Kairus Ltd

TRADERS YARD PHASE II & ST MARY'S HOUSE
PENARTH ROAD
CARDIFF

Air Quality Assessment
May 2026

For and on behalf of

Urban Centric (Penarth Road 2) Limited

Project Reference: 24-2146

2 Sidlands, Sidmouth, EX10 8UE
07921829862
www.kairus.co.uk

AIR QUALITY ASSESSMENT

TRADERS YARD PHASE II & ST MARY'S HOUSE
PENARTH ROAD
CARDIFF

MAY 2026

This report has been prepared by Kairus Ltd with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

Copyright in this report (including the data it incorporates) is owned by Kairus Ltd. It is provided for the exclusive use of **Urban Centric (Penarth Road 2) Limited** and has been prepared for the titled project. It should not be used in whole or part or relied upon for any other project without written consent of the author.

No responsibility or liability is accepted by the author for the consequences of this document if it is used for the purpose other than that for which it was commissioned.

Report Issue Log

Issue	Description	Date	Approved
1	Draft Air Quality Assessment	14.05.2026	JK
2	FINAL following client review	20.05.2026	JK

Contents

1	Introduction	1
1.1	Overview	1
1.2	Scope of Assessment	1
2	Site Description	2
2.1	The Existing Site	2
2.2	The Proposed Development	3
3	Policy Context	4
3.1	National Legislation and Policy	4
3.2	Planning Policy	7
3.3	Air Quality Guidance	9
4	Methodology	10
4.1	Baseline Assessment	10
4.2	Construction and Demolition Assessment	10
5	Baseline Assessment	12
5.1	Cardiff Review and Assessment of Air Quality	12
5.2	Air Quality Monitoring	12
5.3	DEFRA Background Maps	16
6	Construction Impacts	17
6.1	Site and Surroundings	17
6.2	Risk Assessment of Dust Impacts	18
7	Operational Impacts	20
7.1	Traffic Emissions	20
7.2	On-site Emissions (Energy Plant)	20
7.3	Impacts (Exposure)	20
8	Mitigation Statement	21
8.1	Construction Phase	21
8.2	Operational Phase	21
9	Conclusion	22

1 Introduction

1.1 Overview

Kairus Ltd has been instructed by Urban Centric (Penarth Road 2) Limited to carry out an air quality assessment in support of an application for the redevelopment of 51-59 Penarth Road and St Mary's House, Penarth Road Cardiff, CF10 5GP (the 'Site') to provide a purpose-built co-living residential development.

The Site falls within the administrative boundary of Cardiff County Council (CCC). Due to exceedances of the national air quality annual mean objective for nitrogen dioxide (NO_2), CCC has declared a number of Air Quality Management Areas (AQMAS) within the city. The Site is located approximately 0.4 km south-west of the City Centre AQMA. The Site does not fall within an AQMA and air quality in the vicinity of the Site has not been found to exceed the relevant air quality objective limits.

This report considers the impact of the proposed development on local air quality. Potential sources of emissions are identified and assessed in the context of existing air quality and emission sources and the nature and location of receptors.

A glossary of common air quality terminology is provided in Appendix A.

1.2 Scope of Assessment

The proposals are for the construction of a purpose-built residential development with commercial and amenity space at ground floor level. The potential impacts of the development have been assessed against the current air quality planning guidance published by the Institute of Air Quality Management (IAQM)[1] .

A baseline review of local air quality has been carried out to determine the suitability of the Site for residential and commercial use.

The assessment has concentrated on nitrogen dioxide (NO_2) and particulate matter with an aerodynamic diameter of less than 10 µm and 2.5 µm (PM_{10} and $PM_{2.5}$), the pollutants most associated with traffic emissions and which can be harmful and cause discomfort to humans.

Consideration has been given to impacts associated with on-site emissions relating to energy plant.

An assessment of air quality impacts associated with the construction activities associated with the proposals has been undertaken in accordance with the latest guidance published by the IAQM[2].

1 IAQM, Land-use Planning and Development Control: Planning for Air Quality, January 2017

2 IAQM, Guidance on the assessment of dust from demolition and construction. Version 2.1, January 2024

2 Site Description

2.1 The Existing Site

The Site is located approximately 0.6 km to the south-west of the city centre on land at 51-59 Penarth Road, which is currently occupied by a large brick and steel shed used by Cardiff Trade Tyres and a number of storage containers used by Soapy Joes car valeting centre and 47 Penarth Road, occupied by a large office block known as St Mary's House.

Surrounding land-uses are predominantly commercial to the south-west (Radical Storage – currently subject to a live application for co-living flats up to 13 storeys), south-east (MotoMusic and The Bat Cave) and residential to the north-west and south-west. To the north/north-east the site is bounded by Trade Street with a number of commercial premises opposite.

The River Taff lies approximately 120m to the west.

Access to the Site is off Penarth Road.

The Site location is presented in Figure 2.1, shown by the areas bounded in red.

Figure 2.1: Location of Development Site

2.2 The Proposed Development

An application is being submitted for the demolition of the existing buildings and the construction of a 10-13 storey building with commercial and ancillary use at ground floor level (to include four commercial units providing a total of 393.3 m^2), a mix of office space and residential units at 1st floor level and co-living residential units at 2nd floor and above.

The Site will not include any on-site parking but will provide a cycle storage for up to 206 bicycles.

An indicative layout of the Site at ground floor level is shown in Figure 2.2.

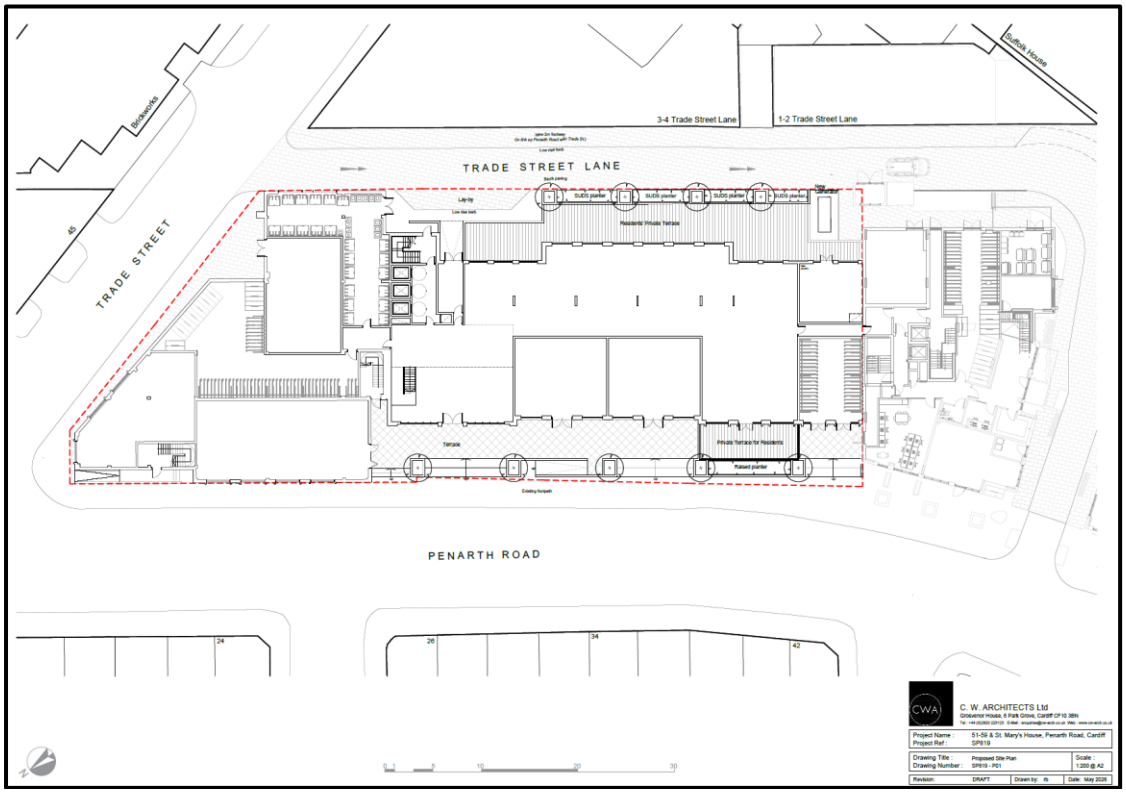

Figure 2.2: Indicative Site Layout at Ground Floor Level

3 Policy Context

3.1 National Legislation and Policy

3.1.1 Air Quality Regulations

The Air Quality Standards (Wales) Regulations 2010[3] and Air Quality EU Exit Regulations 2019[4] set out a series of limit values for the protection of human health and critical levels for the protection of vegetation. Concentration limits apply both nationally, where they are the responsibility of national government and locally, where achieving them is the responsibility of the relevant local authority. The UK is currently exceeding the objective limits for nitrogen dioxide (NO_2) and particulate matter (PM_{10}) within London and a number of other air quality zones within the UK.

The air quality limits are long-term benchmarks for ambient pollutant concentrations which represent negligible or zero risk to health, based on medical and scientific evidence reviewed by the Expert Panel on Air Quality Standards (EPAQS) and the World Health Organisation (WHO). These are general concentration limits, above which sensitive members of the public (e.g. children, the elderly and the unwell) might experience adverse health effects.

For some pollutants, there is both a long-term (annual mean) limit and a short-term limit. In the case of NO_2, the short-term standard is for a 1-hour averaging period, whereas for PM_{10} it is for a 24-hour averaging period. These periods reflect the varying impacts on health of differing exposures to pollutants (e.g. temporary exposure on the pavement adjacent to a busy road, compared with the exposure of residential properties adjacent to a road).

Of the pollutants included in the regulations, NO_2, PM_{10} and $PM_{2.5}$ are of particular relevance to this assessment as these are the primary pollutants associated with road traffic. The current limit values for these three pollutants in relation to human health are set out in Table 3.1.

Table 3.1: Relevant Air Quality Limit Values

Pollutant	Concentrations	Measured As	Date to be Achieved By
Nitrogen Dioxide (NO2)	200 µgm-3 not to be exceeded more than 18 times per year	1 hour mean	31 December 2005
	40 µgm-3	Annual mean	31 December 2005
Particulate Matter (PM10)	50 µgm-3 not to be exceeded more than 35 times per year	24 hour mean	31 December 2004
	40 µgm-3	Annual mean	31 December 2004
Particulate Matter (PM2.5)	20 µg/m3	Annual mean	

3 Air Quality Standards (Wales) Regulations 2010, No. 1433 (W.126)

4 Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019 – Statutory Instrument 2019 No. 74

The limit values apply to external air where there is relevant exposure to the public over the associated averaging periods within each objective. Guidance is provided within LAQM.TG(22)[5] on where the objectives apply, as detailed in Table 3.2. The limit values do not apply in workplace locations, to internal air or where people are unlikely to be regularly exposed (i.e. centre of roadways).

Table 3.2: Locations Where Air Quality Objectives Apply

Averaging Period	Objectives should apply at:	Objectives should generally not apply at:
Annual Mean	All locations where members of the public might be regularly exposed. Building facades of residential properties, schools, hospitals, care home 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 facade), or any other location where public exposure is expected to be short term.
24 Hour Mean	All locations where the annual mean objective would apply together with hotels. Gardens of residential properties.	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
1 Hour Mean	All locations where the annual mean and 24-hour mean objectives apply. Kerbside Sites (e.g. pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where the public might reasonably be expected to spend 1-hour or more. Any outdoor locations where 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.

In relation to $PM_{2.5}$, the Welsh Government Local Air Quality Management Policy Guidance 2025 (LAQM.PG(W)(25))[6] sets out guidance on the role and responsibilities of Welsh authorities and $PM_{2.5}$. The guidance states that '*Local Authorities in Wales should focus on monitoring and reporting NO_2 and PM_{10}. Monitoring and reporting of fine particulate matter ($PM_{2.5}$) is encouraged but not mandatory*.'

5 DEFRA (2022) Local Air Quality Management. Technical Guidance LAQM.TG(22)

6 Welsh Government, The Local Air Environment – Local Air Quality and Soundscapes Management in Wales 2025, July 2025

Although compliance with the objectives is required under current UK and Welsh legislation further consideration to the health implications of air pollution is set out in the Welsh Government (WG) Local Air Quality Management Policy Guidance 2025 (LAQM.PG(W)25[7].

The guidance states that '*air quality management is a public health priority*' and *'the air pollutants of greatest concern from a public health perspective hold 'non-threshold' status, which means there is no 'safe' level of exposure'* (Section 7, paragraph 7.4). The guidance goes on to state that '*the national air quality objectives are not 'safe' levels of air pollution. Rather they represent a pragmatic threshold above which government considers the health risks associated with air pollution are unacceptable. Air that is just barely compliant with the objectives is 'not clean' and still carries long-term health risks. Nitrogen dioxide and particulate matter currently have no safe threshold defined, and the lower the concentration of those pollutants, the lower the risks of adverse health effects in the exposed population. Therefore, while compliance with the national air quality objectives is essential, it is desirable to keep levels of pollution as low as reasonably practicable'*.

The Environment (Air Quality and Soundscapes) (Wales) Act 2024[8] builds on the Welsh Governments commitments to improving air quality detailed in the Clean Air Plan for Wales: Healthy Air, Healthy Wales[9], enhances existing legislation and aims to deliver air quality improvements across Wales. The Act introduces a new air quality target setting framework, under which the Welsh Government are currently consulting on new target levels for $PM_{2.5}$. The aim is to set a target level aligning more closely with the World Health organization (WHO) guidance level of 10 µg/m^3 by February 2027.

3.1.2 The UK Air Quality Strategy

The Government's policy on air quality within the UK is set out in the Air Quality Strategy (AQS) published in August 2023[10]. The document sets out the strategic framework for improving air quality and responsibilities of local authorities to address air quality exceedances in their areas. This includes requirements for declaring air quality management areas (AQMA) and publishing Air Quality Action Plans (AQAPs) setting out measures to reduce emissions and comply with the limit values.

The strategy also sets out expectations on local authorities to implement preventative action to ensure future breaches of the limit values do not occur.

Further guidance on the designation of AQMA and producing AQAPs within Wales is provided in Wales LAQM.PG(W)25. As detailed within LAQM.PG(W)25, due to there being no safe thresholds for nitrogen dioxide and particulate matter, the majority of the avoidable health burden is the result of population exposure to airborne pollution outside AQMAs. As a consequence, the focus of the guidance goes beyond managing air quality to reduce pollution

7 Welsh Government, The Local Air Environment – Local Air Quality and Soundscapes Management in Wales 2025, July 2025
8 Welsh Government, Environment (Air Quality and Soundscapes) (Wales) Act 2024 (https://www.legislation.gov.uk/asc/2024/2/contents/enacted)
9 Welsh Government, The Clean Air Plan for Wales, Healthy Air, Healthy Wales, 16 September 2024
10 DEFRA, The Air Quality Strategy: Framework for Local Authority Delivery, August 2023

levels within just AQMAs to widespread and long-term measures to reduce exposure across the country.

3.1.3 Control of Dust and Particulates Associated with Construction

Section 79 of the Environmental Protection Act (1990)[11] states that where a statutory nuisance is shown to exist, the local authority must serve an abatement notice. Statutory nuisance is defined as:

- *'any dust 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'.*

Failure to comply with an abatement notice is an offence and if necessary, the local authority may abate the nuisance and recover expenses.

In the context of the proposed development, the main potential for nuisance of this nature would arise during the construction phase - potential sources being the clearance, earthworks, construction and landscaping processes.

There are no statutory limit values for dust deposition above which 'nuisance' is deemed to exist - 'nuisance' is a subjective concept and its perception is highly dependent upon the existing conditions and the change which has occurred. However, research has been undertaken by a number of parties to determine community responses to such impacts and correlate these to dust deposition rates. However, impacts remain subjective and statutory limits have yet to be derived.

3.2 Planning Policy

3.2.1 National Planning Policy

Updated in February 2024, Planning Policy Wales (PPW)[12] sets out the land use planning policies of the Welsh Government. This is supplemented by a series of Technical Advice Notes.

At the heart of the PPW is a presumption in favour of sustainable development to ensure that social, economic and environmental issues are balanced and integrated by the decision-maker when determining planning applications (paragraph1.2). Paragraph 1.2 states the '*the primary objective of PPW is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales...'*

Paragraph 1.18 describes the importance of a plan-led approach in securing sustainable development and acknowledges the statutory presumption in favour of sustainable development.

11 Secretary of State, The Environment Act 1990 HMSO

12 Welsh Government (2024) Planning Policy Wales Edition12, February 2024

Paragraph 1.20 states that '*those proposing development have a responsibility to provide sufficient information to enable the decision maker to make an informed judgement on whether the proposed development is sustainable.'*

Decision makers are to be guided by the Key Planning Principles set out in Figure 4 of Chapter 2 page 17. The section on Maximising Environmental Protection and Limiting Environmental Impact is relevant here.

Specific guidance on air quality is provided in Chapter 6 in paragraph 6.7: Air Quality and Soundscape. In proposing new development '*planning authorities and developers must address any implication arising as a result of its association with, or location within air quality management areas, noise action planning priority areas or areas where there are sensitive receptors; not create areas of poor air quality or inappropriate soundscape and seek to incorporate measures which reduce overall exposure to air and noise pollution and create appropriate soundscapes.*'.

The policy stresses that good design, for example setting back buildings from roads to avoid canyon effects should be incorporated at an early consideration in the design and planning stage. Examples of further mitigation measures are provided and include:

- Traffic management and road safety;
- Ensuring progress towards a shift to low or zero emissions means of transport, such as electrical charging points;
- Supporting low or zero emission public transport;
- Providing active travel infrastructure; and
- Incorporating green infrastructure, where it can improve air quality by removing air pollution and aiding its disposal.

3.2.2 Planning Policy Wales (PPW) Technical Note 18: Transport National Planning Policy

The PPW Technical Advice Note (TAN18)[13] was adopted in March 2007 and is intended to be read in conjunction with PPW. It states that '*transport emissions contribute significantly to climate change and poor air quality*'…….. It continues '*when preparing development plans and when considering planning applications, planning authorities should take into account statutory air quality objectives, together with the results of air quality reviews and assessments and any Air Quality Management Area Action Plans that may have been prepared.'*

3.2.3 Planning Policy Wales (PPW) Technical Note 12: Design

The PPW Technical Advice Note 12 (TAN12)[14] was adopted in March 2016 and is intended to be read in conjunction with PPW. It sets out the Government's land use planning policy in respect of 'Promoting sustainability through good design' and provides advice and guidance on good design that 'delivers environmental sustainability, economic development and social inclusion'.

13 Welsh Government (2007) Planning Policy Wales Technical Advice Note 18: Transport
14 Welsh Government, Planning Policy Wales Technical Advice Note 12: Design, March 2016

3.2.4 Local Planning Policy

Cardiff Local Development Plan 2006 - 2026

The Cardiff Local Plan (CLP)[15] currently provides the statutory framework for development and use of land within Cardiff over the plan period. It sets out policies to guide development.

In dealing with air quality the Plan set out the following policy.

'Policy KP18: Natural Resources

In the interests of the long-term sustainable development of Cardiff, development proposals must take full account of the need to minimise impacts on the city's natural resources and minimise pollution, in particular the following elements:

iii. minimising air pollution from industrial, domestic and road transportation sources and managing air quality…..'

3.3 Air Quality Guidance

3.3.1 DEFRA Technical Guidance, LAQM.TG(22)

LAQM.TG(22) sets out detailed guidance on how air quality should be assessed and monitored by local authorities. The document provides useful guidance on how air quality from specific sources should be screened and the approaches that should be used to undertake detailed assessment where potentially significant emissions are identified, including details on model verification and consideration of monitoring data for use in assessments.

3.3.2 IAQM Land-Use Planning and Development Control: Planning for Air Quality

The EPUK and IAQM have published joint guidance on the assessment of air quality impacts for planning purposes. This includes information on when an air quality assessment is required, what should be included in an assessment and criteria for assessing the significance of any impacts.

3.3.3 IAQM Guidance on the Assessment of Dust from Demolition and Construction

The IAQM guidance on assessing impacts from construction and demolition activities sets out a methodology for identifying the risk magnitude of potential dust sources associated with demolition, construction, earthworks and trackout. The risk magnitude of potential dust sources is then used to identify the level of mitigation necessary in order for the impacts to be not significant.

15 Cardiff County Council (2016) Cardiff Local Development Plan 2006 – 2026, Adopted January 2016

4 Methodology

4.1 Baseline Assessment

A baseline assessment of air quality in the vicinity of the Site and the surrounding area has been carried out through a review of monitoring data available within the CCC air quality review and assessment reports, most notably the CCC 2025 Air Quality Progress Report (APR)[16]. Additional data has been obtained from the UK Air Information Resource (UK-AIR) background pollution maps[17].

The results of the baseline assessment have been used to determine the suitability of the Site for residential use and identify whether any mitigation measures are required to reduce exposure.

4.2 Construction and Demolition Assessment

4.2.1 Construction Traffic

During construction of the proposed development, lorries will require access to the Site to deliver and remove materials; earthmoving plant and other mobile machinery may also work on site including generators and cranes. These machines produce exhaust emissions; of particular concern are emissions of NO_2 and PM_{10}.

Based on the development proposals, it is anticipated that there would be no more than 5-10 additional Heavy-Duty Vehicles (HDV) generated on the adjacent road network on any given day.

The IAQM air quality guidance assessment criteria indicate that significant impacts on air quality are unlikely to occur where a development results in less than 25 HDV movements per day in locations within or adjacent to an AQMA and less than 100 HDV outside of an AQMA. The HGV movements associated with the construction phase will fall below these criteria, therefore construction traffic generated by the proposed development would result in a negligible impact on local NO_2 and PM concentrations and has not been considered any further in this assessment.

4.2.2 Construction/Fugitive Dust Emissions

Construction phase activities associated with the Proposed Development may result in the generation of fugitive dust emissions (i.e. dust emissions generated by site-specific activities that disperse beyond the construction site boundaries).

If transported beyond the site boundary, dust can have an adverse impact on local air quality. The IAQM guidance document for the assessment of demolition and construction phase impacts considers the potential for dust nuisance and impacts to human health and ecosystems to occur due to activities carried out during the following stages of construction:

16 Cardiff City Council, Cardiff 2025 Air Quality progress Report, September 2025
17 https://uk-air.defra.gov.uk/data/laqm-background-home

- Demolition (removal of existing structures);
- Earthworks (soil-stripping, ground-leveling, excavation and landscaping);
- Construction (activities involved in the provision of a new structure); and
- Trackout (the transport of dust and dirt from the construction site onto the public road network where it may be deposited and then re-suspended by vehicles using the network).

A qualitative assessment of air quality impacts due to the release of fugitive dust and particulates (PM_{10}) during the construction phase was undertaken in accordance with the methodology detailed in the IAQM guidance.

The assessment takes into account the nature and scale of the activities undertaken for each source and the sensitivity of the area to an increase in dust and PM_{10} levels, thus enabling a level of risk to be assigned. Risks are described in terms of there being a low, medium or high risk of dust impacts.

Once the level of risk has been ascertained, then site specific mitigation proportionate to the level of risk is identified, and the significance of residual effects determined.

A summary of the IAQM assessment methodology is provided in Appendix B.

4.2.3 Operational Traffic Assessment

The air quality planning guidance published by IAQM/EPUK sets out criteria for establishing when there is a risk of significant impacts on local air quality as a result of traffic generated by a proposed development. The guidance states that where the following criteria are exceeded a more detailed assessment is required:

- An increase in LGV of more than 100 vehicles per day within or adjacent to an AQMA, an increase of more than 500 per day elsewhere;
- An increase in HGV of more than 25 vehicles per day within or adjacent to an AQMA, an increase of more than 100 per day elsewhere.

The development trip generation has been assessed against the above criteria. Where this criterion is exceeded then a detailed assessment of operational impacts may be required.

4.2.4 Operational Energy Plant Emissions

A qualitative review of the proposed energy strategy for the Site has been carried out to determine whether there will be a significant impact on local air quality as a result of emissions associated with on-site energy plant. Where the review identifies the risk of significant effects a detailed assessment of on-site emissions may be required.

5 Baseline Assessment

5.1 Cardiff Review and Assessment of Air Quality

CCC has completed a number of detailed assessments of air quality across the city and as a result has declared four AQMA due to exceedances of the annual mean NO_2 objective. The four AQMA are as follows:

- Cardiff City Centre
- Ely Bridge
- Stephenson Court
- Llandaff

The location of the AQMA are shown in Figure 5.1, highlighted in blue.

The Site does not fall within an AQMA, being 0.4 km to the south-west of the City Centre AQMA. Air quality in the immediate vicinity of the Site has not been identified as exceeding the relevant UK air quality objective limits as part of the air quality review and assessment process.

Figure 5.1: Location of AQMA

5.2 Air Quality Monitoring

5.2.1 Nitrogen Dioxide

As detailed in the CCC 2025 ASR, CCC measures NO_2 concentrations across the city using both automatic and non-automatic (diffusion tubes) monitors. The closest of these to the Site are shown in Figure 5.2 and details, along with monitored concentrations since 2019, set out in Table 5.1.

The data presented in Table 5.1 shows NO_2 concentrations at less than 75% of (well below) the annual mean 40 µg/m^3 limit value at all monitoring locations presented during 2024 with the exception of site 179 Bute Terrace, where concentrations of 82% (just below) the objective where recorded.

Exceedance of the objective was recorded at site 184 during 2019, however, due to an overall downward trend in concentrations, the objective has been met at this location in subsequent years.

The data presented shows an overall downward trend in NO_2 concentrations at the majority of locations across the city since 2019.

Short-term NO_2 concentrations cannot be recorded by diffusion tubes. However, the LAQM.TG(22) guidance indicates that where the annual mean is below 60 µgm^{-3} it can be assumed that exceedances of the 1 hour objective for NO_2 are unlikely to occur. Based on the data provided in Table 5.1, it is unlikely that the short-term NO_2 objective is being exceeded at any of the monitoring locations.

Table 5.1: Diffusion Tube Annual Average Nitrogen Dioxide Concentrations (µg/m^3)

Site	Classification	Year					
		2019	2020[1]	2021[1]	2022	2023	2024
147 – 211 Penarth Road	R	26.9	20.5	23.8	24.3	22.0	21.2
148 – 161 Clare Road	R	25.6	21.3	23.9	24.0	20.7	-
149 – 10 Corporation Road	R	30.1	26.8	25.9	27.1	26.2	24.7
179 – Bute Terrace	R	33.1	32.4	37.6	31.7	36.0	32.8
184 – St Mary Street	R	**40.5**	28.3	27.5	28.3	24.7	24.1
202 – 22 Clare Street	R	27.6	23.3	24.5	26.3	22.9	22.4
258 - 116 Penarth Road	R	-	-	29.4	29.5	26.7	26.7

K – kerbside R – roadside,

Numbers in **BOLD** represent exceedance of the annual mean objective.

[1] data for 2020 and 2021 has been included for consistency purposes only. Due to travel restrictions as a result of the COVID -19 pandemic, pollution levels during 2020 and 2021 were significantly suppressed. Data from both years is therefore considered unsuitable for assessing baseline concentrations.

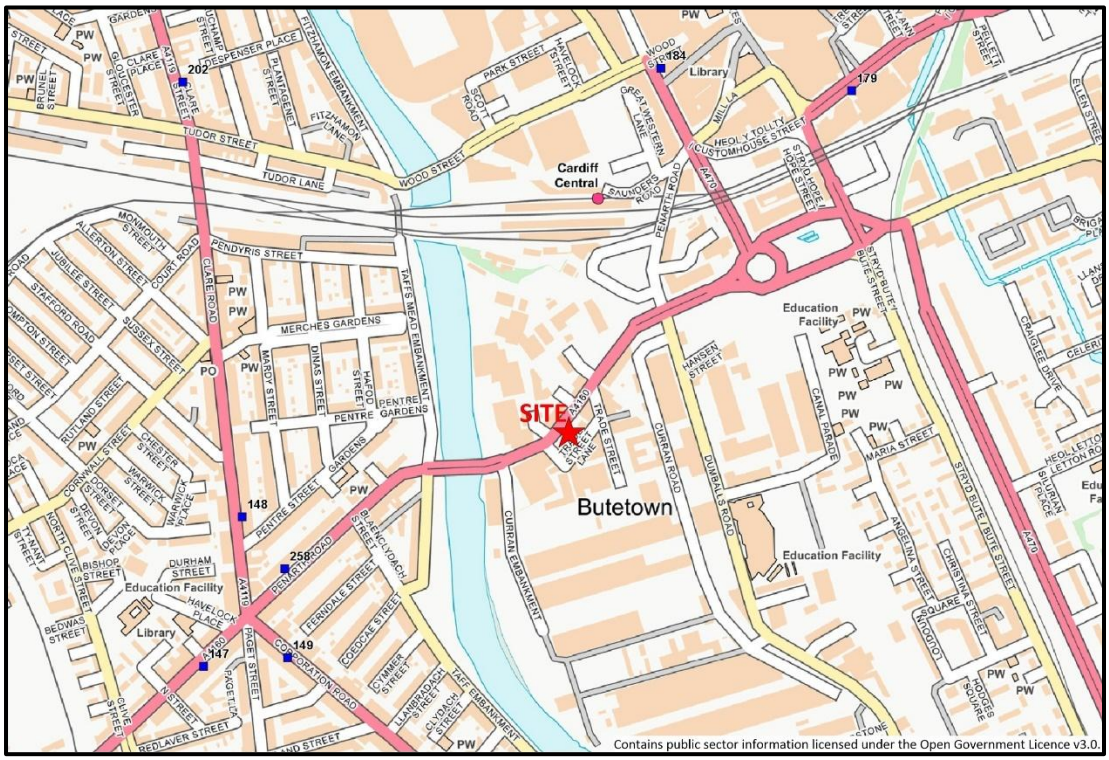

Figure 5.2: Location of NO2 Monitors within the City Centre

5.2.2 Particulate Matter (PM_{10} and $PM_{2.5}$)

CCC monitor PM_{10} and $PM_{2.5}$ concentrations at a number of locations across the city. None of the sites are located in the immediate vicinity of the Site, however, two current sites and one historic site are within the city centre and therefore considered most representative for the baseline assessment.

PM_{10} concentrations recorded within the city are set out in Table 5.2 and $PM_{2.5}$ concentrations are presented in Table 5.3. The location of the Sites is shown in Figure 5.3.

The data in Table 5.2 shows that annual mean PM_{10} concentrations have been well below the objective of 40 µg/m^3 since 2019 at the City Centre AURN site. Concentrations recorded at the Castle Street and Lower Cathedral Road sites have also been well below the objective since 2021 when monitoring began.

The short-term data presented in Table 5.2 shows no exceedances of the 24-hour objective limit at the three monitoring sites.

$PM_{2.5}$ concentrations (Table 5.3) are well below the annual mean limit value of 20 µg/m^3 at all three monitoring locations. Data recorded at Castle Street and Lower Cathedral Road indicate that concentrations are also currently below the WHO guideline of 10 µg/m^3.

The data for both PM_{10} and $PM_{2.5}$ show little change in concentrations between 2019 and 2024.

Table 5.2: PM_{10} concentrations recorded in Cardiff							
Site ID	**Averaging period**	**Year**					
		2019	**2020[1]**	**2021[1]**	**2022**	**2023**	**2024**
Cardiff City Centre AURN	Annual Mean	23	14	13	16	16	12
	24-hour	0	0	0	0	0	0
Cardiff Castle Street	Annual Mean	-	-	12	20	18	17
	24-hour	-	-	0	0	0	0
Lower Cathedral Road	Annual Mean	-	-	11.1	12.7	-	-
	24-hour	-	-	-	-	-	-

Figures in **BOLD** represent an exceedance of the annual mean objective of 40 µg/m^3

[1] data has been presented for 2020 and 2021 for completeness, however due to the Covid 19 Pandemic and the resulting suppression in traffic movements pollution levels during both years were significantly suppressed. The data for both years has not been used to inform the baseline assessment.

Table 5.3: $PM_{2.5}$ concentrations recorded in Cardiff							
Site ID	**Averaging period**	**Year**					
		2019	**2020[1]**	**2021[1]**	**2022**	**2023**	**2024**
Cardiff City Centre AURN	Annual mean	12	7	9	11	10	8
Cardiff Castle Street	Annual Mean	-	-	9	10	8	7
Lower Cathedral Road	Annual Mean	-	-	8.5	7.6	-	-

Figures in **BOLD** represent an exceedance of the annual mean objective of 20 µg/m^3

Figures in **BOLD** indicate an exceedance of the long-term EIP target limit – although it is noted that the EIP target limit is exceeded extensively across the UK and it is anticipated that the Government will introduce measures aimed at reducing $PM_{2.5}$ concentrations within the coming years to enable the EIP targets to be met.

[1] data has been presented for 2020 and 2021 for completeness, however due to the Covid 19 Pandemic and the resulting suppression in traffic movements pollution levels during both years were significantly suppressed. The data for both years has not been used to inform the baseline assessment.

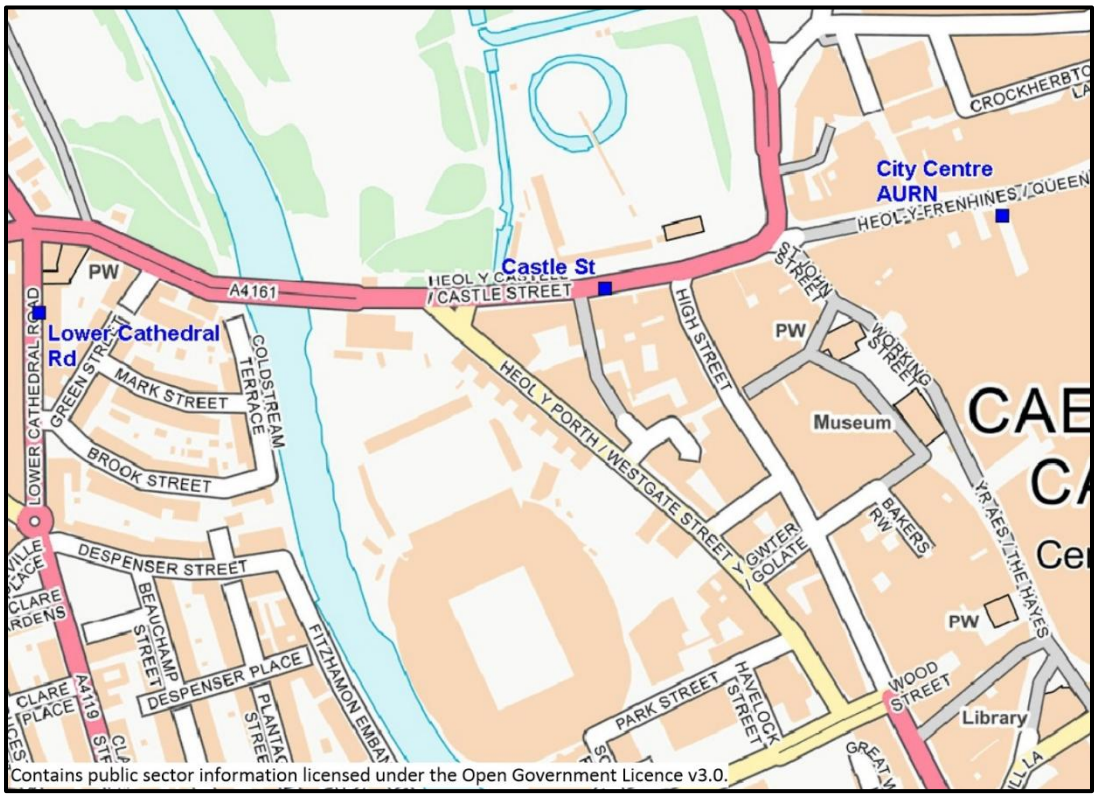

Figure 5.3: Location of PM Monitors within the City Centre

5.3 DEFRA Background Maps

Additional information on estimated background pollutant concentrations has been obtained from the DEFRA 2021-based background maps provided on UK-AIR, the Air Quality Information Resource (http://uk-air.defra.gov.uk). Estimated air pollution concentrations for NO_2, PM_{10} and $PM_{2.5}$ have been extracted from the background pollution maps for the UK and are set out in Table 5.4.

These maps are available in 1km by 1km grid squares and provide an estimate of concentrations between 2021 and 2030. The average concentrations for the grid square representing the Site have been extracted from the 2025 base year.

The data indicates that background concentrations in the vicinity of the Site are expected to be well below the annual mean limits for all three pollutants. $PM_{2.5}$. concentrations are also estimated to be below the WHO guideline concentration.

Table 5.4: Annual Mean Background Air Pollution Concentrations from DEFRA Maps

OS Grid Square	2026		
	NO_2	PM_{10}	$PM_{2.5}$
318500, 175500	15.2	13.5	8.0

.

6 Construction Impacts

6.1 Site and Surroundings

A summary of the proposed development is provided in Section 2 of this report.

The Site covers an area of approximately 2,000 m^2. There are residential receptors within 250 m of the Site, therefore, an assessment of impacts on human receptors has been carried out.

Dust emissions from construction activities are unlikely to result in significant impacts on ecologically sensitive receptors beyond 50 m from the site boundary. A review of data held on the DEFRA MAGIC website[18] shows no sites designated as important for wildlife within 50 m of the Site, therefore impacts on ecological receptors have not been considered any further within this assessment.

As discussed in Section 5, PM_{10} concentrations in the vicinity of the Site are expected to be well below the relevant limit value (Table 5.4). The data indicates background concentrations in the region of 13-14 µg/m^3. Given the location of the Site, outside of an AQMA, and based on the most recent background data PM_{10} concentrations in the vicinity of the Site are expected to be less than 24 µg/m^3.

The precise behaviour of the dust, its residence time in the atmosphere, and the distance it may travel before being deposited would depend upon a number of factors. These include wind direction and strength, local topography and the presence of intervening structures (buildings, etc.) that may intercept dust before it reaches sensitive locations. Furthermore, dust would be naturally suppressed by rainfall.

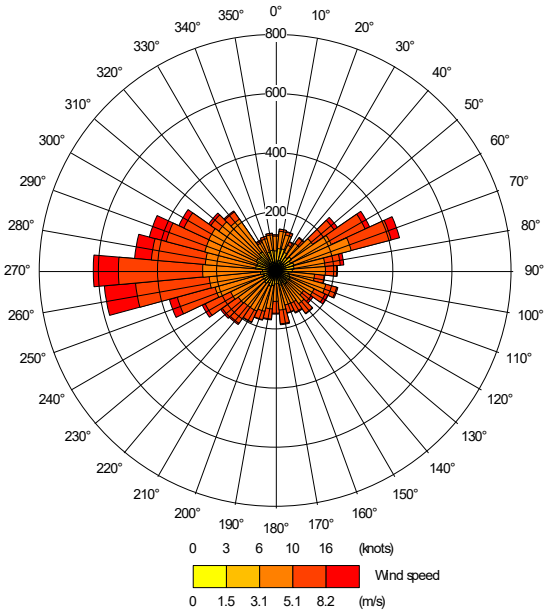

Figure 6.1: Windrose from Cardiff Meteorological Station

18 http://magic.defra.gov.uk/

A windrose from the Cardiff Meteorological Station is provided above in Figure 6.1, which shows that the prevailing wind is predominately from the west direction. Areas most consistently affected by dust are those located downwind of an emission source. Therefore, the highest risk of impacts would occur to the east of any construction activities. The land-uses to the east are mainly commercial premises which would be of medium sensitivity to dust effects.

6.2 Risk Assessment of Dust Impacts

6.2.1 Potential Dust Emission Magnitude

With reference to the criteria detailed in Appendix B, the dust emission magnitude for each of the categories' demolition, earthworks, construction and trackout have been determined. These have been summarised in Table 6.1.

Table 6.1: Dust Emission Magnitudes

Activity	Criteria	Dust Emission Magnitude
Demolition	All buildings on site would require demolition, with a volume of 8,000- 10,000 m^3, and a building height of 5-16m	**Medium**
Earthworks	Building site area approximately 2,000 m^2, 2-3 HDV on site, storage of materials <4m bunds.	**Small**
Construction	Building volume approximately 45,000-60,000 m^3, construction material to include brick and concrete	**Medium**
Trackout	Between 10-15 HDV (>3.5t) movements per day	**Small**

6.2.2 Sensitivity of Area

The sensitivity of the surrounding area takes account of 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 concentrations; and
- site-specific factors i.e. whether there are natural shelters such as trees, to reduce the risk of wind-blown dust.

The nearest residential properties, which are of high sensitivity to dust effects, are located to the north-west on Penarth Road within 20m of the Site boundary. There are 18-20 properties within 20m of the Site boundary. Commercial premises to the east and north are of medium sensitivity and lie within 20m of the Site boundary. Based on the separation distance between the construction activities and the nearest receptors the sensitivity of the surrounding area to dust effects is considered to be 'high'.

As previously discussed, annual mean PM_{10} concentrations in the vicinity of the Site are not expected to exceed 24 $\mu g/m^3$. Based on the proximity of sensitive receptors to the site

boundary and the local concentrations of PM_{10} the sensitivity of the surrounding area is considered to be 'low' with regards human health impacts.

In relation to trackout, vehicles travelling to and from the Site would travel along Penarth Road to the north-east and south-west. There are residential units immediately adjacent to Penarth Road therefore, the sensitivity of receptors is considered to be 'high' in relation to dust soiling and 'low' in relation to human health impacts from trackout.

A summary of the sensitivity of the area surrounding the Site in relation to each activity is provided below in Table 6.2.

Table 6.2: Summary of Sensitivity of Surrounding Area

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

6.2.3 Defining the Risk of Impacts

The dust emission magnitude as set out in Table 6.1 is combined with the sensitivity of the area (Table 6.2) to determine the risk of both dust soiling and human health impacts, assuming no mitigation measures applied at site. The risk of impacts associated with each activity is provided in Table 6.3 below and has been used to identify site-specific mitigation measures, which are discussed in Section 8 and set out in Appendix C.

Table 6.3: Summary of Risk Effects to Define Site-Specific Mitigation

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

7 Operational Impacts

7.1 Traffic Emissions

A review of potential traffic impacts has been undertaken by Apex Transport Planning Ltd (ATP) and set out in the project Transport Statement (TS).

The proposals would not provide any on-site parking provision. Any trips associated with the operational development would be limited to deliveries and taxi pickup/drop-offs.

The daily trip generation from the operational development would be significantly lower than the IAQM screening criteria (as set out in Section 4.2.3). Impacts on local air quality as a result of operational traffic are therefore concluded to be negligible.

7.2 On-site Emissions (Energy Plant)

All heating and hot water provision for the new development will be from non-combustible sources, expected to be in the form of air source heat pumps and photovoltaic (PV) panels. These energy sources will not generate any on-site emissions and therefore impacts on local air quality will be negligible. However, a small diesel-powered life-saving generator may be provided for emergency purposes only, to operate the sprinkler system and elevators in case of emergency.

Full details of the size of generator and the testing regime have yet to be determined, however the generator and any associated emission flue would be located at roof height, with the flue terminating at least 1 m above roof height of the building (i.e. at least 39 m above ground level) and it is anticipated that the generator would be tested intermittently for no more than 1 hour per month. On this basis, emissions associated with the emergency generator would not have a significant impact on local air quality and the impact from on-site emissions would be negligible.

7.3 Impacts (Exposure)

The Site is located to the south-west of the city centre. NO_2 monitoring carried out in the wider area shows that concentrations of this pollutant are well below the annual mean and 1-hour objective limits in the vicinity of the Site. The nearest monitoring site is 258 at 116 Penarth Road and is considered to be representative of conditions at the Site. Data presented in Table 5.1 shows that at this monitoring site NO_2 concentrations are well below the annual mean and 1-hour objective limits, indicating that concentrations at the Site are also well below the objective limits.

Monitoring of PM_{10} and $PM_{2.5}$ carried out within the city centre has shown concentrations are well below the current air quality objective limits and $PM_{2.5}$ is below the WHO guideline concentration. PM concentrations are expected to be lower at the Site than recorded at the city centre monitoring sites due to being located away from the main traffic routes within the city. It can therefore be concluded that PM concentrations at the Site are also meeting the relevant annual mean and short-term objectives and guidelines.

As the relevant limit values for NO_2, PM_{10} and $PM_{2.5}$ are being met in the vicinity of the Site, the Site is considered suitable for commercial and residential development and impacts in terms of exposure will be negligible.

8 Mitigation Statement

8.1 Construction Phase

The control of dust emissions from construction site activities relies upon management provisions and mitigation techniques to reduce emissions of dust and limit dispersion. Where dust emission controls have been used effectively, large-scale operations have been successfully undertaken without impacts to nearby properties.

The proposed development has been identified as a medium risk for dust soiling effects during demolition and construction and low risk during earthworks and trackout. For human health, the Site has been identified as a low to negligible risk of impacts, as set out in Table 6.3.

The developer should therefore implement appropriate dust and pollution control measures as set out within the IAQM guidance. A summary of these measures is set out in Appendix C. The proposed measures should be set out within a DMP and approved by CCC prior to commencement of any work on site.

Following implementation of the measures recommended for inclusion within the DMP, the impact of emissions during construction of the proposed development would be negligible.

8.2 Operational Phase

The development will have a negligible impact on local air quality and in terms of exposure. No mitigation measures are therefore considered necessary during the operational phase.

9 Conclusion

It is inevitable that with any development, demolition and construction activities will cause some disturbance to those nearby. Dust arising from most construction activities tends to be of a coarse nature, which through dispersion by the wind can lead to soiling of property including windows, cars, external paintwork and laundry. However, as well as giving rise to annoyance due to soiling of surfaces from dust emissions, there is evidence of major construction activities causing increases in long term PM_{10} concentrations and in the number of days exceeding the short term PM^{10} objective of 50 μgm^{-3}.

The IAQM guidance on assessing impacts on air quality from construction activities and determining the likely significance has been used to determine the risk of impacts occurring during the construction of the development and to identify appropriate mitigation measures to be implemented on site to reduce dust emissions and associated impacts.

Due to the proximity of sensitive land-uses the Site is considered to have a medium risk of impacts with regards to dust soiling and low risk with regard to PM_{10} concentrations. However, following the implementation of appropriate mitigation measures impacts associated with the construction of the development will be insignificant.

A review of local monitoring data has found that concentrations of NO_2, PM_{10} and $PM_{2.5}$ are below the relevant air quality limit values across the Site. The Site is therefore considered suitable for residential and commercial use and impacts in terms of new exposure would be negligible.

An assessment of operational traffic and on-site emissions associated with energy plant has also shown that impacts during the operational phase will be negligible due to the small number of daily trips generated and the use of non-combustible energy sources.

The proposed development would meet current national and local planning policy and based on the above, air quality does not pose a constraint to development of the site for commercial and residential use.

Appendix A – Air Quality Terminology

Term	Definition
Accuracy	A measure of how well a set of data fits the true value.
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. Usually this is for a calendar year, but some species are reported for the period April to March, known as a pollution year. This period avoids splitting winter season between 2 years, which is useful for pollutants that have higher concentrations during the winter months.
AQMA	Air Quality Management Area.
DEFRA	Department for Environment, Food and Rural Affairs.
Exceedance	A period of time where the concentrations of a pollutant is greater than, or equal to, the appropriate air quality standard.
Fugitive emissions	Emissions arising from the passage of vehicles that do not arise from the exhaust system.
LAQM	Local Air Quality Management.
NO	Nitrogen monoxide, a.k.a. nitric oxide.
NO_2	Nitrogen dioxide.
NO_x	Nitrogen oxides.
O_3	Ozone.
Percentile	The percentage of results below a given value.
PM_{10}	Particulate matter with an aerodynamic diameter of less than 10 micrometres.
Ratification (Monitoring)	Involves a critical review of all information relating to a data set, in order to amend or reject the data. When the data have been ratified they represent the final data to be used (see also validation).
μgm^{-3} micrograms per cubic metre	A measure of concentration in terms of mass per unit volume. A concentration of 1ug/m^3 means that one cubic metre of air contains one microgram (millionth of a gram) of pollutant.
UKAS	United Kingdom Accreditation Service.
Uncertainty	A measure, associated with the result of a measurement, which characterizes the range of values within which the true value is expected to lie. Uncertainty is usually expressed as the range within which the true value is expected to lie with a 95% probability, where standard statistical and other procedures have been used to evaluate this figure. Uncertainty is more clearly defined than the closely related parameter 'accuracy', and has replaced it on recent European legislation.
USA	Updating and Screening Assessment.
Validation (modelling)	Refers to the general comparison of modelled results against monitoring data carried out by model developers.
Validation (monitoring)	Screening monitoring data by visual examination to check for spurious and unusual measurements (see also ratification).
Verification (modelling)	Comparison of modelled results versus any local monitoring data at relevant locations.

Appendix B – Construction Impact Assessment Procedure

In order to assess the potential impacts, the activities on construction sites are divided into four categories. These are:

- demolition (removal of existing structures);
- earthworks (soil-stripping, ground-leveling, excavation and landscaping);
- construction (activities involved in the provision of a new structure); and
- trackout (the transport of dust and dirt from the construction site onto the public road network where it may be deposited and then re-suspended by vehicles using the network).

For each activity, the risk of dust annoyance, health and ecological impact is determined using three risk categories: low, medium and high risk. The risk category may be different for each of the four activities. The risk magnitude identified for each of the construction activities is then compared to the number of sensitive receptors in the near vicinity of the site in order to determine the risks posed by the construction activities to these receptors.

Step 1: Screen the Need for an Assessment

The first step is to screen the requirement for a more detailed assessment. An assessment is required where there is:

- a 'human receptor' within 250m of the boundary of the site or 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s); and/or
- an 'ecological receptor' within 50m of the boundary of the site; or 50m of the route(s) used by the construction vehicles on the public highway, up to 200m from the site entrance(s).

Step 2A: Define the Potential Dust Emission Magnitude

This is based on the scale of the anticipated works and the proximity of nearby receptors. The risk is classified as small, medium or large for each of the four categories.

Demolition: The potential dust emission classes for demolition are:

- Large: Total building volume >75,000m^3, potentially dusty construction material (e.g. Concrete), on site crushing and screening, demolition activities >12m above ground level;
- Medium: total building volume12,000m^3 –75,000m^3, potentially dusty construction material, demolition activities 6-12m above ground level; and
- Small: total building volume <12,000m^3, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <6m above ground, demolition during wetter months.

Earthworks: This involves excavating material, haulage, tipping and stockpiling. The potential dust emission classes for earthworks are:

- Large: Total site area >110,000m^2, potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds >6m in height,;
- Medium: Total site area 18,000m^2 –110,000m^2, moderately dusty soil (e.g. silt), 5 – 10 heavy earth moving vehicles active at any one time, formation of bunds 3m-6min height; and

- Small: Total site area <18,000 m^2, 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, earthworks during wetter months.

Construction: The important issues here when determining the potential dust emission magnitude include the size of the building(s)/infrastructure, method of construction, construction materials, and duration of build. The categories are:

- Large: Total building volume >75,000m^3, on site concrete batching, sandblasting;
- Medium: Total building volume12,000m^3 –75,000m^3, potentially dusty construction material (e.g. concrete), on site concrete batching; and
- Small: Total building volume <12,000m^3, construction material with low potential for dust release (e.g. metal cladding or timber).

Trackout: The risk of impacts occurring during trackout is predominantly dependent on the number of vehicles accessing the Site on a daily basis. However, vehicle size and speed, the duration of activities and local geology are also factors which are used to determine the emission class of the Site as a result of trackout. The categories are:

- Large: >50 HDV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length > 100m;
- Medium: 20-50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g. high clay content, unpaved road length 50-100m; and
- Small: <20 HDV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length >50m.

Step 2B: Defining the Sensitivity of the Area

The sensitivity of the area is defined for dust soiling, human health (PM_{10}) and ecological receptors. The sensitivity of the area takes into account the following factors:

- the specific sensitivities of receptors in the area;
- the proximity and number of receptors;
- in the case of PM_{10}, the local background concentration; and
- site specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of wind-blown dust.

Table B1 is used to define the sensitivity of different types of receptors to dust soiling, health effects and ecological effects.

Based on the sensitivities assigned to the different receptors surrounding the site and numbers of receptors within certain distances of the site, a sensitivity classification can be defined for each. Tables B2 to B4 indicate the criteria used to determine the sensitivity of the area to dust soiling, human health and ecological impacts.

Table B1: Examples of Factors Defining Sensitivity of an Area			
Sensitivity of Area	**Dust Soiling**	**Human Receptors**	**Ecological Receptors**
High	Users can reasonably expect enjoyment of a high level of amenity The appearance, aesthetics or value of their property would be diminished by soiling' The people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land. E.g. dwellings, museums and other important collections, medium and long term car parks and car showrooms.	10 – 100 dwellings within 20 m of site. Local PM_{10} concentrations close to the objective (e.g. annual mean 36 -40 µg/m^3). E.g. residential properties, hospitals, schools and residential care homes.	Locations with an international or national designation and the designated features may be affected by dust soiling. Locations where there is a community of a particularly dust sensitive species such as vascular species included in the Red List for Great Britain. E.g. A Special Area of Conservation (SAC).
Medium	Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home. The appearance, aesthetics or value of their property could be diminished by soiling The people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land. E.g. parks and places of work.	Less than 10 receptors within 20 m. Local PM_{10} concentrations below the objective (e.g. annual mean 30-36 µg/m^3). E.g. office and shop workers but will generally not include workers occupationally exposed to PM_{10} as protection is covered by the Health and Safety at Work legislation.	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. A Site of Special Scientific Interest (SSSI) with dust sensitive features.
Low	The enjoyment of amenity would not reasonably be expected. Property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling. There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land. E.g. playing fields, farmland unless commercially sensitive horticultural, footpaths, short lived car [parks and roads.	Locations where human exposure is transient. No receptors within 20 m. Local PM_{10} concentrations well below the objectives (less than 75%). E.g. public footpaths, playing fields, parks and shopping streets.	Locations with a local designation where the features may be affected by dust deposition. E.g. Local Nature Reserve with dust sensitive features.

Table B2: Sensitivity of the Area to Dust Soiling on People and Property					
Receptor Sensitivity	**Number of Receptors**	**Distance from the Source (m)**			
		<20	**<50**	**<100**	**<350**
High	>100	High	High	Low	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 B3: Sensitivity of the Area to Human Health Impacts							
Receptor Sensitivity	**Annual Mean PM_{10} Concentration**	**Number of Receptors**	**Distance from Source (m)**				
			<20	**<50**	**<100**	**<200**	**<350**
High	>32 µg/m3	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32 µg/m3	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28 µg/m3	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24 µg/m3	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>32 µg/m3	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	28-32 µg/m3	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	24-28 µg/m3	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<24 µg/m3	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

Table B4: Sensitivity of the Area to Ecological Impacts		
Receptor Sensitivity	**Distance from the Source (m)**	
	<20	**<50**
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Define the Risk of Impacts

The final step is to combine the dust emission magnitude determined in step 2A with the sensitivity of the area determined in step 2B to determine the risk of impacts with no mitigation applied. Tables B5 to B7 indicate the method used to assign the level of risk for each construction activity. The identified level of risk is then used to determine measures for inclusion within a site-specific Construction Management Plan (CMP) aimed at reducing dust emissions and hence reducing the impact of the construction phase on nearby receptors. The mitigation measures are drawn from detailed mitigation set out within the IAQM guidance document.

Table B5: Risk of Dust Impacts from Demolition			
Sensitivity of Area	**Large**	**Medium**	**Small**
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

Table B6: Risk of Dust Impacts from Earthworks/ Construction			
Sensitivity of Area	**Large**	**Medium**	**Small**
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table B7: Risk of Dust Impacts from Trackout			
Sensitivity of Area	**Large**	**Medium**	**Small**
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

Appendix C - Construction Mitigation Measures

It is recommended that the highly recommended measures set out below are incorporated into a DMP and approved by CCC prior to commencement of any work on site:

Highly Recommended

- development and implement a stakeholder communications plan that includes community engagement before work commences;
- display the name and contact details of the person accountable for air quality and dust issues on the site boundary (i.e. the environment manager/engineer or site manager);
- display the head or regional office contact details;
- record all dust and air quality complaints, identify cause, 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;
- carry out regular site inspections to monitor compliance with the DMP, record inspection results and make inspection log available to CCC when asked;
- increase frequency of site inspection 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 periods of dry or windy conditions;
- 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;
- fully enclose site or specific operations where there is a high potential for dust production;
- 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 being re-used on site, cover as detailed below;
- cover, seed or fence stockpiles to prevent wind whipping;
- avoid site runoff of water or mud;
- 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 batter powered equipment where practicable;
- 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 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 fine water sprays on such equipment wherever appropriate;
- avoid bonfires and burning of waste materials; 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;
- 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;

Desirable

The following additional Desirable should also be considered and will further prevent emissions to air:

- Undertake daily on-site and off-site inspection, where receptors are nearby, to monitor dust, record inspection results and make the log available to the local authority when asked;
- 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;
- avoid scabbling if possible;
- for smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust;
- Impose and signpost a maximum speed limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas;
- Implement a Travel Plan that supports and encourages sustainable travel;
- use water-assisted dust sweepers on the access and local roads, to remove, as necessary, any material tracked out of the site;
- avoid dry sweeping of large areas;
- ensure vehicles entering and leaving the site are covered to prevent the escape of materials during transport;
- record all inspections of haul routes and any subsequent action in a site log book;
- implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).