAQM.TG (22)[7], the 1-hour mean AQO applies to the Proposed Development due to its proposed use as a Library. As such, this section considers the predicted annua and 1-hour mean NO_2 concentrations at the Site.

The closest monitoring locations to the Proposed Development are located along the Oxford Road corridor approximately 40 m to the north are automatic monitoring location MAN1, alongside diffusion tube monitoring locations MA82NO and CAP_MANC_19. These locations all recorded exceedances of the NO_2 annual mean AQO in 2024, of 44.0 µg/m^3 and 40.9 µg/m^3 and 41.7 µg/m^3 respectively. These exceedances can be attributed to the nearby pollutant sources such as Mancunian Way and a high proportion of buses that utilise Oxford Road (35%), with the adjacent bus stops within 10 m of the monitoring locations. To the south of the Proposed Development, monitoring locations CAP_MANC_121 and CAP_MANC_122 recorded annual mean NO_2 concentrations of 36.8 µg/m^3 and 37.5 µg/m^3 respectively, both below the Air Quality Objective (AQO) of 40 µg/m^3. As such due to the proximity to Mancunian Way (<2m) and Oxford Road (16 m) there is potential for exceedances of the annual mean NO_2 AQO's at the Proposed Development.

It has been confirmed by Buro Happold, the project engineers, that the air handling units (AHU's) for the Proposed Development are located at roof level (~37m) within air intake air from the southern façade at roof level facing All Saints Park to minimise ingress of pollutants associated with Mancunian Way and Oxford Road, and discharging on the northern façade towards Mancunian Way. The current design does not include for the provision of openable windows.

The 1-hour averages at recorded at MAN1 have exceeded the 200 µg/m^3 threshold no more than three times in each of the past years, below the permitted 18 times which achieved the short-term NO_2 objective. As such, exceedances of the 1-hour mean NO_2 concentrations are not anticipated.

PM_{10} and $PM_{2.5}$ concentrations recorded at MAN1 have been in compliance with their respective annual mean AQOs and therefore exceedances of PM_{10} and $PM_{2.5}$ are not anticipated at the Site.

As such, there is potential for the Proposed Development to introduce receptors into an area of exceedance of the annual mean NO_2 concentrations, due to its location adjacent to Oxford Road to the east and Mancunian Way to the north. No exceedances of the annual mean $PM1_{10}$ and $PM_{2.5}$ AQOs are predicted, with $PM_{2.5}$ concentration in compliance with 2028 interim targets. The Proposed Development is to locate air intakes at roof level (~37m), to minimise the ingress of pollutants.

6.3 $PM_{2.5}$ Targets Interim Planning Guidance

With regards to the interim planning guidance relating to the new $PM_{2.5}$ targets (as outlined in Section 3.1.2), the Proposed Development includes the following measures to minimise $PM_{2.5}$ emissions and exposure:

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- Use of air source heat pumps as for the heating and hot water strategy of Proposed Development, minimising emissions from energy generation;
- During construction, best practice mitigation measures will be adopted to minimise $PM_{2.5}$ emissions. The mitigation measures will be informed by the construction dust risk assessment; and
- No additional parking to reduce private vehicle use and promote sustainable transport, including dedicated cycle parking at the Proposed Development.

In addition to the site specific measures proposed to minimise $PM_{2.5}$ emissions produced as a result of the Proposed Development, a review of the predicted Defra background annual mean $PM_{2.5}$ concentration for the future 2028 $PM_{2.5}$ interim targets and 2040 $PM_{2.5}$ targets is shown in Table 6-1.

Table 6-1 Annual Mean $PM_{2.5}$ concentrations compared against the 2028 interim targets and 2040 targets.

Year	Predicted Defra background annual mean $PM_{2.5}$ concentration (µg/m^3)	% reduction when compared to 2019 annual average NO_2 concentration monitored at MAN3 (urban background site) – 9.0 µg/m^3
Interim target (2028)	7.8	13.3
Future year target (2040)	7.3	18.9

As shown in Table 6-1, predicted annual mean $PM_{2.5}$ concentration at monitoring location MAN3 and future Defra Modelled concentrations meet both the 2028 interim target and 2040 targets at the Site during the future years. It is considered that $PM_{2.5}$ concentrations at the Proposed Development are likely to meet the $PM_{2.5}$ Targets. Site specific measures to be implemented within the Proposed Development will minimise the release of $PM_{2.5}$ during operation.

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7 Mitigation

7.1 Construction Phase Mitigation

The IAQM construction guidance sets out the recommended mitigations measures to be implemented in order to mitigate the potential impacts during the construction phase.

It is recommended that consultation with MCC to approve a Dust Management Plan (DMP) prior to works commencing on site is undertaken, and that this is implemented using an appropriately worded planning condition. Table 8-1 within Appendix C outline the specific mitigations measures to be incorporated into the DMP for the Proposed Development, as a result of the dust risk categories outlined within Section 5.

General mitigation measures, which excludes those specifically targeted towards , earthworks, construction and trackout, have a large risk applied as these represent the highest risk category determined in Table 5-3.

The IAQM guidance indicates that the potential dust effects during the construction phase are considered to be temporary and short term in nature as they will only arise particular times when certain activities and meteorological conditions combine to create the predicted level of magnitude. With the implementation of the dust control and mitigation measures outlined in Appendix A, these are considered to be sufficient to it is considered that impacts at all receptors will be **'not significant'**.

7.1.1 Construction Road Traffic

Potential air quality impacts associated with construction phase road traffic emissions, principally HDV movements, have been screened out for further assessment with associated impacts on air quality predicted to result in an 'insignificant' effect. Therefore, mitigation measures are not considered to be required.

7.1.2 Construction Phase NRMM Emissions

As outlined within Part 4 of the IAQM construction guidance, all NRMM would need to adhere to the emissions standards for NO_2 and PM_{10} set out for NRMM. As such, it is considered that the likely effects of construction plant and machinery would be insignificant.

7.2 Operational Phase Mitigation

7.2.1 Road Traffic Emissions

Potential air quality impacts associated with operational phase development trips have been screened out from further assessment as the expected trip generation is lower than the threshold outlined in the EPUK and IAQM Guidance for detailed assessment. Therefore, mitigation measures such as a sustainable travel plan are not considered to be required. The University has a Sustainable Travel Plan in place for their estate, including the existing All Saints Library. The latest version of the Travel Plan has been submitted as part of this planning application. The Travel Plan demonstrates the University's commitment to promoting sustainable travel modes amongst all users of their estate, including the provision of cycle parking onsite.

7.2.2 Building Emissions

Potential air quality impacts associated with operational combustion plant emissions have been screened out from further assessment based on the current understanding, as the impacts on air quality from the proposed energy

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strategy can be considered to have insignificant effects in accordance with the EPUK and IAQM Guidance. The Proposed Development utilises ASHP's part of an all-electric energy strategy, ensuring zero on-site emissions from heating and hot water systems. This approach supports compliance with air quality objectives and contributes to meeting $PM_{2.5}$ interim and long-term targets.

7.2.3 Site Suitability

A review of nearby monitoring data in consideration of the Site, and mapped concentrations by Defra, indicates there is potential for exceedance of the annual mean AQOs for NO_2. from emissions associated with Oxford Road. Compliance of the annual mean PM_{10} and $PM_{2.5}$ is anticipated at the Proposed Development, with $PM_{2.5}$ concentration likely to meet the 2028 interim $PM_{2.5}$ targets.

As part of the current design the Proposed Development includes the provision of mechanical ventilation, with AHUs located at roof level (~37m), with intake located to the south of the building façade towards All Saints Park, away from nearby pollution sources such as Mancunian Way and Oxford Road. This will minimise the ingress of pollutants into the Proposed Development. In addition the Proposed Development has been designed with a sealed façade to further reduce the ingress of pollutants,

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8 Conclusion

In conclusion, this Air Quality Assessment report reviews relevant policies and guidance, and appraised the potential for significant air quality effects to occur at the Proposed Development with consideration to the following aspects:

- The existing air quality monitoring data from the local authorities and Defra shows that the baseline air quality across the Site as the potential to exceed the annual mean NO_2 air quality objectives as a result traffic emissions from nearby roads (Mancunian Way and Oxford Road)as the main contributor to on-site air pollution. Annual Mean PM_{10} and $PM_{2.5}$ concentrations are in compliance with the AQOS with no exceedances anticipated at the Site. No exceedances of the 1-Hour NO_2 concentrations are anticipated.
- Construction works are likely to contribute to dust-soiling effects and impacts on human health. This assessment identified activities are likely to pose high risk to dust soiling effects and to human health. Relevant mitigation measures are provided to minimise potential construction impacts and ensure the effects on air quality are not significant. All dust impacts are considered to be temporary and short-term in nature.
- The operation of the Proposed Development will not generate any additional LDV or HDV movements on Site when compared with the existing building operation of the Proposed Development. As such, the trip generation is in line with the EPUK and IAQM criteria for screening out the requirement for a detailed operational traffic assessment (100 LDVs or 25 HDVs). Therefore, there is a predicted negligible effect and operational traffic will not lead to significant impacts.
- A qualitative assessment of the Proposed Development's potential impacts on air quality is considered appropriate. Based on the currently available design, Proposed Development is not expected to have a significant impact on air quality in the operational phase, due to no increase in trip generation, and utilisation of emission-free ASHPs. Therefore, AQOs are not likely to be exceeded at the Site once operational.

Therefore, as the Proposed Development will not lead to any significant air quality impacts, it conforms to the principles of the National Planning Policy Framework and local planning regulations.

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Appendix A Glossary

Term	Definition
AADT	Annual average daily traffic
AQAL	Air Quality Assessment Level
AQAP	Air Quality Action Plan
AQFA	Air Quality Focus Area
AQMA	Air Quality Management Area
AQA	Air Quality Assessment
AQO	Air Quality Objective
AQS	Air Quality Strategy
ASR	Annual Status Report
DfT	Department for Transport
DMP	Dust Management Plan
EPUK	Environmental Protection UK
GCMA	Greater Manchester Combined Authority
HDV	Heavy Duty Vehicles
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management
LDV	Light Duty Vehicle
LPA	Local planning authority
MCC	Manchester City Council
NAEI	National Atmospheric Emissions Inventory
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxides
NPPF	National Planning Policy Framework
NRMM	Non-Road Mobile Machinery
PM	Particulate matter
PPG	Planning Practice Guidance
LAQM.TG (22)	Defra Local Air Quality Management Technical Guidance 2022

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Appendix B Assessment Guidance

The primary guidance documents consulted in undertaking this assessment are detailed below.

Defra Local Air Quality Management Technical Guidance

Defra's LAQM.TG.22[10] was published for use by local authorities in their LAQM review and assessment work. The document provides key guidance in aspects of air quality assessment, including screening, use of monitoring data, and use of background data that are applicable to all air quality assessments.

EPUK and IAQM 'Air Quality Guidance for Planning'

Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have published guidance[18] to help ensure that air quality is properly accounted for in the development control process. It clarifies when an air quality assessment should be undertaken, what it should contain, and how impacts should be described and assessed including guidelines for assessing the significance of impacts.

IAQM 'Construction and Demolition Dust Guidance'

Guidance on the assessment of dust from demolition and construction has been published by the IAQM[19]. The guidance provides a methodology to determine the dust emission magnitude and provides a series of matrices to determine the risk magnitude of potential dust sources associated with construction activities. This allows for the identification of appropriate mitigation measures that are defined within further IAQM guidance.

MCC Air Quality and Planning Technical Guidance

One of the actions outlined in the GM air quality action plan is to develop air quality and planning guidance. The guidance document[44] aims to encourage developers to follow good practice and to mitigate impacts. It outlines the expectations of MCC with regards to air quality in the planning context for both the construction and operation of a development.

The guidance recommends following IAQM and EPUK guidance when assessing impacts associated with both construction and demolition. It also recommends usage of Defra's damage cost calculations (for additional pollutant population exposure emissions costs) for major developments and/or where there may be a cumulative impact.

[44]MCC. (2022). Air Quality and Planning Technical Guidance. https://www.manchester.gov.uk/download/downloads/id/28690/air_quality_and_planning_guidance.pdf

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Appendix C Construction Phase Mitigation Measures

Table 8-1 Dust emission magnitudes and justifications.

Activity	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.
	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 highly recommended measures in this document. The desirable measures should be included as appropriate for the site. The DMP may include monitoring of dust deposition, dust flux, real time PM_{10} continuous monitoring and/or visual inspections.
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 air emissions, either on- or off- site, and the action taken to resolve the situation in the log book.
	Hold regular liaison meetings with other high risk construction sites within 250 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.
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 check of surfaces such as street furniture, cars, window sills within 100 m of the site boundary, with cleaning to be 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.
	Agree dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations with the Local Authority. Where possible, commence baseline monitoring at least three months before work commences on site or, if it is a large site, before work on a phase commences.
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.
	Avoid site runoff of water or mud.
	Keep site fencing, barriers and scaffolding clean using wet methods.

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Activity	Mitigation Measure
	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 cover as described below.
	Cover, seed or fence stockpiles to prevent wind whipping.
Operating vehicles/machinery and sustainable travel	Ensure all vehicles switch off engines when stationary – no idling vehicles.
	Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable.
	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 applicable).
	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.
	Minimize drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
	Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Waste Management	Avoid bonfires and burning of waste materials.
Earthworks	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
	Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
	Only remove the cover in small areas during work and not all at once.
Construction	Avoid scrabbling (roughening of concrete surfaces) if possible.
	Ensure sand and other aggregates are stored in bunded areas and 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.
	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 smaller 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 in continuous use.

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Activity	Mitigation Measure
	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 surfaced 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.
	Access gates to be located at least 10 m from receptors where possible.

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