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# ONE MANCHESTER

# OLDHAM ROAD, NEWTON HEATH

# AIR QUALITY ASSESSMENT

**JUNE 2023**

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# OLDHAM ROAD, NEWTON HEATH

# AIR QUALITY ASSESSMENT

**JUNE 2023**

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# 1 INTRODUCTION

## 1.1 Background

1.1.1 Wardell Armstrong LLP (WA) has been commissioned by One Manchester to undertake an air quality assessment to accompany a planning application for a proposed residential development for land off Oldham Road, Newton Heath.

1.1.2 The proposed development site currently comprises of mainly open land, with Dulverton Street previously running through it. The proposed development site previously contained two buildings- which have now been demolished. The proposed development site is bordered to the north by the A62 Oldham Road, with residential properties bordering the A62 Oldham Road beyond. There is currently open land to the east of the site boundary, however this will contain phase one of the development- which was granted planning permission in 2020 (Reference: 125990/FO/2020). To the south of the site boundary, there are commercial buildings, with a food store directly adjacent to the south. The west of the site is bordered by Old Church Street. Further from Old School Street, there is an existing health care centre and residential buildings beyond.

1.1.3 It is understood that phases two and three of the development, will comprise up to 109 residential dwellings: 28 houses and 81 apartments. The proposals also include associated access, on-site hard and soft landscaping, and parking.

1.1.4 Phase 1 of the proposed development received planning permission in 2020 (Reference: 125990/FO/2020). The Wardell-Armstrong, Air Quality Assessment, GM10922-V0.2 (February 2020), which accompanied the planning application, considered the air quality impacts associated with development-generated road traffic emissions from all three phases of the proposed development. Therefore, the impact of the phase 2 and 3 developments has already been considered in detail, as part of a previous assessment.

1.1.5 This report details the results of an 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, as amended 2021;
- 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(22), August 2022;
- 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 20µg/$m^3$ | 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 Consultation and Scope of Assessment

3.1.1 The assessment methodology was sent to Karen Williamson, Environmental Protection Officer at Manchester City Council (MCC), via email on 16th May 2023. Ms Williamson confirmed via email on 30th April that the screening approach was 'acceptable'.

3.1.2 A summary of the consultation undertaken is provided in Table 2.

**Table 2: Summary of Consultation**

| Assessment Stage | Proposed Method | Response |
|---|---|---|
| Construction phase assessment to consider dust and fine particulate matter ($PM_{10}$) | Qualitative assessment in accordance with Institute of Air Quality Management (IAQM) guidance | No objection to method |
| Operational phase assessment to consider nitrogen dioxide ($NO_2$) and fine particulate matter | A qualitative screening assessment will be undertaken in accordance with Environmental Protection UK (EPUK)/IAQM guidance | No objection method |
| Consideration of the railway line immediately adjacent to the north of the proposed development | A qualitative assessment to assess any potential impacts of the adjacent railway line on future residents of the proposed development site, carried out in accordance with LAQM.TG(22). | No objection to method |

## 3.2 Construction Phase Assessment

3.2.1 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**.

3.2.2 The closest sensitive human receptors to where construction phase activities will take place are a mixture of commercial and residential and are detailed in Table 3. However, it should be noted that the assessment includes consideration of all sensitive receptors within 350m of the site boundary, in accordance with IAQM guidance.

[1] Institute of Air Quality Management, Guidance on the Assessment of Dust from Demolition and Construction, June 2016

| Table 3: Existing Sensitive Receptors Considered in the Construction Phase Assessment | | |
|---|---|---|
| **Receptor** | **Direction from the Site** | **Approximate Distance from the Site Boundary (m)** |
| Existing Residential Dwellings and along the A62 Oldham Road | North | <20m at closest point |
| Existing commercial building off Droylsden Road | East | Approximately 109m at closest point |
| Existing commercial building off Old Church Street | South | Immediately adjacent at closest point |
| Existing healthcare centre off Old Church Street | South | Approximately 30m at closest point |
| Existing residential dwellings off Troydale Drive | Southwest | Approximately 60m at closest point |
| Existing healthcare centre off Troydale Drive | West | <20m at closest point |

3.2.3 The Rochdale Canal Site of Special Scientific Interest (SSSI) and Special Area of Concern (SAC) is located approximately 1.1km to the east of the proposed development site, at the closest point. There are no ecological receptors that are potentially dust sensitive statutory designated habitat sites, within 50m of the site and/or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s). Therefore, ecological effects do not need to be considered within this assessment.

3.2.4 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**.

### 3.3 Operational Phase Assessment

3.3.1 A qualitative screening assessment has been undertaken of the impacts of $NO_2$ and fine particulate matter, as these are the pollutants considered most likely to exceed the objectives and limit values.

# 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 local air quality.

4.1.2 MCC is part of the Greater Manchester Combined Authority (GMCA) which oversees the management of air quality across the entirety of Greater Manchester.

4.1.3 GMCA currently has one declared Air Quality Management Area (AQMA), the Greater Manchester AQMA, which lies in parts of all the 10 districts of Greater Manchester. It should be noted this AQMA is not region-wide and predominantly covers busy main roads within the GMCA including arterial routes, district centres and airport.

4.1.4 The Manchester AQMA, which is a part of the GMCA AQMA, is directly adjacent to the proposed development site, on the A62 Oldham Road. Northern sections of the proposed development are within the Manchester AQMA. Because the Manchester AQMA has been declared on various parts of the A62 Oldham Road, Old Church Street, and Droylsden Road, traffic from the proposed development is likely to travel through the Manchester AQMA.

4.1.5 There are currently no representative background monitoring locations in the vicinity of the proposed development. There are however a number of roadside and kerbside $NO_2$ diffusion tubes located within the existing AQMAs. However, the diffusion tubes in the vicinity of the proposed development do not have monitoring data for 2019.

4.1.6 The GMCA ASR (2021) indicates that MCC operates automatic and non- monitoring sites across the borough. The closest non-automatic roadside monitoring location to the site, OLWARNO, is situated approximately 1.3km northeast of the site, on the A62 Oldham Road. This monitoring location recorded an annual mean $NO_2$ concentration of 32.4µg/m$^3$ in 2021. However, these results are likely to have been partially impacted by the lockdown measures in response to Covid-19 and is not considered representative of normal conditions.

**Background Air Pollutant Concentrations**

4.1.7 The air quality assessment needs to take into account background concentrations upon which the local, traffic derived pollution is superimposed.

4.1.8 As there are currently no representative background $NO_2$, $PM_{10}$ or $PM_{2.5}$ monitoring locations in the vicinity of the proposed development site, therefore, background concentrations have been obtained from the 2018-based Defra default concentration maps, for the appropriate grid squares[2].

**Table 4: Background Air Pollutant Concentrations Obtained from the 2018-Based Defra Default Concentration Maps**

| Proposed Development Site Coordinates | 2023 Pollutant Concentrations (µg/m³) | | |
|---|---|---|---|
| | Nitrogen Dioxide ($NO_2$) | Fine Particulate Matter ($PM_{10}$) | Fine Particulate Matter ($PM_{2.5}$) |
| 387979, 400647 | 16.33 | 11.87 | 7.95 |

4.1.9 The results show that the background concentrations are below the relevant objectives and limit value.

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

# 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 is defined by IAQM guidance as any activity involved in the with the removal of an existing structure (or structures). Indicative plans for the proposed development indicate that a section of Dulverton Street will be demolished as part of the works. Therefore, the demolition of the section of Dulverton Street will be considered within this assessment.

5.1.3 Earthworks covers the processes of soil-stripping, ground-levelling, excavation and landscaping. Construction activities will focus on the proposed buildings, access roads, and car parking areas.

5.1.4 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 re-suspended by other vehicles.

***Step 2A***

5.1.5 Step 2A of the assessment defines the potential dust emission magnitude from demolition, earthworks, construction and trackout in the absence of site-specific mitigation.

5.1.6 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***

5.1.7 Step 2B of the construction phase dust assessment defines the sensitivity of the area, taking into account 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).

5.1.8 For demolition, earthworks and construction, there are currently between 10 and 100 receptors (mainly residential) within 20m of where these activities may take place, which is assumed to be the site boundary for the purposes of this assessment.

5.1.9 The routing of construction vehicles is unknown at this stage. Therefore, for the purposes of this assessment, worst case routing scenarios have been assumed for assessment of potential trackout impacts at nearby receptors.

5.1.10 As a result, for trackout, there are between 10 and 100 receptors (mainly residential) within 20m of where trackout may occur for a distance of up to 200m from the site entrance (assuming construction vehicles travel along the A62 Oldham Road).

***Step 2C***

5.1.11 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.

5.1.12 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***

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

**Table 5: Construction Phase Dust Assessment for Human Receptors**

| | Activity | | | |
|---|---|---|---|---|
| | **Demolition** | **Earthworks** | **Construction** | **Trackout** |
| **Step 2A** | | | | |
| Dust Emission Magnitude | Small[a] | Medium[b] | Medium[c] | Medium[d] |
| **Step 2B** | | | | |
| Sensitivity of Closest Receptors | High | High | High | High |
| Sensitivity of Area to Dust Soiling Effects | Medium | High | High | High |
| Sensitivity of Area to Human Health Effects | Low[e] | Low[e] | Low[e] | Low[e] |
| **Step 2C** | | | | |

| Table 5: Construction Phase Dust Assessment for Human Receptors | | | | |
|---|---|---|---|---|
| | Activity | | | |
| | Demolition | Earthworks | Construction | Trackout |
| Dust Risk: Dust Soiling | Low Risk | Medium Risk | Medium Risk | Medium Risk |
| Dust Risk: Human Health | Negligible | Low Risk | Low Risk | Low Risk |
| *a. Total building volume estimated to be less than 20,000m$^3$* | | | | |
| *b. Total site area estimated to be between 2,500m$^2$ and 10,000m$^2$* | | | | |
| *c. Total building volume estimated to be between 25,000m$^3$ and 100,000m$^3$, with potentially dusty construction materials* | | | | |
| *d. Number of construction phase vehicles estimated to be between 10 and 50 movements per day* | | | | |
| *e. Background annual mean $PM_{10}$ concentration is taken from the LAQM Defra default concentration maps, for the appropriate grid square for 2023.* | | | | |

***Step 3 – Mitigation***

5.1.14 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.

5.1.15 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***

5.1.16 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:

- 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;
- 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.

5.1.17 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.

5.1.18 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***

5.1.19 Step 4 of the construction phase dust assessment has been undertaken to determine the significance of the dust effects arising from earthworks, construction and trackout

associated with the proposed development.

5.1.20 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 – Impact Assessment

***Existing Sensitive Human Receptors***

5.2.1 The proposals are for the development 109 residential dwellings: consisting of 28 houses and 81 apartments. The proposals also include associated access, on-site hard and soft landscaping, and parking.

5.2.2 Background pollutant concentrations at the proposed development site (as detailed in Table 4) are predicted to be below the relevant annual mean air quality objectives.

5.2.3 Guidance prepared by Environmental Protection UK (EPUK) and the IAQM[3] provides criteria for when a detailed air quality assessment may be required. The relevant criteria for a proposed development include:

- A change in Light Duty Vehicles (LDVs) of more than 500 AADT (or 100 AADT within/adjacent to an AQMA);
- A change in Heavy Duty Vehicles (HDVs) of more than 100 AADT (or 25 AADT within/adjacent to an AQMA);
- The realignment of existing roads near to receptors, with a change of more than 5m when the road is within an AQMA;
- The introduction of a new junction, or removal of an existing junction, leading to a significant change in vehicle acceleration/deceleration (e.g., through the introduction of traffic lights or a roundabout) near to receptors.

[3] Moorcroft and Barrowcliffe *et al*, Land-use Planning and Development Control: Planning for Air Quality, Version 1.2, January 2017

5.2.4 Consultation was undertaken with Curtins, the appointed Transport Consultant working on the project. The Transport Statement forecasts an AADT of 349.

5.2.5 The predicted trip generation exceeds the screening criterion for proposed developments located within/adjacent to an AQMA (i.e., change of LDVs of more than 100 AADT or a change of HDVs of more than 25 AADT).

5.2.6 Phase 1 of the proposed development received planning permission in 2020 (Reference: 125990/FO/2020). The air quality assessment, which accompanied the planning application, considered the air quality impacts associated with development-generated road traffic emissions from all three phases of the proposed development [4]. Therefore, the impact of the phase 2 and 3 developments has already been considered in detail, as part of a previous assessment.

5.2.7 The air quality assessment found that, when operational, all three phases of the proposed development would have a negligible air quality impact at all existing and proposed sensitive receptors[4]. Furthermore, the air quality assessment found that all predicted $NO_2$, $PM_{10}$ and $PM_{2.5}$ concentrations remained below the relevant objectives and limit values, when the fully developed site would be operational[4].

5.2.8 The previous air quality assessment assumed an opening year of 2022[4]. In addition, the previous assessment is also now considered to be overly robust for Phases 2 and 3 as, given the nature of the EFT, any impacts modelled in future year scenarios (past the 2022 opening scenario considered in the assessment) would predict a reduction in pollutant concentrations over those predicted in the previous assessment, as older more polluting vehicles leave the fleet and are replaced by newer, cleaner vehicles.

5.2.9 Therefore, in accordance with EPUK/IAQM guidance, it is considered that a screening assessment is sufficient and that the impact of the development on air quality in the local area is considered to be **not significant**.

***Proposed Sensitive Human Receptors***

5.2.10 The background concentrations, as shown in Table 4, are below the criteria set out in the guidance at which point further assessment work should be undertaken. Therefore, existing air quality is not considered to be a significant risk to the future residents of the proposed development.

[4] Wardell-Armstrong, Air Quality Assessment, GM10922-V0.2, February 2020.

5.2.11 The current land uses surrounding the proposed development site have been reviewed. The proposed development site is predominantly surrounded by buildings used for residential purposes.

5.2.12 In summary, it is considered that there will be no significant air quality impacts on future residents of the proposed development site associated with the surrounding land uses.

***Assessment of Significance for Human Receptors***

5.2.13 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**.

5.2.14 In accordance with the EPUK/IAQM guidance, the air quality effect of the proposed development is considered to be **not significant**.

## 5.3 Mitigation Strategies

5.3.9 Based on professional judgement, in accordance with good planning practice and design principles, it is considered that mitigation measures could be employed.

5.3.10 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. EV charging points are now standard for all new residential developments with associated car parking spaces, as stated in S1 from Part S of Schedule 1 and regulation 44D of the Building Regulations 2010. Therefore, additional mitigation measures could include the use of low $NO_x$ boilers and the implementation of a green travel plan.

# 6 CONCLUSIONS

## 6.1 Construction Phase

6.1.1 The construction phase assessment has been undertaken to determine the risk and significance of dust and fine particulate matter effects from demolition, earthworks, construction and trackout associated with the proposed development, in accordance with guidance published by the IAQM.

6.1.2 With site specific mitigation measures in place, the significance of dust and fine particulate matter effects from earthworks demolition, construction and trackout is considered to be **not significant**.

## 6.2 Operational Phase

***Existing Sensitive Receptors***

6.2.1 A qualitative air quality screening assessment has been undertaken to consider the potential impact of the proposed redevelopment on the local air quality.

6.2.2 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'**.

***Proposed Sensitive Human Receptors***

6.2.3 A qualitative air quality screening assessment has been undertaken to consider the potential impact of the proposed redevelopment on the local air quality.

6.2.4 The Wardell-Armstrong, Air Quality Assessment, GM10922-V0.2 (February 2020) found that the air quality impacts associated with development-generated road traffic emissions, from all three phases of the proposed development, will have a **negligible** air quality impact at all existing and proposed sensitive receptors. Furthermore, the air quality assessment found that all predicted $NO_2$, $PM_{10}$ and $PM_{2.5}$ concentrations remained below the relevant objectives and limit values, when the site would be operational.

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'**.

***Recommendations for Mitigation***

6.2.5 The impact of the proposed development is predicted to be not significant. However,

based on professional judgement, it is considered that mitigation measures should, in any case, be employed where possible. Mitigation measures that are to be included as part of the proposed development are detailed in Section 5.

## 6.3 Summary

6.3.1 The assessment has demonstrated that the proposed development will not lead to an unacceptable risk from air pollution, nor will it lead to any breach of national objectives as required by national policy. There are no material reasons in relation to air quality why the proposed scheme should not proceed.

# APPENDICES

# 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 2007[1].

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 ($NO_2$), sulphur dioxide ($SO_2$), carbon monoxide (CO), lead (Pb), fine particulate matter ($PM_{10}$), benzene ($C_6H_6$), 1, 3–butadiene ($C_4H_6$) and ozone ($O_3$).

A.4 Objectives for each pollutant, except $O_3$, were first given statutory status in the Air Quality Regulations 2000[2] and Air Quality (Amendment) Regulations 2002[3]. 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/EC[4] (i.e. the CAFE Directive), were transposed into UK legislation 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

[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

to the objectives and limit values used in the management and assessment of air quality.

A.6 Whilst there is no specific objective for $PM_{2.5}$ in England and Wales, a limit value of 20µg/m$^3$ 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. The Environmental Improvement Plan 2023 sets an interim target that by January 2028, an annual average of 12 µg/m$^3$ for $PM_{2.5}$ is not exceeded by any monitoring station.

A.7 Examples of where these objectives and limit values apply are detailed in the Defra LAQM Technical Guidance document LAQM.TG(22)[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.<br>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.<br>Hotels, unless people live there as their permanent residence.<br>Gardens of residential properties.<br>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.<br>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.<br>Kerbside sites (e.g. pavements of busy shopping streets).<br>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.<br>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(22), August 2022

| 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 | |
| [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* | | |

**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(22) 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 regimes.

A.10 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.11 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.12 As part of the UK Government's requirement to improve air quality, selected local 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.13 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).

**National Planning Policy Framework**

A.14 The National Planning Policy Framework (NPPF)[6], 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.15 The Planning Practice Guidance (PPG)[7], 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 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.16 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

[6] Ministry of Housing, Communities and Local Government, National Planning Policy Framework, July 2021
[7] Department for Communities and Local Government. Planning Practice Guidance: Air Quality, November 2019

the local authority should proceed to decision with appropriate planning conditions and/or obligations.

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# 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)[8].

**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).

[8] Institute of Air Quality Management, Guidance on the Assessment of Dust from Demolition and Construction, June 2016

B.7 **Step 2A** assesses the scale and nature of the works which determines the potential 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) |
| **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 |

*a. A vehicle movement is a one way journey i.e. from A to B, and excludes the return journey*
*b. HDV movements during a construction project may vary over its lifetime, and the number of movements is the maximum not the average*

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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 |
| **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 $PM_{10}$; Examples include office and shop workers but will generally not include workers occupationally exposed to $PM_{10}$ | 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; | 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 |

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| Table B2: Sensitivity Categories for Dust Soiling, Human Health and Ecological Effects | | | |
|---|---|---|---|
| **Sensitivity Category** | **Dust Soiling Effects** | **Health effects of $PM_{10}$** | **Ecological Effects** |
| | Examples include playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads | | |

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.

B.10 **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 |

| 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** |
| | | 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 |
| **Low** | - | >1 | Low | 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. Most straightforwardly taken from the national background maps, but should also take account of local sources. The values are based on 32µg/$m^3$ 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/$m^3$*
*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*

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| 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.11 These two factors are combined in **Step 2C** to determine the risk of dust impacts with no mitigation applied.

B.12 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.13 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.14 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.15 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.16 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 Authority[9], 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.17 If the risk is classed as negligible, no mitigation measures beyond those required by legislation will be necessary.

**Step 4**

B.18 Step 4 assesses the residual effect, with mitigation measures in place, to determine whether or not these are significant.

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

**Professional Judgement**

B.19 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 C**.

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## 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:

**Arlishia Scarpa** **Environmental Scientist**
**BCs (Hons), MSc** **(Air Quality)**

Arlishia joined Wardell Armstrong in 2023 after completing a BSc in Ecology and Environment at the University of Liverpool and an MSc in Environmental Practice at the Manchester Metropolitan University. Arlishia has experience of carrying out air quality assessments for a variety of developments, including residential and commercial projects. She is involved in all aspects of the assessment, from carrying out air quality monitoring studies to analysing data and writing technical reports. Arlishia has experience in the use of ADMS Roads advanced dispersion model for undertaking detailed air quality modelling.

**Rachael Stiles** **Senior Environmental**
**BSc (Hons), MSc** **Scientist (Air Quality)**

The air quality assessment has been carried out by Rachael Stiles, Senior Air Quality Consultant at Wardell Armstrong. Rachael joined Wardell Armstrong in October 2021 but started her career as an air quality consultant in April 2018, after completing a BSc Physical Geography at Newcastle University and MSc in Sustainability (Environmental Consultancy and Project Management) at the University of Leeds.

Rachael has worked on a variety of transportation infrastructure projects and has developed technical experience in air quality monitoring, detailed air quality assessments using dispersion modelling software such as ADMS roads, as well as construction dust assessments to support planning assessments (including extensive experience in Environmental Impact Assessments).

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**Malcolm Walton** **Technical Director**

**BSc (Env Health) Dip (Acoustics & Noise Control)**

**MCIEH AMIOA**

Malcolm holds a Bachelor of Science degree in Environmental Health and the Diploma in Acoustics and Noise Control. Malcolm is a Member of the Chartered Institute of Environmental Health and an Associate Member of the Institute of Acoustics.

Malcolm joined Wardell Armstrong in September 2001 following 12 years working as an Environmental Health Officer in several local authorities, responsible for the enforcement of environmental legislation and, in particular, air pollution and noise nuisance. Malcolm has experience in the technical co-ordination of environmental appraisal of large schemes to UK and international standards. Malcolm regularly carries out and co-ordinates noise and air quality assessment work associated with planning applications including EIA work and PPC permit application/compliance. He also regularly acts as expert witness in planning inquiries in respect of noise, air quality and odour.

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