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**WATERLOO INVESTMENTS 1984 LTD**

**AIR QUALITY ASSESSMENT**

**13-15 CHAPEL HILL, HUDDERSFIELD HD1 3ED**

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Client: Waterloo Investments 1984 Ltd

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## 1 INTRODUCTION

### 1.1 Introduction to Assessment

- 1.1.1 By instruction from Waterloo Investments 1984 Ltd, NoiseAir Limited was commissioned to undertake an Air Quality Assessment (AQA) in support of a Proposed Development at 13-15 Chapel Hill, Huddersfield HD1 3ED, herein referred to as 'the Site', to provide a new residential dwelling.
- 1.1.2 The Site sits just inside a designated Air Quality Management Area (AQMA), Kirklees AQMA 9, and so an AQA is required to be conducted as the development will introduce sensitive receptors into an area of known poor air quality.
- 1.1.3 Limitations of this report are outlined in **Appendix A**.

### 1.2 Site Location and Context

- 1.2.1 The Site is located at 13-15 Chapel Hill, Huddersfield HD1 3ED, at approximate National Grid Reference: 414330, 416115. **Figure 1** details the location of the Site.
- 1.2.2 The Proposed Development may introduce new sensitive receptors into an area of poor air quality and may lead to adverse impacts at nearby sensitive receptors, as a result of fugitive dust emissions during construction and road vehicle exhaust emissions during operation. As such, an AQA is required to determine potential impacts associated with the Proposed Development in accordance with the requirements of The National Planning Policy Framework (NPPF). This AQA will consider ambient pollutant concentrations namely nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) around and at the Site.
- 1.2.3 The main potential sources of air pollution were identified as emissions from road transport using the local and regional road network. There are no significant combustion sources identified within the immediate vicinity of the Site that will influence the local air quality.
- 1.2.4 The Proposed Development is located within the administrative area of Kirklees Council, in Huddersfield town centre, approximately 130m south of the A62 ring road. The Site lies at the corner of Milford Street and Chapel Hill and is surrounded by a small car park to the east, Milford Street and Chapel Hill to the north and west, respectively, and some small commercial premises to the south.
- 1.2.5 The report presents the findings of an assessment of the potential air quality impacts of the Proposed Development during the construction and operational phases. For both phases,

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the significance of potential impacts are identified, and measures that should be employed to minimise these are described.

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## 2 LEGISLATION AND POLICY

### 2.1 Air Quality Legislation and Policy

2.1.1 A summary of the relevant air quality legislation and policy is provided below.

#### *UK Air Quality Strategy*

2.1.2 The government's policy on air quality within England is set out in the Air Quality Strategy for England (AQS), with the latest framework published in 2023<sup>1</sup>.

2.1.3 The AQS provides a framework for reducing air pollution in England with the aim of meeting the requirements of European Union Legislation and fulfils the statutory requirement of the Environment Act 1995 as amended by the Environment Act 2021, to publish an Air Quality Strategy setting out air quality standards, objectives, and measures for improving ambient air quality every five years. The AQS sets Air Quality Objectives (AQOs) for seven key pollutants to protect health, vegetation, and ecosystems. These are benzene (C<sub>6</sub>H<sub>6</sub>), 1,3 butadiene (C<sub>4</sub>H<sub>6</sub>), carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO<sub>2</sub>), particulate matter (PM<sub>10</sub>) and sulphur dioxide (SO<sub>2</sub>).

2.1.4 The air quality standards are levels recommended by the Expert Panel on Air Quality Standards (EPAQS) and the World Health Organization (WHO) with regards to current scientific knowledge and the effects of each pollutant on health and the environment.

2.1.5 The AQOs are medium-term policy-based targets set by the Government, which take into account economic efficiency, practicability, technical feasibility and timescale. Some objectives are equal to EPAQS recommended standards or WHO guideline limits, whereas other involve a margin of tolerance, i.e. a limited number of permitted exceedances of standards over a given period.

2.1.6 PM<sub>2.5</sub> is not currently part of the Local Air Quality Management framework and therefore does not have any associated AQOs. The AQS, however, recognises this, and has set 2 new legally binding PM<sub>2.5</sub> targets, each with an interim target:

- 10 µg/m<sup>3</sup> annual mean concentration PM<sub>2.5</sub> nationwide by 2040, with an interim target of 12 µg/m<sup>3</sup> by January 2028; and
- 35% reduction in average population exposure by 2040, with an interim target of a 22% reduction by January 2028, both compared to a 2018 baseline.

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<sup>1</sup> Department for Environment, Food and Rural Affairs (Defra, 2023) Policy paper Air quality strategy: framework for local authority delivery.

2.1.7 **Table 1** presents the AQOs/interim target for pollutants considered within this assessment.

<b>Table 1: National Air Quality Objectives and Interim Target for the Protection of Human Health</b>			
<b>Pollutant</b>	<b>Applies to</b>	<b>Air Quality Objective/Interim Target</b>	<b>Measured As</b>
NO <sub>2</sub>	UK	40µg/m <sup>3</sup>	Annual mean
	UK	200µg/m <sup>3</sup> not to be exceeded more than 18 times a year	1-hour mean
PM <sub>10</sub>	UK (except Scotland)	40µg/m <sup>3</sup>	Annual mean
	UK (except Scotland)	50µg/m <sup>3</sup> not to be exceeded more than 35 times a year	24-hour mean
PM <sub>2.5</sub>	UK (except Scotland)	Interim target of 12µg/m by 2028 Target of 22% reduction in population exposure by 2028 compared to 2018	Annual mean

2.1.8 For the pollutants considered in this assessment, there are both long-term (annual mean) and short-term standards. In the case of NO<sub>2</sub>, the short-term standard is for a 1-hour averaging period, whereas for PM<sub>10</sub> it is a 24-hour averaging period. These periods reflect the varying impacts on health of differing exposures to pollutants, for example temporary exposure on the pavement adjacent to a busy road compared with the exposure of residential properties adjacent to a road.

#### ***Air Quality Regulations (2016)***

2.1.9 Many of the objectives in the AQS have been made statutory in England with the Air Quality (England) Regulations 2000<sup>2</sup> and the Air Quality (England) (Amendment) Regulations 2002<sup>3</sup> for the purpose of Local Air Quality Management (LAQM).

2.1.10 These Regulations require that likely exceedances of the AQS objectives are assessed in relation to:

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

2.1.11 The Air Quality Standards (Amendment) Regulations 2016<sup>4</sup> amends the Air Quality Standards Regulations 2010 that transpose the European Union Ambient Air Quality Directive (2008/50/EC) into law in England. This Directive sets legally binding limit values for concentrations in outdoor air of major air pollutants that impact public health such as PM<sub>10</sub>, PM<sub>2.5</sub> and NO<sub>2</sub>. The limit values for NO<sub>2</sub> and PM<sub>10</sub> are the same concentration levels as the

<sup>2</sup> The Air Quality (England) Regulations 2000 – Statutory Instrument 2000 No.928.

<sup>3</sup> The Air Quality (England) (Amendment) Regulations 2002 – Statutory Instrument 2002 No.3043.

<sup>4</sup> The Air Quality Standards (Amendment) Regulations 2016 - Statutory Instrument 2016 No. 1184.

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relevant AQS objectives and the limit value for PM<sub>2.5</sub> is a concentration of 12µg/m<sup>3</sup> to be achieved by 2028.

### ***Environmental Protection Act 1990 – Control of Dust and Particles Associated with Construction***

2.1.12 Section 79 of the Environmental Protection Act 1990<sup>5</sup> gives the following definitions of statutory nuisance relevant to dust and particles:

*“Any dust, steam, smell or other effluvia arising from industrial, trade or business premises or smoke, fumes or gases emitted from premises so as to be prejudicial to health or a nuisance;” and*

*“Any accumulation or deposit which is prejudicial to health or a nuisance.”*

2.1.13 Following this, Section 80 states that where a statutory nuisance is shown to exist, the local authority must serve an abatement notice. Failure to comply with an abatement notice is an offence and if necessary, the local authority may abate the nuisance and recover expenses.

2.1.14 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.

### ***Environment Act 1995***

2.1.15 Under Part IV of the Environment Act 1995<sup>6</sup>, local authorities must review and document local air quality within their area by way of staged appraisals and respond accordingly, with the aim of meeting the air quality objectives defined in the Regulations. Where the objectives are not likely to be achieved, an authority is required to designate an Air Quality Management Area (AQMA). For each AQMA the local authority is required to draw up an Air Quality Action Plan (AQAP) to secure improvements in air quality and show how it intends to work towards achieving air quality standards in the future.

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<sup>5</sup> Environmental Protection Act. London 1990. HMSO.

<sup>6</sup> Environment Act 1995. London HMSO.

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### ***Clean Air Strategy (2019)***

- 2.1.16 In 2019, the UK government released its Clean Air Strategy 2019<sup>7</sup>, part of its 25 Year Environment Plan<sup>8</sup>. The Strategy sets out the comprehensive action that is considered to be required from across all parts of government and society.
- 2.1.17 The primary focus of air quality management has primarily related to NO<sub>2</sub>, and its principal source in the UK, road traffic. The 2019 Strategy aims to broaden the focus to other areas, including actions on clean growth, and emissions from domestic wood burning stoves, industry and agriculture.

## **2.2 National Planning Policy**

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

### ***National Planning Policy Framework (2024)***

- 2.2.2 The Government's overall planning policies for England are described in the National Planning Policy Framework<sup>9</sup>, published in 2024 and most recently amended in February 2025. The core underpinning principle of the Framework is the presumption in favour of sustainable development, defined as:

*"[...] meeting the needs of the present without compromising the ability of future generations to meet their own needs."*

- 2.2.3 The NPPF states that to achieve sustainable development in the planning system, three overarching objectives are required, which are interdependent from one another, and must be pursued in mutually supportive ways:

*"a) an economic objective – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;*

*b) a social objective – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering well-designed, beautiful*

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<sup>7</sup> Department for Environment, Food and Rural Affairs (2019) Clean Air Strategy 2019.

<sup>8</sup> Department for Environment Food and Rural Affairs (Defra) (2018) A Green Future: Our 25 Year Plan to Improve the Environment.

<sup>9</sup> Ministry of Housing, Communities & Local Government (2024) National Planning Policy Framework.

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*and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and*

*c) **an environmental objective** – to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.”*

2.2.4 In relation to air quality, the following is relevant:

**“9. Promoting sustainable transport**

*Transport issues should be considered from the earliest stages of plan-making and development proposals, using a vision-led approach to identify transport solutions that deliver well-designed, sustainable and popular places. This should involve:*

*a) making transport considerations an important part of early engagement with local communities;*

*b) ensuring patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places;*

*c) understanding and addressing the potential impacts of development on transport networks;*

*d) realising opportunities from existing or proposed transport infrastructure, and changing transport technology and usage – for example in relation to the scale, location or density of development that can be accommodated;*

*e) identifying and pursuing opportunities to promote walking, cycling and public transport use; and*

*f) identifying, assessing and taking into account the environmental impacts of traffic and transport infrastructure – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains.*

*The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health.*

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

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**“15. Conserving and enhancing the natural environment**

*Planning policies and decisions should contribute to and enhance the natural and local environment by:*

*[...]*

*e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans.*

*[...]*

**Ground conditions and pollution**

*[...]*

*Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.*

*[...]*

*The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.”*

2.2.5 The AQA has been undertaken in accordance with the NPPF.

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## 2.3 Local Planning Policy

### *Local Plan*

- 2.3.1 The Kirklees Local Plan<sup>10</sup> was adopted on 27 February 2019. It comprises the strategy and policies document, allocations and designations document and associated policies map. The review of the Local Plan was completed in October 2023 and found the plan to be out-of-date in several areas, including housing and employment supply and delivery, and in relation to planning policies to support the council's climate change emergency.
- 2.3.2 The decision to begin a full update of the Local Plan was made at Full Council on 15<sup>th</sup> November 2023. The update will set out the strategy for growth and development of Kirklees over the period 2024 – 2043. The most recent timetable for the development of the emerging local plan states that a draft of the plan will be consulted on between December 2026 – January 2027.
- 2.3.3 An overview of the current Local Plan identified the following policy of relevance to air quality and the Proposed Development:

***“Policy LP15***

*Residential use in town centres*

*Proposals for residential uses (including student accommodation) within the defined town centres as set out on the Policies Map will be supported subject to:*

*[...]*

*d. the protection of the amenity of existing residents and future occupiers of the proposed residential use in accordance with amenity and design policies within the plan, and will in particular consider matters such as privacy, noise and air quality;”*

***“Policy LP47***

*Healthy, active and safe lifestyles*

*The council will, with its partners, create an environment which supports healthy, active and safe communities and reduces inequality.*

*Healthy, active and safe lifestyles will be enabled by:*

*[...]*

*g. ensuring that the current air quality in the district is monitored and maintained and, where required, appropriate mitigation measures included as part of new development proposals”*

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<sup>10</sup> Kirklees Council (2019) Kirklees Local Plan Strategy and Policies (Adopted 27 February 2019) [Online] Available at <https://www.kirklees.gov.uk/beta/planning-policy/pdf/local-plan-strategy-and-policies.pdf>.



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**“Policy LP51**

*Protection and improvement of local air quality*

*1. Development will be expected to demonstrate that it is not likely to result, directly or indirectly, in an increase in air pollution which would have an unacceptable impact on the natural and built environment or to people.*

*2. Proposals that have the potential to increase local air pollution either individually or cumulatively must be accompanied by evidence to show that the impact of the development has been assessed in accordance with the relevant guidance.*

*Development which has the potential to cause levels of local air pollution to increase must incorporate sustainable mitigation measures that reduce the level of this impact. If sustainable measures cannot be introduced the development will not be permitted.*

*3. Where the development introduces new receptors into Air Quality Management Areas or Areas of Concern or near other areas of relatively poor air quality, for example near roads or junctions, the development must incorporate sustainable mitigation measures that protect the new receptors from unacceptable levels of air pollution. Where sustainable mitigation measures cannot be introduced which prevent receptors from being exposed to unsafe levels of air pollution, development will not be permitted.”*

**“Policy LP52**

*Protection and improvement of environmental quality*

*Proposals which have the potential to increase pollution from noise, vibration, light, dust, odour, shadow flicker, chemicals and other forms of pollution or to increase pollution to soil or where environmentally sensitive development would be subject to significant levels of pollution, must be accompanied by evidence to show that the impacts have been evaluated and measures have been incorporated to prevent or reduce the pollution, so as to ensure it does not reduce the quality of life and well-being of people to an unacceptable level or have unacceptable impacts on the environment.*

*Such developments which cannot incorporate suitable and sustainable mitigation measures which reduce pollution levels to an acceptable level to protect the quality of life and well-being of people or protect the environment will not be permitted.*

*Where possible, all new development should improve the existing environment.”*

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### ***Air Quality Action Plan***

2.3.4 The Air Quality Action Plan (AQAP)<sup>11</sup> outlines the action the Council will take to improve air quality in Kirklees between April 2019 and March 2024.

2.3.5 The Council has developed actions that can be considered under 11 broad topics:

- Alternatives to private vehicle use
- Environmental permits
- Freight and delivery management
- Policy guidance and development control
- Promoting low emission plants
- Promoting low emission transport
- Promoting travel alternatives
- Public information
- Transport planning and infrastructure
- Traffic management
- Vehicle fleet efficiency

### ***Air Quality Strategy***

2.3.6 The Air Quality Strategy<sup>12</sup> outlines the approach Kirklees takes for:

- Achieving and maintaining good air quality in Kirklees
- Informing other strategies and developing plans where air quality is a linking theme
- Identifying the responsibilities of different stakeholders
- Providing a framework for decisions about development proposals where air quality should be considered at an early stage
- Setting out the approach to development control (planning applications) where air quality is a material consideration
- Highlighting initiatives involving the Council demonstrating best practice for minimising pollution

2.3.7 This first strategy sets out broad aims and objectives alongside a position statement and then sets a target for developing more specific action plan targets and objectives.

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<sup>11</sup> Kirklees Council (2019) Air Quality Action Plan for Kirklees Council Version 1.4 (September 2019) [Online] Available at <https://www.kirklees.gov.uk/beta/crime-and-safety/pdf/air-quality-action-plan.pdf>.

<sup>12</sup> Kirklees Council (2007) Kirklees Local Air Quality Strategy [Online] Available at <https://www.kirklees.gov.uk/beta/crime-and-safety/pdf/AirQualityStrategy.pdf>.

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## 2.4 National Planning Guidance

2.4.1 A summary of the publications referred to in undertaking this assessment is provided below.

### ***Land-Use Planning and Development Control: Planning for Air Quality (2017)***

2.4.2 Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have published guidance<sup>13</sup> that offers comprehensive advice on when an air quality assessment may be required; what should be included in an assessment; how to determine the significance of any air quality impacts associated with a development; and, the possible mitigation measures that may be implemented to minimise these impacts.

### ***National Planning Practice Guidance – Air Quality (2019)***

2.4.3 This guidance<sup>14</sup> provides a number of guiding principles on how the planning process can take into account the impact of new development on air quality, it explains how much detail air quality assessments need to include for proposed developments, and how impacts on air quality can be mitigated. It also provides information on how air quality is taken into account by local authorities in both the wider planning context of Local Plans and neighbourhood planning, and in individual cases where air quality is a consideration in a planning decision.

### ***Local Air Quality Management Review and Assessment Technical Guidance (2022)***

2.4.4 The Department for Environment, Food and Rural Affairs (Defra) has published technical guidance for use by local authorities in their review and assessment work. This guidance, referred to in this document as LAQM.TG22<sup>15</sup>, has been used where appropriate in the assessment presented herein.

### ***Guidance on the Assessment of Dust from Demolition and Construction (2024)***

2.4.5 This document<sup>16</sup> published by the IAQM was produced to provide guidance to developers, consultants and environmental health officers on how to assess the impacts arising from construction activities. The emphasis of the methodology is on classifying sites according to the risk of impacts (in terms of dust nuisance, PM<sub>10</sub> impacts on public exposure and impact

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<sup>13</sup> Environmental Protection UK and Institute of Air Quality Management (Version 1.2 Updated January 2017) Land Use Planning and Development Control: Planning for Air Quality.

<sup>14</sup> Department of Communities and Local Government (DCLG) (Updated November 2019) National Planning Practice Guidance.

<sup>15</sup> Department for Environment, Food and Rural Affairs (Defra) (2022) Part IV The Environment Act 1995 as amended by the Environment Act 2021 Environment (Northern Ireland) Order 2002 Part III, Local Air Quality Management Technical Guidance LAQM.TG22.

<sup>16</sup> Institute of Air Quality Management (2024) Guidance on the Assessment of Dust from Demolition and Construction Version 2.2 (January 2024).

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upon sensitive ecological receptors) and to identify mitigation measures appropriate to the level of risk identified.

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## 3 SCOPE AND METHODOLOGY

### 3.1 Scope

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

- A review of the plans of the Proposed Development;
- Desktop study to confirm the locations of nearby existing receptors that may be sensitive to changes in local air quality; and
- Review of Kirklees Council's latest available Air Quality Annual Status Report<sup>17</sup> (ASR) and air quality data surrounding the Site including data from Defra<sup>18</sup>.

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

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

### 3.2 Construction Phase Assessment

3.2.1 Dust comprises particles typically in the size range of 1-75 micrometres ( $\mu\text{m}$ ) in aerodynamic diameter and is created through the action of crushing and abrasive forces on materials. The larger dust particles fall out of the atmosphere quickly after initial release and therefore tend to be deposited in close proximity to the source of emission. Dust, therefore, is unlikely to cause long term or wide-spread changes to air quality. However, its deposition on property and cars can cause 'soiling' and discolouration. This may result in complaints of nuisance through amenity loss or perceived damage caused, which is usually temporary.

3.2.2 The smaller particles of dust are known as particulate matter, with less than 10  $\mu\text{m}$  in aerodynamic diameter ( $\text{PM}_{10}$ ) representing only a small proportion of total dust released; this includes a finer fraction, known as  $\text{PM}_{2.5}$  (with an aerodynamic diameter less than 2.5  $\mu\text{m}$ ). As these particles are at the smaller end of the size range of dust particles, they remain suspended in the atmosphere for a longer period of time than the larger dust particles.  $\text{PM}_{2.5}$  can therefore be transported by wind over a wider area.  $\text{PM}_{10}$  and  $\text{PM}_{2.5}$  are small enough to

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<sup>17</sup> Kirklees Council (2025) Air Quality Annual Status Report (June 2025) [Online] Available at <https://www.kirklees.gov.uk/beta/crime-and-safety/pdf/kirklees-annual-status-report-2025.pdf>.

<sup>18</sup> Department for Environment, Food and Rural Affairs (Defra) Local Air Quality Management (LAQM) Support Pages.

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enter the lungs during breathing, which in sensitive members of the public could have a potential impact on health. However, it is worth noting that, according to the IAQM guidance, the majority of fugitive particulate emissions arising from construction sites are expected to relate to the coarser fractions (i.e. PM<sub>2.5-10</sub>) with just 10-15% expected to comprise PM<sub>2.5</sub>. The IAQM guidance therefore focusses on PM<sub>10</sub> for the purposes of assessment.

- 3.2.3 An assessment of the likely significant impacts on local air quality due to the generation and dispersion of dust and PM<sub>10</sub> during the construction phase has been undertaken using: the relevant assessment methodology published by the IAQM; the available information for this phase of the Proposed Development provided by the Client and/or Project Team; and supported by the professional judgement of the NoiseAir team.
- 3.2.4 The IAQM methodology assesses the risk of potential dust and PM<sub>10</sub> impacts from the following four sources: demolition, earthworks, construction and trackout. It takes into account the nature and scale of the activities undertaken for each source and the sensitivity of the area to an increase in PM<sub>10</sub> levels to assign a level of risk. Risks are described in terms of there being a low, medium or high risk of dust impacts. Once the level of risk has been identified, and the significance of residual effects determined. A summary of the IAQM assessment methodology is provided in **Appendix C**.
- 3.2.5 In addition to the impacts on local air quality due to on-site construction activities, exhaust emissions from construction vehicles and plant may have an impact on local air quality adjacent to the routes used by these vehicles to access the application Site and in the vicinity of the application Site itself. As information on the number of vehicles and plant associated with the construction phase was not available at the time of writing, a qualitative assessment of their impact on local air quality has been undertaken using professional judgement and considering the following:
- The number and type of construction traffic and plant likely to be generated by this phase of the Proposed Development;
  - The number and proximity of sensitive receptors to the application Site and along the likely routes to be used by construction vehicles; and
  - The likely duration of the construction phase and the nature of the construction activities undertaken.

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### 3.3 Operational Phase Assessment

#### *Impacts of the Local Area on the Development*

3.3.1 The Proposed Development has the potential to expose future users to existing air quality issues. In accordance with the EPUK and IAQM guidance, there may be a requirement to carry out an air quality assessment for the impacts of the local area's emissions on the Proposed Development itself.

3.3.2 As the Proposed Development includes land use sensitive to long and short-term pollutant concentrations, impacts of the local area on the Proposed Development have been determined by reviewing:

- **AQMA designations:** A review of any AQMA designations has been undertaken to determine if the Site itself falls within an AQMA, or if there are any within proximity to the Site;
- **Background concentrations:** Background pollutant data has been taken from the national maps provided on the Defra<sup>19</sup> website, where background concentrations of those pollutants included within the AQS have been mapped at a grid resolution of 1x1 km for the whole of the UK. Estimated background concentrations all available for all years between 2021 and 2040. The maps assume that background concentrations will improve (i.e., reduce) overtime, in line with the predicted reduction in vehicle emissions, and emissions from other sources; and,
- **Local Air Quality Monitoring (LAQM):** Monitoring data published in the latest available Kirklees Council ASR (2025) has been reviewed by to establish baseline air quality conditions in the vicinity of the Site.

#### *Impacts of the Development on the Local Area*

3.3.3 The Proposed Development has the potential to expose future users to any existing air quality issues.

3.3.4 The EPUK & IAQM guidance sets out two stages for determining when an assessment of potential impacts on the local area is likely to be necessary. The Stage 1 criteria for an air quality assessment is presented below:

A. If any of the following apply:

- 10 or more residential units or a site area of more than 0.5ha; or

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<sup>19</sup> Department for Environment, Food and Rural Affairs (Defra) Background Mapping data for local authorities 2021 [Online] Available at <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021>.

- More than 1,000 m<sup>2</sup> of floor space for all other uses or a site area greater than 1ha.

B. Coupled with any of the following:

- The development has more than 10 parking spaces; or,
- The development will have a centralised energy facility or other centralised combustion process.

3.3.5 Should these criteria not be met, then the EPUK and IAQM guidance considers air quality impacts associated with a scheme to be negligible and no further assessment is required. Should the criteria be met or exceeded, proceed to Stage 2. Stage 2 of the EPUK & IAQM guidance document states the following criteria to help establish when an air quality assessment is likely to be considered necessary:

- Proposals that will cause a change in Light Duty Vehicle (LDV) flows of more than 100 AADT within or adjacent to an AQMA or more than 500 elsewhere.
- Proposals that will cause a change in HDV flows of more than 25 AADT within or adjacent to an AQMA or more than 100 elsewhere.
- Proposals that would realign roads within an AQMA by more than 5m;
- Proposals that will introduce new junctions or remove existing junctions near relevant receptors.
- Proposals that will introduce or change a bus station or change flows of buses by more than 25 AADT within an AQMA or more than 100 AADT elsewhere.
- Proposals which will include an underground car park with extraction system which will be within 20m of a relevant receptor and have more than 100 movements per day.
- Proposals which include either a centralised plant using biofuel, a combustion plant with single or thermal input >300KWh or a standby emergency generator associated with a centralised energy centre; and,
- Proposals which include combustion processes of any size.

3.3.6 Should these criteria not be met, then the EPUK and IAQM guidance documents consider air quality impacts associated with a scheme to be not significant and no further assessment being required.

3.3.7 Should screening of the traffic data indicate that any of the above criteria are met, then potential impacts at sensitive receptor locations can be assessed by calculating the predicted change in pollutant concentrations as a result of the Proposed Development.

3.3.8 The significance of predicted impacts can then be determined in accordance with the methodology outlined in the EPUK and IAQM guidance.

## 4 BASELINE

### 4.1 Introduction

4.1.1 Existing air quality conditions in the vicinity of the Site were identified in order to provide a baseline for assessment. These are detailed in the following Sections.

### 4.2 Local Air Quality Management

4.2.1 As required by the Environment Act (1995), Kirklees Council has undertaken review and assessment of air quality within their area of jurisdiction. The Council has declared ten AQMAs due to exceedances of the annual mean NO<sub>2</sub> and 24-hour mean PM<sub>10</sub> objectives across the whole borough.

4.2.2 The Site is located within the Kirklees AQMA 9, which incorporates roads bordering and within the Huddersfield Ring Road.

### 4.3 Air Quality Monitoring

4.3.1 Monitoring of pollutant concentrations is undertaken by Kirklees Council throughout their area of jurisdiction. The Council undertook automatic NO<sub>2</sub> monitoring at one site and non-automatic NO<sub>2</sub> monitoring at over 101 sites with valid data during 2024.

4.3.2 Two local monitoring locations are situated within 200m of the Site. Monitored concentrations from these locations is presented in **Table 2** and **Figure 1**.

Table 2: Non-automatic Annual Mean NO <sub>2</sub> Monitoring – Results						
Monitoring Site ID	Site Type	Distance to Site (m)	Monitored NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )			
			2021	2022	2023	2024
142	Roadside	50	-	-	-	34.6
11	Roadside	157	31.3	32.0	27.9	29.7
Rounded to one decimal point						

4.3.3 As shown in **Table 2**, the recorded annual mean NO<sub>2</sub> concentrations have been below annual mean AQO of 40µg/m<sup>3</sup> at both roadside monitors within 200m of the Site, this includes monitor 11 which is a roadside monitor at the edge of the A62 and New Street, a busy junction with many lanes of traffic and traffic lights. In this location, pollutant concentrations would be expected to be elevated compared to the Site.

4.3.4 Furthermore, Kirklees Council undertook PM<sub>10</sub> and PM<sub>2.5</sub> monitoring at one location during 2024. However, the automatic monitoring site (CM1) is located in Dewsbury, approximately

11 km northeast of the Site, and therefore no representative particulate matter monitoring data are available within Huddersfield.

#### 4.4 Background Pollutant Concentrations

4.4.1 Predictions of background pollutant concentrations on a 1 km-by-1 km basis have been produced by DEFRA for the entire UK to assist local authorities in their review and assessment of air quality. The proposed site is located in grid square 414500, 416500. Data for this location was downloaded from the DEFRA website and is summarised in **Table 3**.

Table 3: Predicted Background Pollutant Concentrations						
OS Grid Reference (X, Y; m)	Predicted Background Pollutant Concentration ( $\mu\text{g}/\text{m}^3$ )					
	2024			2026		
	NO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
414500, 416500	15.6	11.8	7.0	14.8	11.7	6.9
Rounded to one decimal point						

4.4.2 As shown in **Table 3**, predicted background NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> concentrations are well below the relevant AQOs and interim target across the assessment extents in 2024, the latest year for which monitoring data is available, and 2026, the earliest possible opening year.

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## 5 ASSESSMENT

### 5.1 Introduction

5.1.1 There is the potential for air quality impacts as a result of the construction and operation of the Proposed Development. These are assessed in the following sections.

### 5.2 Construction Phase Assessment

5.2.1 Construction activities have the potential to generate and/ or re-suspend dust and PM<sub>10</sub> sources include:

- Site clearance and preparation including demolition activities;
- Preparation of temporary access/ egress to the Site and haulage routes;
- Earthworks;
- Materials handling, storage, stockpiling, spillage and disposal;
- Movement of vehicles and construction traffic within the Site (including excavators and dumper trucks);
- Use of crushing and screening equipment/ plant;
- Exhaust emissions from plant, especially when used at the extremes of their capacity and during mechanical breakdown;
- Construction of buildings, roads and areas of hard standing alongside fabrication processes;
- Internal and external finishing and refurbishment;
- Trackout, whereby earth is carried from the Site on vehicle tyres, deposited on roads and may later become suspended in the air as a result of vehicle movements; and
- Site landscaping after completion.

5.2.2 Most of the releases are likely to occur during the 'working week'. However, for some potential release sources (e.g., exposed soil produced from significant earthworks activities) in the absence of dust control mitigation measures, dust generation has the potential to occur 24 hours per day over the period during which such activities are to take place.

#### ***Assessment of Potential Dust Emission Magnitude***

5.2.3 The IAQM assessment methodology has been used to determine the potential dust emission magnitude for the following four different dust and PM<sub>10</sub> sources:

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

5.2.4 The findings of the assessment are set out below.

#### Demolition

5.2.5 The Site will be refurbished to provide a first-floor residential dwelling, with any demolition activities taking place internally. Therefore, the potential dust emission magnitude from demolition activities is considered to be **small**.

#### Earthworks

5.2.6 The proposals outline the conversion of the existing building onsite, with no earthworks activities required in relation to the Proposed Development. Therefore, the potential dust emission magnitude from earthworks activities is considered to be **negligible** and will not be considered further in this assessment.

#### Construction

5.2.7 As with demolition, any construction works will be primarily internal and not substantial, as the proposals entail a conversion of an existing building. Therefore, the potential dust emission magnitude from construction activities is considered to be **small**.

#### Trackout

5.2.8 Information on the number of HDVs associated with this phase of the Proposed Development is currently unavailable; therefore, professional judgement has been used. It is assumed that, given the size and type of development, there will likely be fewer than 20 HDV outward movements in any one day. Therefore, the potential dust emission magnitude from trackout activities is considered to be **small**.

5.2.9 **Table 4** provides a summary of the potential dust emission magnitude determined for each construction activity considered.

Activity	Dust Emission Magnitude
Demolition	Small
Earthworks	-
Construction Activities	Small
Trackout	Small

**Assessment of Sensitivity of the Study Area**

- 5.2.10 The prevailing wind direction is predominantly from the southwest. Therefore, receptors located to the northeast of the Site are more likely to be affected by dust and particulate matter emitted and re- suspended during the construction phase.
- 5.2.11 Under lower wind speed conditions, it is likely that the majority of dust would be deposited in the area immediately surrounding the source. Receptors northeast of the Site are expected to be affected the most as a result of the prevailing wind direction.
- 5.2.12 There are no ecological receptors within 50 m of the Site boundary or access route, or within 50 m of the Site entrance as identified using Multi Agency Geographic Information for the Countryside (MAGIC) website<sup>20</sup>. The closest ecological receptor is the Gledholt Woods Local Nature Reserve approximately 1.0 km northwest of the Site. As such, ecological impacts have not been assessed further within this report.
- 5.2.13 Taking the above into account and following the IAQM assessment methodology, the sensitivity of the area to changes in dust and PM<sub>10</sub> has been derived for each of the construction activities considered. The results are shown in **Table 5**.

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

**Risk of Impacts**

- 5.2.14 The predicted dust emission magnitude has been combined with the defined sensitivity of the area to determine the risk of impacts during the construction phase, prior to mitigation. **Table 6** below provides a summary of the risk of dust impacts for the Proposed Development. The risk category identified for each construction activity has been used to determine the level of mitigation required.

<sup>20</sup> Department for Environment, Food and Rural Affairs (Defra), Multi-Agency Geographic Information for the Countryside (MAGIC) [Online] Available at <https://magic.defra.gov.uk/>.

**Table 6: Summary Dust Risk Table Defining Site Specific Mitigation**

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

***Construction Vehicles and Plant***

- 5.2.15 The greatest impact on air quality is emissions from vehicles and plant associated with the construction phase, and these impacts will be in the areas immediately adjacent to the Site access road. Construction traffic will primarily access the Site via either Milford Street or Chapel Hill, A616.
- 5.2.16 Final details of the exact plant and equipment likely to be used on-site will be determined by the appointed contractor. The number of plant and their location within the Site are likely to be variable over the construction.
- 5.2.17 Based on the current local air quality in the area, the proximity of sensitive receptors to the roads likely to be used by construction vehicles, and the likely numbers of construction vehicles and plant that will be used, the impacts are considered to being **negligible** in accordance with the assessment significance criteria.

**5.3 Operational Phase Assessment**

***Impacts of the Local Area on the Development***

- 5.3.1 The Proposed Development includes land use sensitive to long and short-term pollutant concentrations. Therefore, existing conditions at the Site are considered in the following Sections to assess its suitability for the proposed use.

AQMA Designation

- 5.3.2 The Site is located in the Kirklees AQMA 9, although on the edge of this AQMA.

Local Monitoring Results

- 5.3.3 Local monitoring data are available in the immediate vicinity of the Site, with two locations within 200m of the Site. As shown in **Table 2**, at both monitoring locations, no exceedances of the annual mean NO<sub>2</sub> AQO of 40 µg/m<sup>3</sup> have been recorded in recent years.

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- 5.3.4 This includes monitoring location 11 which is a roadside monitor adjacent to the A62 ring road, and as such this location would be expected to experience higher pollutant concentrations than the Site.
- 5.3.5 There is no particulate matter (PM<sub>10</sub> or PM<sub>2.5</sub>) monitoring within Huddersfield. Kirklees AQMA 2, which was declared due to exceedances of the 24-hour mean PM<sub>10</sub> objective, is located approximately 10 km northeast of Huddersfield, closer to Dewsbury, where the automatic monitoring station is situated. As such, the absence of particulate monitoring within Huddersfield indicates that there are currently no significant concerns regarding particulate matter in the immediate vicinity of the study area.
- 5.3.6 Based on the above, it is likely that the Site will experience annual mean pollutant concentrations below the relevant AQOs and interim target.

#### Background Pollutant Concentration Predictions

- 5.3.7 As shown in **Table 3**, background pollutant concentrations for the grid square containing the Site are predicted to be below the annual mean AQOs and interim target for NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> in 2024 (the latest year with available monitoring data), 2026 (the earliest possible opening year) and future years, as Defra predicts a gradual year on year decline in background pollutant concentrations.
- 5.3.8 Based on the predicted background concentrations, exceedances of the relevant AQOs and interim target are considered unlikely at the Site.

#### ***Potential Development Impacts***

- 5.3.9 Any vehicle movements associated with the Proposed Development will generate exhaust emissions on the local and regional road networks.
- 5.3.10 A screening assessment has been undertaken in accordance with Stage 1 of the EPUK and IAQM criteria. The proposals involve the change of use of the Site to provide a single residential dwelling on the first floor of the premises, and the Proposed Development does not include ten additional car parking spaces. Therefore, the Proposed Development does not trigger the need for further assessment under the Stage 1 screening criteria.
- 5.3.11 According to EPUK and IAQM guidance, air quality impacts associated with the scheme are considered to be **negligible** and, therefore, no further assessment is deemed necessary.

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## 6 MITIGATION AND RESIDUAL EFFECTS

### 6.1 Construction Phase

6.1.1 Based on the construction phase assessment results, mitigation will be required for this phase. As the Site poses a maximum of **low** risk for dust impacts, the IAQM's highly recommended mitigation measures for a **low** risk site are presented below:

#### Communications:

- 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.

#### 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.

#### Monitoring

- 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<sub>10</sub> continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.

#### 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.
  - Avoid site runoff of water or mud.

#### Operating/Vehicle 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.

#### 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 /particle 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.

#### Waste Management

- Avoid bonfires or burning of waste materials.

6.1.2 The highly recommended mitigation measures specific to each phase from the IAQM are presented below:

#### Demolition

- Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.
- Avoid explosive blasting, using appropriate manual or mechanical alternatives.
- Bag and remove any biological debris or damp down such material before demolition.

6.1.3 Detailed mitigation measures to control construction traffic should be discussed with the Local Authority to establish the most suitable access and haul routes for the Site traffic. The

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most effective mitigation will be achieved by ensuring that construction traffic does not pass along sensitive roads (i.e. congested roads, residential roads or unsuitable junctions for large vehicles) where possible. Construction vehicles should be kept clean through the use of wheel washers and sheeted when on public highways. Timing of large-scale vehicle movements to avoid peak hours on the local road network would also be of benefit.

***Residual Effect***

6.1.4 During the construction phase, the residual effect of dust and PM<sub>10</sub> generated by construction activities following the application of the mitigation measures described above and good Site practice is considered to be **not significant**.

6.1.5 In addition, the residual effect of emissions to air from construction vehicles and plant on local air quality is considered to be **not significant**.

**6.2 Operational Phase**

6.2.1 The impact of the operational phase of the Proposed Development has been found to be **not significant**, in accordance with the EPUK and IAQM guidance, therefore, no mitigation measures are required.

***Residual Effect***

6.2.2 During the operational phase, the residual effect of emissions to air from vehicles associated with the Proposed Development is considered to be **not significant**.

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## 7 SUMMARY AND CONCLUSIONS

- 7.1.1 NoiseAir Limited was commissioned to undertake an AQA in support of a Proposed Development at 13 – 15 Chapel Hill, Huddersfield HD1 3ED to provide a single residential dwelling.
- 7.1.2 A qualitative assessment of the potential impacts on local air quality from construction activities has been carried out for this phase of the Proposed Development using the IAQM methodology. This identified that there is a maximum of **low risk** of dust soiling impacts and a **negligible risk** of increases in particulate matter concentrations due to unmitigated construction activities for human health. However, through good site practice and the implementation of highly recommended mitigation measures, the effect of dust and particulate matter releases would be significantly reduced. The residual effects of dust and particulate matter generated by construction activities on air quality are, therefore, considered to be **not significant**.
- 7.1.3 A desk top study on the potential for future users of the Proposed Development has been undertaken. The potential for exposure of future users to exceedances of the AQOs and interim target was assessed based on local monitoring results, predicted background concentrations, proximity to pollution sources, and AQMA designations. This indicated that concentrations of NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> are likely to be below the relevant AQOs and interim target at the Site. The residual effect on future users of the Proposed Development is considered to be **not significant**.
- 7.1.4 In accordance with the IAQM and EPUK guidance, the Proposed Development is expected to result in a **negligible** air quality impact at nearby existing receptors. The residual effect of the Proposed Development is considered to be **not significant**.
- 7.1.5 Based on the assessment results, it is considered that the Proposed Development complies with national and local air quality policy and that air quality issues are not a constraint to planning consent. As such, the Site is suitable for the proposed use from an air quality perspective.

## FIGURES

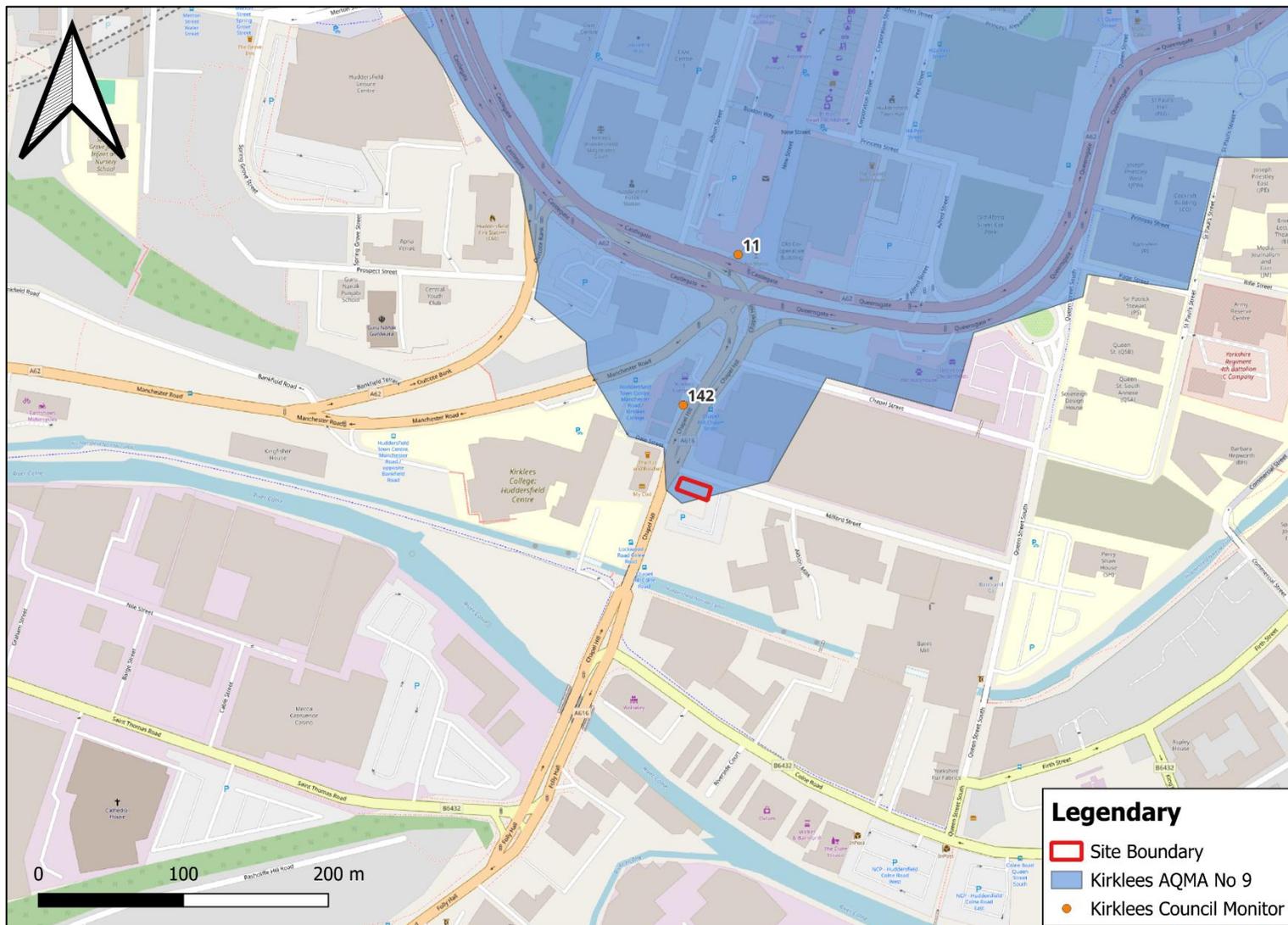


Figure 1 Site Location and Local Monitoring Locations

## **APPENDIX A – REPORT LIMITATIONS**

This Report is presented to Waterloo Investments 1984 Ltd and may not be used or relied on by any other person or by the client in relation to any other matters not covered specifically by the scope of this report.

Notwithstanding anything to the contrary contained in the report, NoiseAir Limited is obliged to exercise reasonable skill, care, and diligence in the performance of the services required by Waterloo Investments 1984 Ltd and NoiseAir shall not be liable except to the extent that it has failed to exercise reasonable skill, care and diligence, and this report shall be read and construed accordingly.

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The conclusions and recommendations contained in this report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from who it has been requested and that such information is accurate. Information obtained by NoiseAir Limited has not been independently verified by NoiseAir Limited unless otherwise stated in the report and should be treated accordingly.

Where assessments of works or costs identified in this report are made, such assessments are based upon the information available at the time and where appropriate are subject to further investigations or information which may become available.

Where / if estimates and projects are made within this report, are made based on reasonable assumptions as of the date of this report, such statements however by their very nature involve risks and uncertainties that could cause actual results to differ materially from the results predicted. NoiseAir Limited specifically does not guarantee or warrant any estimates or projects contained in this report.

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## **APPENDIX B – GLOSSARY**

<b>Table B1: Glossary</b>	
<b>AADT Annual Average Daily Traffic</b>	A daily total traffic flow (24hrs), expressed as mean daily floor across all 365 days of the year.
<b>Adjustment</b>	Application of a correction factor to modelled results to account for uncertainties in the model.
<b>Accuracy</b>	A measure of how well a set of data fits the true value.
<b>Air quality objective</b>	Policy targets generally expressed as a maximum ambient concentration to be achieved, either without exception or with the permitted number of exceedances within a specific time scale (see also air quality standard).
<b>Ambient air</b>	Outdoor air in the troposphere, excluding workplace air.
<b>Annual mean</b>	the average (mean) of the concentrations measured for each pollutant for one year.
<b>AQMA</b>	Air Quality Management Area.
<b>AQO</b>	Air Quality Objective.
<b>AURN</b>	Automatic Urban and Rural (air quality) Network, managed by contractors on behalf of Defra.
<b>Conservative</b>	Trending to over predict the impact rather than under predict.
<b>Data Capture</b>	The percentage of all the possible measurements for given periods that were validly measured.
<b>Defra</b>	Department for Environment, Food and Rural Affairs.
<b>DfT</b>	Department for Transport.
<b>EFT</b>	Emission Factor Toolkit.
<b>Emission rate</b>	The quantity of a pollutant released from a source over a given period of time.
<b>EPUK</b>	Environmental Protection (UK).
<b>Exceedance</b>	A period of time where the concentration of a pollutant is greater than the appropriate air quality standard.

<b>HDV/HGV</b>	Heavy Duty Vehicle/Heavy Goods Vehicle.
<b>IAQM</b>	Institute of Air Quality Management.
<b>LAQM</b>	Local Air Quality Management.
<b>Model adjustment</b>	Following model verification, the process by which modelled results are amended. This corrects for systematic error.
<b>NO<sub>2</sub></b>	Nitrogen dioxide.
<b>NO<sub>x</sub></b>	Nitrogen oxides.
<b>PM<sub>10</sub></b>	Particulate matter with an aerodynamic diameter of less than 10 micrometres.
<b>PM<sub>2.5</sub></b>	Particulate matter with an aerodynamic diameter of less than 2.5 micrometres.
<b>Road link</b>	A length of road which is considered to have the same flow of traffic along it. Usually, a link is the road from one junction to the next.
<b>µg/m<sup>3</sup> micrograms per cubic metre</b>	A measure of concentration in terms of mass per unit volume. A concentration of 1µg/m <sup>3</sup> means that one cubic metre of air contains one microgram (millionth of a gram) of a pollutant.

## **APPENDIX C – IAQM CONSTRUCTION DUST ASSESSMENT METHODOLOGY**

## IAQM Construction Dust Assessment Methodology

### Step 1 – Screening the Need for a Detailed Assessment

An assessment will normally be required where there is ‘human receptor’ within:

- 250 m of the boundary of the site; or
- 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).

A detailed assessment of effects on ‘ecological receptors’ will be required where an ‘ecological receptor’ is within:

- 50 m of the boundary of the site; or
- 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).

For specific (high risk) schemes the planning authority may require dust assessment despite the proposed site falling outside the distances above.

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

### Step 2a – Define the Potential Dust Emission Magnitude

The dust emission magnitude is based on the scale of the anticipated works and should be classified as Small, Medium, or Large. The following are examples of how the potential dust emission magnitude for different activities can be defined.

Note that, in each case, not all criteria need to be met; other criteria may be used if justified within the assessment. Where relevant, multiple screening assessments may be completed for different development phases (or even sub-phases where demolition may be brief or there is a very short period of intense activity, for example).

Table C1: Construction Dust - Magnitude of Emission		
Magnitude	Activity	Criteria
Large	Demolition	<ul style="list-style-type: none"><li>- Total volume of building to be demolished greater than 75,000 m<sup>3</sup>.</li><li>- Potentially dusty construction material (e.g., concrete).</li><li>- On-site crushing and screening.</li><li>- Demolition activities more than 12 m above ground level.</li></ul>
	Earthworks	<ul style="list-style-type: none"><li>- Total site area greater than 110,000 m<sup>2</sup>.</li></ul>

**Table C1: Construction Dust - Magnitude of Emission**

Magnitude	Activity	Criteria
		<ul style="list-style-type: none"> <li>- Potentially dusty soil type (e.g., clay, which will be prone to suspension when dry due to small particle size).</li> <li>- More than 10 heavy earth moving vehicles active at any one time.</li> <li>- Formation of bunds greater than 6 m in height.</li> </ul>
	Construction	<ul style="list-style-type: none"> <li>- Total building volume greater than 75,000 m<sup>3</sup>.</li> <li>- On site concrete batching.</li> <li>- Sandblasting.</li> </ul>
	Trackout	<ul style="list-style-type: none"> <li>- More than 50 HDV outward movements in any one day.</li> <li>- Potentially dusty surface material (e.g., high clay content).</li> <li>- Unpaved road length greater than 100 m.</li> </ul>
Medium	Demolition	<ul style="list-style-type: none"> <li>- Total volume of building to be demolished between 12,000 m<sup>3</sup> and 75,000 m<sup>3</sup>.</li> <li>- Potentially dusty construction material.</li> <li>- Demolition activities between 6 m and 12 m above ground level.</li> </ul>
	Earthworks	<ul style="list-style-type: none"> <li>- Total site area between 18,000 m<sup>2</sup> and 110,000 m<sup>2</sup>.</li> <li>- Moderately dusty soil type (e.g., silt).</li> <li>- Between 5 and 10 heavy earth moving vehicles active at any one time.</li> <li>- Formation of bunds between 3 m and 6 m in height.</li> </ul>
	Construction	<ul style="list-style-type: none"> <li>- Total building volume between 12,000 m<sup>3</sup> and 75,000 m<sup>3</sup>.</li> <li>- Potentially dusty construction material (e.g., concrete).</li> <li>- On site concrete batching.</li> </ul>
	Trackout	<ul style="list-style-type: none"> <li>- Between 20 and 50 HDV outward movements in any one day.</li> <li>- Moderately dusty surface material (e.g., high clay content).</li> <li>- Unpaved road length between 50 m and 100 m.</li> </ul>
Small	Demolition	<ul style="list-style-type: none"> <li>- Total volume of building to be demolished less than 12,000 m<sup>3</sup>.</li> </ul>

**Table C1: Construction Dust - Magnitude of Emission**

Magnitude	Activity	Criteria
		<ul style="list-style-type: none"> <li>- Construction material with low potential for dust release (e.g., metal cladding or timber).</li> <li>- Demolition activities less than 6 m above ground.</li> <li>- Demolition activities during wetter months.</li> </ul>
	Earthworks	<ul style="list-style-type: none"> <li>- Total site area less than 18,000 m<sup>2</sup>.</li> <li>- Soil type with large grain size (e.g., sand).</li> <li>- Less than 5 heavy earth moving vehicles active at any one time.</li> <li>- Formation of bunds less than 3 m in height.</li> </ul>
	Construction	<ul style="list-style-type: none"> <li>- Total building volume less than 12,000 m<sup>3</sup>.</li> <li>- Construction material with low potential for dust release (e.g., metal cladding or timber).</li> </ul>
	Trackout	<ul style="list-style-type: none"> <li>- Less than 20 HDV outward movements in any one day.</li> <li>- Surface material with low potential for dust release.</li> <li>- Unpaved road length less than 50 m.</li> </ul>

**Step 2b – Define the Sensitivity of the Area**

The tables below present the IAQM assessment methodology to determine the sensitivity of the area to soiling, human health and ecological impacts respectively. The IAQM guidance provides guidance to allow sensitivity of individual receptors to soiling and health effects to assist in the assessment of the overall sensitivity of the study area.

**Table C2: Sensitivity of the Area to Dust Soiling Effects on People and Property**

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

**Table C3: Sensitivity of the Area to Human Health Impacts**

Receptor Sensitivity	Annual Mean PM <sub>10</sub> Concentrations (µg/m <sup>3</sup> )	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
High	>32	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low

**Table C3: Sensitivity of the Area to Human Health Impacts**

Receptor Sensitivity	Annual Mean PM <sub>10</sub> Concentrations (µg/m <sup>3</sup> )	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
	28-32	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24-28	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	>32	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28-32	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	<24	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	-	≥1	Low	Low	Low	Low

**Table C4: 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

**Step 2c – Define the Risk of Impacts**

The dust emissions magnitude determined in Step 2A should be combined with the sensitivity of the area determined at Step 2B to determine the risk of impacts without mitigation applied. For those cases where the risk category is ‘negligible’ no mitigation measures beyond those required by legislation will be required.

**Table C5: Risk of Dust Impacts**

Sensitivity of Surrounding	Dust Emission Magnitude		
	Large	Medium	Small
<b>Demolition</b>			
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible
<b>Earthworks and Construction</b>			

<b>Table C5: Risk of Dust Impacts</b>			
<b>Sensitivity of Surrounding</b>	<b>Dust Emission Magnitude</b>		
	<b>Large</b>	<b>Medium</b>	<b>Small</b>
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
<b>Trackout</b>			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

### **Step 3 – Site Specific Mitigation**

Having determined the risk categories for each of the four activities it is possible to determine the site- specific measures to be adopted. These measures will be related to whether the site is considered to be a low, medium or high risk Site. The IAQM guidance details the mitigation measures required for low, medium and high risk sites as determined in Step 2C.

### **Step 4 – Determine Significant Effects**

Once the risk of dust impacts has been determined in Step 2C under the appropriate dust mitigation measures identified in Step 3, the final step is to determine whether there are significant effects arising from the construction phase. For almost all construction activities, the application of effective mitigation should prevent any significant effects occurring to sensitive receptors. If there are residual effects they will normally be negligible.

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