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KMM HOMES

FORMER GROVE PUBLIC HOUSE

AIR QUALITY SCREENING ASSESSMENT

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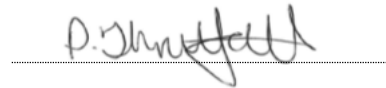
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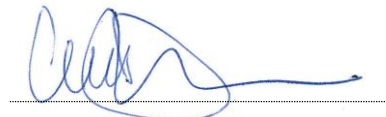
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CONTENTS

1	INTRODUCTION	1
1.1	Background.....	1
2	LEGISLATION AND POLICY CONTEXT	2
2.1	Relevant Air Quality Legislation and Guidance	2
2.2	Assessment Criteria.....	2
3	ASSESSMENT METHODOLOGY.....	3
3.1	Construction Phase Assessment	3
3.2	Operational Phase Assessment.....	3
4	BASELINE SITUATION	4
4.1	Manchester City Council Local Air Quality Management	4
4.2	Background Air Pollutant Concentrations.....	4
5	IMPACT ASSESSMENT	6
5.1	Construction Phase Assessment	6
5.2	Operational Phase	9
6	CONCLUSIONS.....	11
6.1	Summary of Impacts	11
6.2	Summary	11

APPENDICES

Appendix A	Air Quality Legislation and Guidance
Appendix B	Methodology for Construction Phase Assessment
Appendix C	Professional Experience of Assessors

1 INTRODUCTION

1.1 Background

- 1.1.1 Wardell Armstrong LLP has been commissioned to prepare an air quality screening assessment for a proposed residential development at the former Grove Public House, Manchester, M11 1GR.
- 1.1.2 The proposed development site is located at 1515 Ashton Old Road and currently comprises a disused building associated with the former Grove public house. To the north, the site is bound by unused land with the Openshaw AEU Club and Institute beyond. To the east, the site is bound by existing residential properties on Gransmoor Avenue. To the south the site is bound by Ashton Old Road, with existing residential properties beyond. To the west the site is bound by Club Street, with existing residential dwellings beyond.
- 1.1.3 From the information provided, it is understood that the proposals are for the demolition of the existing building and construction of three residential dwellings.
- 1.1.4 This report details the results of the air quality screening assessment undertaken to accompany the planning application for the proposed development. The report discusses the potential dust and fine particulate matter impacts associated with the construction phase, and the potential air quality impacts generated by the proposed development during its operation.

2 LEGISLATION AND POLICY CONTEXT

2.1 Relevant Air Quality Legislation and Guidance

2.1.1 The air quality assessment has been undertaken in accordance with the following legislation and guidance:

- The Environment Act 1995.
- Department of Environment, Food and Rural Affairs, The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, July 2007.
- The Air Quality Standards Regulations 2010.
- Department for Environment, Food and Rural Affairs, Local Air Quality Management Technical Guidance LAQM.TG (16), April 2021.
- Ministry of Housing, Communities and Local Government, National Planning Policy Framework, July 2021; and
- Department for Communities and Local Government, Planning Practice Guidance: Air Quality, November 2019.

2.1.2 Further details of these documents are included in **Appendix A**.

2.2 Assessment Criteria

2.2.1 The relevant air quality objectives and limit values for this assessment are included within Table 1.

Table 1: Air Quality Objectives and Limit Values Relevant to the Assessment*			
Pollutant	Objective/Limit Value	Averaging Period	Obligation
Nitrogen Dioxide (NO ₂)	200µg/m ³ , not to be exceeded more than 18 times a year	1-hour mean	All local authorities
	40µg/m ³	Annual mean	All local authorities
Particulate Matter (PM ₁₀)	50µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean	England, Wales, and Northern Ireland
	40µg/m ³	Annual mean	England, Wales, and Northern Ireland
Particulate Matter (PM _{2.5})	Limit Value of 25µg/m ³	Annual mean	England, Wales, and Northern Ireland
*In accordance with the Air Quality Standards Regulations 2010			

2.2.2 Further details of where these objectives and limit values apply are detailed in **Appendix A**.

3 ASSESSMENT METHODOLOGY

3.1 Construction Phase Assessment

3.1.1 To assess the impacts associated with dust and fine particulate matter releases during the construction phase of the development, an assessment has been undertaken in accordance with guidance from the Institute of Air Quality Management (IAQM)¹. Further details of the construction assessment methodology are provided in **Appendix B**.

3.1.2 The closest sensitive human receptors to where construction phase activities will take place are all residential and are detailed in Table 2.

Table 2: Existing Sensitive Receptors Considered in the Construction Phase Assessment		
Receptor	Direction from the Site	Approximate Distance from the Site Boundary (m)
Existing residential dwellings off Gransmoor Avenue	East	Adjacent to site boundary
Existing residential dwellings off Ashton Old Road	South	Approximately 20m at closest point
Existing residential dwellings west of Club Street	West	Approximately 8m at closest point
Openshaw AEU Club and Institute	South	Approximately 40m at closest point

3.1.3 There are no statutory designated habitat sites within 50m of the site and/or adjacent to any roads potentially used by construction vehicles within 500m of the site. Therefore, ecological effects do not need to be considered within this assessment.

3.1.4 The criteria used to assess the construction impact of the proposed development, and the associated significance of effects, at existing sensitive receptors are included in **Appendix B**.

3.2 Operational Phase Assessment

3.2.1 A qualitative screening assessment has been undertaken of the impacts of NO₂ and fine particulate matter, as these are the pollutants considered most likely to exceed the objectives and limit values.

¹ Institute of Air Quality Management, Guidance on the Assessment of Dust from Demolition and Construction, February 2014

4 BASELINE SITUATION

4.1 Manchester City Council Local Air Quality Management

- 4.1.1 The proposed development site is located within the administrative area of Manchester City Council (MCC), which is responsible for the management of air quality in the local area. The boundary with Tameside Metropolitan Borough Council (TMBC) is located approximately 70m north-east of the proposed development site.
- 4.1.2 A single Air Quality Management Area (AQMA) has been declared on a precautionary basis by all ten of the Greater Manchester local authorities, which covers all locations in Greater Manchester where concentrations of nitrogen dioxide (NO₂) are predicted to exceed 35µg/m³ (the annual mean objective is 40 µg/m³). The southern section of the proposed development site is located within part of the Greater Manchester AQMA.
- 4.1.3 A review of the 2020 Annual Status Report (ASR)² (the most recent available on the local authority website) shows that the ten Greater Manchester authorities collectively operated 21 automatic air quality monitoring locations and 400 non-automatic locations (NO₂ diffusion tubes) in 2019. The closest monitoring locations to the proposed development site are 3 roadside diffusion tubes, detailed in Table 3 below. These locations are all below both the annual mean objective of 40 µg/m³ and the 35 µg/m³ benchmark used for the AQMA declaration by Greater Manchester Councils.

Table 3: Closest air quality monitoring locations to proposed development site.			
Diffusion tube reference number	Location	Distance to site	2019 Nitrogen Dioxide (NO ₂) (µg/m ³)
Tameside 17	A662 junction	1.2km northwest	26.6
Tameside 16	A662/A635 junction	1.6km northeast	30.9
Manchester 28	A635 Ashton Old Road	1.95km west	26.4

4.2 Background Air Pollutant Concentrations

- 4.2.1 Background concentrations at the proposed development site have been obtained from the 2018-based Defra default concentration maps for the appropriate grid squares³.

² Greater Manchester, 2020 Air Quality Annual Status Report (ASR), June 2021.

³ Accessed through the Defra Local Air Quality Management webpages (<http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html>)

4.2.2 The background pollutant concentrations used in this assessment are detailed in Table 4.

Table 4: Background Air Pollutant Concentrations for Particulate Matter Obtained from the 2018-Based Defra Default Concentration Maps			
Proposed Development Site Coordinates	2022 Pollutant Concentrations ($\mu\text{g}/\text{m}^3$)		
	Nitrogen Dioxide (NO_2)	Particulate Matter (PM_{10})	Particulate Matter ($\text{PM}_{2.5}$)
389500, 397500	15.59	12.28	8.50

4.2.3 The background pollutant concentrations are well below the annual mean objectives for NO_2 and PM_{10} ($40 \mu\text{g}/\text{m}^3$).

5 IMPACT ASSESSMENT

5.1 Construction Phase Assessment

Step 2 – Impact Assessment

- 5.1.1 In accordance with the IAQM guidance, the main activities to be considered during the construction phase of the proposed development are demolition, earthworks, construction and trackout.
- 5.1.2 Demolition will involve the removal of existing buildings within the proposed development site. Earthworks covers the processes of soil-stripping, ground-levelling, excavation, and landscaping. Construction activities will focus on the proposed buildings and car parking areas.
- 5.1.3 Trackout is defined as the transport of dust and dirt by vehicles travelling from a construction site on to the public road network. This may occur through the spillage of dusty materials onto road surfaces or through the transportation of dirt by vehicles that have travelled over muddy ground on the site. This dust and dirt can then be deposited and resuspended by other vehicles.

Step 2A

- 5.1.4 Step 2A of the assessment defines the potential dust emission magnitude from earthworks, construction and trackout in the absence of site-specific mitigation.
- 5.1.5 Examples of the criteria for the dust emission classes are detailed in **Appendix B**. The results of this step are detailed in Table 5.

Step 2B

- 5.1.6 Step 2B of the construction phase dust assessment defines the sensitivity of the area, considering the significance criteria detailed in **Appendix B**, for demolition, earthworks, construction and trackout. The sensitivity of the area to each activity is assessed for potential dust soiling, human health effects and ecological effects (where applicable).
- 5.1.7 For demolition, earthworks and construction, there are currently between 10 and 100 residential receptor locations within 50m of where these activities may take place, which is assumed to be the site boundary for the purposes of this assessment.
- 5.1.8 For trackout, there are between 10 and 100 receptors (residential and commercial) within 50m of where trackout may occur for a distance of up to 50m from the site entrance.

Step 2C

5.1.9 Step 2C of the construction phase dust assessment defines the risk of impacts from each activity, by combining the dust emission magnitude with the sensitivity of the surrounding area.

5.1.10 The risk of dust impacts from each activity, with no mitigation in place, has been assessed in accordance with the criteria detailed in **Appendix B**. The results of this step are detailed in Table 5.

Summary of Step 2

5.1.11 Table 5 details the results of Step 2 of the construction phase assessment for human receptors.

Table 5: Construction Phase Dust Assessment				
	Activity			
	Demolition	Earthworks	Construction	Trackout
Step 2A				
Dust Emission Magnitude	Small ^a	Small ^b	Small ^c	Small ^d
Step 2B				
Sensitivity of Closest Receptors	High	High	High	High
Sensitivity of Area to Dust Soiling Effects	Medium	Medium	Medium	Medium
Sensitivity of Area to Human Health Effects	Low ^e	Low ^e	Low ^e	Low ^e
Step 2C				
Dust Risk: Dust Soiling	Low Risk	Low Risk	Low Risk	Low Risk
Dust Risk: Human Health	Negligible Risk	Negligible Risk	Negligible Risk	Negligible Risk
<i>a. Classified as small where the total building volume to be demolished is estimated to be less than 20,000m³.</i> <i>b. Classified as small where the total individual site area is estimated to be greater than 2,500m².</i> <i>c. Classified as small where the total building volume to be constructed is estimated to be less than 25,000m³.</i> <i>d. Classified as small where the number of HDV movements in an average day is estimated to be fewer than 10.</i> <i>e. Background annual mean PM₁₀ concentration is less than 24µg/m³ for 2022 (based on data obtained from the 2018-based DEFRA Background Maps, as detailed in Table 2).</i>				

Step 3 – Mitigation

- 5.1.12 During the construction phase, the implementation of effective mitigation measures will substantially reduce the potential for nuisance dust and fine particulate matter to be generated.
- 5.1.13 Step 2C of the assessment has identified that the risk of dust soiling and human health effects is not negligible for all activities and therefore site-specific mitigation will need to be implemented to ensure dust effects from these activities will be not significant.

Recommendations for Site-Specific Mitigation

- 5.1.14 Specific mitigation relating to dust control may be in the form of construction best practices or could include a dust management plan. Recommendations for mitigation within the IAQM guidance include:
- Soft strip inside buildings before demolition.
 - Ensure effective water suppression is used during demolition operations. Handheld sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed.
 - Revegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
 - Protect surfaces and exposed material from winds until disturbed areas are sealed and stable.
 - Dampen down exposed stored materials, which are to be stored as far from sensitive receptors as possible.
 - Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
 - Avoid activities that generate large amounts of dust during windy conditions.
 - 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 dry sweeping of large areas.
 - Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being

continuously in use.

- Ensure vehicles entering and leaving the site are covered to prevent escape of materials during transport.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
- Minimise vehicle movements and limit vehicle speeds – the slower the vehicle speeds, the lower the dust generation.
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever the site size and layout permits; and
- Access gates to be located at least 10m from receptors, where possible.

5.1.15 All dust and air quality complaints should be recorded, and appropriate measures be taken to identify causes and reduce emissions in a timely manner. Exceptional incidents which cause dust emissions, and the action taken to resolve the situation, should be recorded in a logbook, and made available to MCC on request.

5.1.16 It is recognised that the final design solutions will be developed with the input of the Contractor to maximise construction efficiencies, to use modern construction techniques and sustainable materials and to incorporate the particular skills and experience offered by the appointed contractor.

Step 4 – Residual Effects

5.1.17 Step 4 of the construction phase dust assessment has been undertaken to determine the significance of the dust effects arising from demolition, earthworks, construction and trackout associated with the proposed development.

5.1.18 The implementation of effective mitigation measures during the construction phase, such as those detailed in Step 3, will substantially reduce the potential for nuisance dust and fine particulate matter to be generated and any residual impact should be **not significant**.

5.2 Operational Phase

5.2.1 The proposals are for up to three residential dwellings. It is therefore expected that traffic generation from the development will be well below the threshold requiring detailed assessment in IAQM guidance (100 AADT within AQMA). Furthermore, although the site is located partially within the AQMA, available background monitoring data (Table 4) shows that NO₂, PM₁₀ and PM_{2.5} concentrations at the site

are well below the relevant objectives and target levels. Moreover, the closest roadside monitoring locations to the proposed development site operated by MCC and TMBC are also below both the annual mean objective of $40\mu\text{g}/\text{m}^3$ for NO_2 and the threshold of $35\mu\text{g}/\text{m}^3$ used for the AQMA declaration (Table 3). It is therefore considered that future residents of the site will not experience exceedances of the objectives.

- 5.2.2 As a result, in accordance with the EPUK/IAQM guidance, the impacts of the proposed development can be considered to have an insignificant effect.
- 5.2.3 It is noted that the proposed development site lies within the Impact Risk Zone for the Hollinwood Canal Branch Site of Special Scientific Interest (SSSI), which is located approximately 2.3km to the north east of the site. However, given the small scale of the development and the distances from the site, it is not anticipated that there will be any adverse impacts on the SSSI as a result of the operation of the proposed development.
- 5.2.4 In accordance with the Environmental Protection UK (EPUK) and IAQM document 'Land-Use Planning and Development Control: Planning for Air Quality' (January 2017), the impact can be described as 'not significant'.

Assessment of Significance for Human Receptors

- 5.2.5 The significance of the overall effects of the proposed development has been assessed in accordance with the EPUK/IAQM guidance. This assessment is based on professional judgement and details of the assessors' experience is included in **Appendix C**.
- 5.2.6 In accordance with the EPUK/IAQM guidance, the air quality effect of the proposed development is considered to be **not significant**.

6 CONCLUSIONS

6.1 Summary of Impacts

6.1.1 A review of relevant guidance for the construction phase of the proposed development at the former Grove public house site, Manchester has been undertaken in accordance with guidance from the IAQM. It is considered that there will be a 'not significant' effect associated with dust and fine particulate matter associated with activities during the construction phase, with appropriate site-specific mitigation measures in place.

6.1.2 Following a review of local air quality, in accordance with guidance from EPUK and the IAQM, the impact of the operational phase of the development can be described as 'not significant'.

Recommendations for Mitigation

6.1.3 The impact of the proposed development is predicted to be not significant. However, mitigation measures will assist in reducing any potential impact and general best practice measures in relation to air quality could be implemented.

6.2 Summary

6.2.1 The assessment demonstrates that the proposed development will accord with all relevant national planning policy and will not lead to an unacceptable risk from air pollution. There are no material reasons in relation to air quality why the proposed scheme should not proceed, subject to appropriate planning conditions.

Appendix A

Air Quality Legislation and Guidance

Appendix A: Air Quality Legislation and Guidance

National Air Quality Strategy

- A.1 The Environment Act 1995 requires the UK government to prepare a national Air Quality Strategy. The first UK strategy was published in March 1997, setting out policies for the management of ambient air quality. This was subsequently updated in 2007¹.
- A.2 The 2007 strategy establishes the framework for air quality management in England, Scotland, Wales and Northern Ireland. Air quality standards and objectives are set out for eight pollutants which may potentially occur at levels that give cause for concern. The strategy also provides details of the role that local authorities are required to take in working towards improvements in air quality, known as the Local Air Quality Management (LAQM) regime.

Air Quality Standards and Objectives

- A.3 Air quality standards and objectives are set out in the strategy for the following pollutants: nitrogen dioxide (NO₂), sulphur dioxide (SO₂), carbon monoxide (CO), lead (Pb), fine particulate matter (PM₁₀), benzene (C₆H₆), 1, 3-butadiene (C₄H₆) and ozone (O₃).
- A.4 Objectives for each pollutant, except O₃, were first given statutory status in the Air Quality Regulations 2000² and Air Quality (Amendment) Regulations 2002³. These objectives are defined in the strategy as:

“the maximum ambient concentration not to be exceeded, either without exception or with a permitted number of exceedances, within a specified timescale.”

- A.5 EU limit values, set out within the Ambient Air Quality Directive 2008/50/EC⁴ (i.e., the CAFE Directive), were transposed into UK legislation on 11th June 2011 as The Air Quality Standards Regulations 2010. These are mostly the same as the air quality objectives in terms of concentrations; however, there are differences in determining how compliance is achieved. Although the UK is no longer part of the EU, no changes have yet been made to the objectives and limit values used in the management and assessment of air quality.

¹ Department of Environment, Food and Rural Affairs, The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. July 2007

² The Air Quality Regulations 2000. SI No 928

³ The Air Quality (Amendment) Regulations 2002

⁴ Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe

- A.6 Whilst there is no specific objective for PM_{2.5} in England and Wales, a limit value of 25µg/m³ is referred to in the regulations, which has been adopted for use in this assessment (as recommended by the LAQM Helpdesk). An objective has been set for PM_{2.5} in Scotland since early 2016.
- A.7 Examples of where these objectives and limit values apply are detailed in the Defra LAQM Technical Guidance document LAQM.TG(16)⁵ and are included in Table A1.

Table A1: Examples of Where the Air Quality Objectives Should 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 façades of residential properties, schools, hospitals, care homes, etc.	Building facades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term
24-hour mean and 8-hour mean	All locations where the annual mean objectives would apply, together with hotels. Gardens of residential properties ^a	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 and 8-hour objectives apply. Kerbside sites (e.g., pavements of busy shopping streets). Those parts of car parks and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more. Any outdoor locations to which the public might reasonably be expected to spend one hour or longer	Kerbside sites where public would not be expected to have regular access

⁵ Department for Environment, Food and Rural Affairs, Local Air Quality Management Technical Guidance LAQM.TG(16), February 2018

Table A1: Examples of Where the Air Quality Objectives Should Apply		
Averaging Period	Objectives Should Apply at:	Objectives Should Generally Not Apply at:
15-minute mean	All locations where members of the public might reasonably be exposed for a period of 15 minutes or longer	
<i>a. Such locations should represent parts of the garden where relevant public exposure is likely, for example where there is seating or play areas. It is unlikely that relevant public exposure to pollutants would occur at the extremities of the garden boundary, or in front gardens, although local judgement should always be applied</i>		

Local Air Quality Management

- A.8 LAQM legislation in the Environment Act 1995 requires local authorities to conduct the periodic review and assessments of air quality. These aim to identify all those areas where the objectives are being, or are likely to be, exceeded. Where exceedances are likely to occur, local authorities are required to declare an Air Quality Management Area (AQMA).
- A.9 LAQM.TG(16) presents a streamlined approach for LAQM in England and Scotland; however, Northern Ireland is still considering changes to LAQM and therefore works according to the previous regime.
- A.10 The Welsh Government amended the LAQM regime in Wales in 2017 by issuing new statutory policy guidance in order to bring the system into line with the Well-being of Future Generations (Wales) Act 2015⁶. This aims to achieve compliance with the national air quality objectives in specific hotspots and to reduce exposure to pollution more widely, so as to achieve the greatest public health benefit.
- A.11 Local authorities in England are required to produce Annual Status Reports (ASRs), and in Scotland and Wales, Annual Progress Reports (APRs). These replace all other reports which previously had to be submitted including Updating and Screening Assessments, Progress Reports and Detailed Assessments (which would be produced to assist with an AQMA declaration).
- A.12 Local authorities now have the option of a fast-track AQMA declaration option. This allows more expert judgement to be used and removes the need for a Detailed Assessment where a local authority is confident of the outcome. Detailed Assessments should however still be used if there is any doubt.
- A.13 As part of the UK Government's requirement to improve air quality, selected local

⁶ Well-being of Future Generations (Wales) Act 2015 (anaw 2)

authorities in England are also currently investigating the feasibility of setting up Clean Air Zones (CAZs). These are areas where targeted action and co-ordinated resources aim to improve air quality within an urban setting, in order to achieve compliance with the EU limit values within the shortest possible time.

- A.14 The first CAZs were implemented in Bath in March 2021, and in Birmingham in June 2021. In addition, the London Ultra Low Emission Zone (ULEZ) was expanded to incorporate the North and South Circular roads in October 2021. Charges apply to certain types of vehicles travelling within these areas, including buses, coaches, taxis, private hire vehicles and heavy duty vehicles (HDVs). The Greater Manchester CAZ, due to be introduced from 30 May 2022, has been delayed until July 2022, the same time the Newcastle-upon-Tyne CAZ will be introduced.

National Planning Policy Framework

- A.15 The National Planning Policy Framework (NPPF)⁷, introduced in March 2012 and most recently updated in July 2021, requires that:

“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 AQMAs and CAZs, 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 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 AQMAs and CAZs is consistent with the local air quality action plan.”

Planning Practice Guidance

- A.16 The Planning Practice Guidance (PPG)⁸, updated in November 2019, states that whether or not air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to generate air quality impacts in an area where air quality is known to be poor. They could also arise where the development is likely to adversely impact upon

⁷ Ministry of Housing, Communities and Local Government, National Planning Policy Framework, July 2021

⁸ Department for Communities and Local Government. Planning Practice Guidance: Air Quality, November 2019

the implementation of air quality strategies and action plans and/or, in particular, lead to a breach of EU legislation (including that applicable to wildlife).

- A.17 Where a proposed development is anticipated to give rise to concerns about air quality, an appropriate assessment needs to be carried out. Where the assessment concludes that the proposed development (including mitigation) will not lead to an unacceptable risk from air pollution, prevent sustained compliance with national objectives or fail to comply with the requirements of the Habitats Regulations, then the local authority should proceed to decision with appropriate planning conditions and/or obligations.

Appendix B

Methodology for Construction Phase Assessment

Appendix B: Methodology for Construction Phase Assessment

Institute of Air Quality Management Guidance

- B.1 The methodology for the construction phase dust assessment is set out in guidance from the Institute of Air Quality Management (IAQM)⁹.

Step 1

- B.2 Step 1 is to screen the requirement for a more detailed assessment. The guidance states that an assessment will normally be required where there are existing sensitive human receptors within 350m of the site boundary and/or within 100m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).
- B.3 With regards to ecological receptors, the guidance states that an assessment will normally be required where there are existing receptors within 50m of the site boundary and/or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).
- B.4 Where any of these criteria are met, it is necessary to proceed to Step 2.

Step 2

- B.5 Step 2 determines the potential risk of dust arising in sufficient quantities to cause annoyance and/or health or ecological impacts. The risk is related to:
- The activities being undertaken (demolition, number of vehicles and plant etc);
 - The duration of these activities;
 - The size of the site;
 - The meteorological conditions (wind speed, direction and rainfall);
 - The proximity of receptors to the activity;
 - The adequacy of the mitigation measures applied to reduce or eliminate dust; and
 - The sensitivity of receptors to dust.
- B.6 The risk of dust impacts is determined using four risk categories: negligible, low, medium and high risk. A site is allocated to a risk category based upon the following two factors (known as Step 2A and Step 2B).
- B.7 **Step 2A** assesses the scale and nature of the works which determines the potential

⁹ Institute of Air Quality Management, Guidance on the Assessment of Dust from Demolition and Construction (v1.1), June 2016

dust emission magnitude as small, medium or large. Examples of how the magnitude may be defined are included in Table B1.

Table B1: Determining the Dust Emission Magnitude of Construction Phase Activities			
Activity	Dust Emission Class		
	Large	Medium	Small
Demolition	Total building volume >50,000m ³ ; Potentially dusty construction material (e.g. concrete); On-site crushing and screening; Demolition activities >20m above ground level	Total building volume 20,000-50,000m ³ ; Potentially dusty construction material; Demolition activities 10-20m above ground level	Total building volume <20,000m ³ ; Construction material with low potential for dust release (e.g. metal cladding or timber)
Earthworks	Total site area >10,000m 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 >8m in height; Total material moved >100,000 tonnes	Total site area 2,500-10,000m ² ; Moderately dusty soil type (e.g. silt); 5-10 heavy earth moving vehicles active at any one time; Formation of bunds 4-8m in height; Total material moved 20,000-100,000 tonnes	Total site area <2,500m ² ; Soil type with large grain size (e.g. sand); <5 heavy earth moving vehicles active at any one time; Formation of bunds <4m in height; Total material moved <20,000 tonnes; Earthworks during wetter months
Construction	Total building volume >100,000m ³ ; On-site concrete batching; Sandblasting	Total building volume 25,000-100,000m ³ ; Potentially dusty construction material (e.g. concrete); On-site batching	Total building volume <25,000m ³ ; Construction material with a low potential for dust release (e.g. metal cladding or timber)

Table B1: Determining the Dust Emission Magnitude of Construction Phase Activities			
Activity	Dust Emission Class		
	Large	Medium	Small
Trackout	>50 HDV (>3.5t) outward movements ^a in any one day ^b ; Potentially dusty surface material (e.g. high clay content); Unpaved road length >100m	10-50 HDV (>3.5t) outward movements ^a in any one day ^b ; Moderately dusty surface material (e.g. high clay content); Unpaved road length 50-100m	<10 HDV (>3.5t) outward movements ^a in any one day ^b ; Surface material with low potential for dust release; Unpaved road length <50m
<i>a. A vehicle movement is a one way journey i.e. from A to B, and excludes the return journey</i> <i>b. HDV movements during a construction project may vary over its lifetime, and the number of movements is the maximum not the average</i>			

B.8 **Step 2B** considers the sensitivity of the area to dust impacts which is defined as low, medium or high. The sensitivity categories for different types of receptors are described in Table B2.

Table B2: Sensitivity Categories for Dust Soiling, Human Health and Ecological Effects			
Sensitivity Category	Dust Soiling Effects	Health effects of PM ₁₀	Ecological Effects
High	Users can reasonably expect to enjoy a high level of amenity; Appearance, aesthetics or value of a property would be diminished; Examples include dwellings, museums and other culturally important collections, medium and long term car parks and car show rooms	Locations where members of the public are exposed over a period of time relevant to the air quality objective for PM ₁₀ ; Examples include 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; Examples include a Special Area of Conservation with dust sensitive features

Table B2: Sensitivity Categories for Dust Soiling, Human Health and Ecological Effects			
Sensitivity Category	Dust Soiling Effects	Health effects of PM ₁₀	Ecological Effects
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; People or property wouldn't reasonably be expected to be continuously present or regularly for extended periods of time; Examples include parks and places of work	Locations where people are exposed as workers and exposure is over a period of time relevant to the air quality objective for PM₁₀; Examples include office and shop workers but will generally not include workers occupationally exposed to PM₁₀	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; Examples include a Site of Special Scientific Interest with dust sensitive features
Low	Enjoyment of amenity would not reasonably be expected; Property would not be diminished in appearance, aesthetics or value; People or property would be expected to be present only for limited periods of time; Examples include playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads	Locations where human exposure is transient; Examples include public footpaths, playing fields, parks and shopping streets	Locations with a local designation where the features may be affected by dust deposition; Examples include a Local Nature Reserve with dust sensitive features

B.9 Based on the sensitivity of individual receptors, the overall sensitivity of the area to dust soiling, human health and ecological effects is then determined using the criteria detailed in Tables B3 to B5, respectively.

Table B3: Sensitivity of the Area to Dust Soiling Effects on People and Property ^{ab}					
Receptor Sensitivity	Number of Receptors	Distance from Source (m) ^c			
		<20m	<50m	<100m	<350m
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

a. The sensitivity to the area should be derived for each of the four activities

b. Estimate the total number of receptors within the stated distance. Only the highest level of sensitivity from the table needs to be considered

c. For trackout, distances should be measured from the side of the roads used by construction traffic. Without site specific mitigation, trackout may occur for up to 500m from large sites, 200m from medium sites and 50m from small sites, measured from the site exit. The impact declines with distance from the site and it is only necessary to consider trackout impacts up to 50m from the edge of the road

Table B4: Sensitivity of the Area to Human Health Impacts ^{ab}							
Receptor Sensitivity	Annual Mean PM ₁₀ Concentration ^c	Number of Receptors ^d	Distance from Source (m) ^e				
			<20m	<50m	<100m	<200m	<350m
High	>32µg/m ³	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32µg/m ³	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28µg/m ³	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24µg/m ³	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>32µg/m ³	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	28-32µg/m ³	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	24-28µg/m ³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<24µg/m ³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	-	>1	Low	Low	Low	Low	Low
		>1	Low	Low	Low	Low	Low

Table B4: Sensitivity of the Area to Human Health Impacts ^{ab}					
Receptor Sensitivity	Annual Mean PM ₁₀ Concentration ^c	Number of Receptors ^d	Distance from Source (m) ^e		
			<20m	<50m	<100m
a. The sensitivity to the area should be derived for each of the four activities b. Estimate the total number of receptors within the stated distance. Only the highest level of sensitivity from the table needs to be considered c. Most straightforwardly taken from the national background maps, but should also take account of local sources. The values are based on 32µg/m³ being the annual mean concentration at which an exceedance of the 24-hour mean objective is likely in England, Wales and Northern Ireland. In Scotland, there is an annual mean objective of 18µg/m³ d. In the case of high sensitivity receptors with high occupancy (such as schools or hospitals) approximate the number of people likely to be present. In the case of residential dwellings, just include the number of properties e. For trackout, distances should be measured from the side of the roads used by construction traffic					

Table B5: Sensitivity of the Area to Ecological Impacts ^{ab}		
Receptor Sensitivity	Distance from the Source (m) ^c	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low
a. The sensitivity to the area should be derived for each of the four activities b. Only the highest level of sensitivity from the table needs to be considered c. For trackout, distances should be measured from the side of the roads used by construction traffic		

- B.10 These two factors are combined in **Step 2C** to determine the risk of dust impacts with no mitigation applied.
- B.11 The risk of dust effects is determined for four types of construction phase activities, with each activity being considered separately. If a construction phase activity is not taking place on the site, then it does not need to be assessed. The four types of activities to be considered are:
- Demolition;
 - Earthworks;
 - Construction; and
 - Trackout.
- B.12 The risk of dust being generated by demolition activities at the site is determined using the criteria in Table B6.

Table B6: Risk of Dust Impacts for Demolition			
Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

- B.13 The risk of dust being generated by earthworks and construction at the site is determined using the criteria in Table B7.

Table B7: Risk of Dust Impacts for Earthworks and Construction			
Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

- B.14 The risk of dust being generated by trackout at the site is determined using the criteria in Table B8.

Table B8: Risk of Dust Impacts for Trackout			
Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

Step 3

- B.15 Step 3 of the assessment determines the site-specific mitigation required for each of the activities, based on the risk determined in Step 2. Mitigation measures are detailed in guidance published by the Greater London Authority¹⁰, recommended for use outside the capital by LAQM guidance, and the IAQM guidance document itself. Professional judgement should be used to determine the type and scale of mitigation measures required.
- B.16 If the risk is classed as negligible, no mitigation measures beyond those required by legislation will be necessary.

Step 4

- B.17 Step 4 assesses the residual effect, with mitigation measures in place, to determine

¹¹ Greater London Authority, The Control of Dust and Emissions from Construction and Demolition: Best Practice Guidance, 2006

whether or not these are significant.

Professional Judgement

- B.18 The IAQM guidance makes reference to the use of professional judgement when assessing the risks of dust and fine particulate matter from demolition and construction sites. Details of the experience of the personnel involved with the project are provided in **Appendix D**.

Appendix C

Professional Experience of Assessors

Appendix C: Professional Experience of Assessors

- C.1 The assessment of air quality impacts, and the significance of the associated effects, takes into account the professional judgement of the assessor. Details of the experience of the personnel involved with the project are provided below:

Dr. Paul Sanderson

BSc (Hons) MSc DPhil MEnvSc MIAQM

Senior Environmental

Scientist

Paul is a PhD qualified Air Quality Specialist and Member of The Institution of Environmental Sciences and Institute of Air Quality Management who has completed a number of projects examining the air quality impact of various schemes including residential and commercial developments. He has good experience in the use of ADMS Roads advanced dispersion model for undertaking detailed air quality modelling as well as using the Design Manual for Roads and Bridges (DMRB).

Paul has been involved in large complex EIA schemes as well as smaller individual commissions as part of planning applications and also has experience in air quality monitoring using nitrogen dioxide diffusion tubes as well as undertaking numerous dust assessments.

Paul also has experience in liaising with transport consultants on traffic data requirements for input and taking responsibility for of undertaking the technical aspects relating to the dispersion modelling as well as preparation of technical reports and chapters.

Paul Threlfall

BSc (Hons), MSc

**Principal Environmental Scientist (Air
Quality & Odour)**

Paul joined Wardell Armstrong in October 2017 as an Air Quality Scientist, after completing his MSc Water, Energy and the Environment at Liverpool John Moores University. The majority of his work is carried out in support of planning applications and, therefore, he has experience of undertaking air quality assessments for a wide range of projects including residential developments, commercial developments and mixed-use developments. Paul has a good range of skills and knowledge of air quality modelling and monitoring through his involvement in air quality projects, both as individual commissions and as part of Environmental Impact Assessments (EIAs). Paul also has extensive knowledge and experience of undertaking odour

assessments, ranging from qualitative desk-based assessments to more detailed odour dispersion modelling assessments using AERMOD, as well as extensive experience of undertaking odour 'sniff test' observations.

Mark Dawson

Technical Director

**BSc (Hons), MA (Env Law), Dip (Air Pollution Control),
Dip (Acoustics & Noise Control), CEnv, MIEEnvSc, MIOA,
MIAQM, FRMetS**

Mark holds a Bachelor of Science degree in Geography, the Diploma in Air Pollution Control, the Diploma in Acoustics and Noise Control and a Masters in Environmental Law and Policy. Mark is a Chartered Environmentalist and Member of the Institute of Environmental Sciences, Institute of Acoustics, Institute of Air Quality Management and Fellow of the Royal Meteorological Society. Mark has over 30 years' experience in regulation and consultancy, having given expert witness evidence to over forty planning inquiries. Mark is the service lead for acoustics and air quality at Wardell Armstrong. He has extensive experience of managing commissions involving environmental impact assessment. He is involved in noise and air quality impact studies for residential, commercial, industrial and retail developments and mineral and waste operations. The majority of the work is carried out in support of planning applications and Mark has long experience of dealing with environmental health officers and planning officers.

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