

AIR QUALITY ASSESSMENT

on behalf of

BOOTH VENTURES LTD

for

**LYTHAM GREEN DRIVE GOLF CLUB,
BALLAM ROAD, LYTHAM ST ANNES FY8
4LE**

REPORT DATE: 29 FEBRUARY 2024

REPORT NUMBER: 103079V2

**Miller Goodall Ltd
Ground Floor
Ashworth House
Deakins Business Park
Blackburn Road
Egerton
Bolton
Lancashire
BL7 9RP**

Tel: 01204 596166

www.millergoodall.co.uk

Company registration number 5201673



Summary

This air quality report has been prepared to accompany a planning application for a proposed development at Lytham Green Drive Golf Club, Ballam Road, Lytham St Annes FY8 4LE. It assesses the potential changes in air quality due to the earthworks and operation of the proposed development and whether these potential changes would significantly alter air quality.

The assessment of dust soiling and human health impacts during the earthworks phase of the development results in the proposal of dust mitigation measures. The implementation of these will ensure that residual dust impacts during the earthworks phase are not significant.

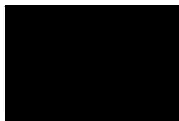
Concentrations of NO₂ and PM₁₀ are likely to be below their respective short-term objectives at the proposed development site which is therefore considered suitable for its intended use with regards to air quality. Concentrations of PM_{2.5} are expected to be below the annual mean target.

The proposed development is not expected to have a significant impact on local air quality.

There is, therefore, no reason for this application to be refused on the grounds of air quality.

Prepared By Melody Horan

Reviewed By Philip Walton

Signed	
	Date 8 November 2023

Signed	
	Date 8 November 2023

Record of changes

Version	Date	Change	Initials
1	8 November 2023	First issue	MH
2	29 February 2024	Changes to site layout. Update to dust assessment due to new guidance being released.	MH

Contents

Summary	1
Contents	2
1 Introduction	3
2 Site Description	3
3 Proposed Development	3
4 Policy Context	3
4.1 Air Quality Objectives	3
5 Methodology	5
5.1 Data Sources	5
5.2 IAQM Construction Dust Assessment	5
5.3 Simple Air Quality Assessment	6
5.4 Dust and Emissions Management Plan	6
6 Baseline Air Quality	6
6.1 Local Air Quality	6
6.2 Air Quality Monitoring	6
6.3 Background Concentrations	7
7 Construction Dust Impact Assessment	7
7.1 Step 1 – Requirement for a Detailed Assessment.....	7
7.2 Step 2 – Assess the Risk of Dust Impacts	7
7.3 Step 3 – Site-Specific Mitigation.....	9
7.4 Step 4 – Determine Significant Effects	10
8 Effect of Air Quality on the Proposed Development	10
9 Impact of the Proposed Development on Existing Air Quality	10
9.1 Earthworks Phase	10
9.2 Operational Phase	11
10 Summary of Impacts and Conclusion	11
APPENDICES	12
Glossary of Terms	31

1 Introduction

- 1.1 Miller Goodall Ltd has been instructed to prepare an air quality assessment to accompany a planning application for a proposed development at Lytham Green Drive Golf Club, Ballam Road, Lytham St Annes FY8 4LE. The site lies within the administrative boundary of Fylde Borough Council (FBC).
- 1.2 The report provides a review of the existing air quality in proximity to the proposed development site and assesses the potential impact of the proposed development on local air quality following Local Air Quality Management Technical Guidance¹ and EPUK and IAQM guidance².
- 1.3 A Dust and Emissions Management Plan (DEMP) has been prepared that provides the control measures for the potential dust from the proposed development.
- 1.4 The report provides an assessment of the potential air quality impacts associated with the earthworks and operational phases of the proposed development. The suitability of the site for the intended use is also assessed.
- 1.5 The main pollutants of health concern from road traffic exhaust releases are nitrogen dioxide (NO₂) and fine particulates, normally assessed as the fraction of airborne particles of mean aerodynamic diameter less than ten micrometres (PM₁₀) and 2.5 micrometres (PM_{2.5}) since these pollutants are most likely to approach their respective air quality objectives in proximity to major roads and congested areas. This assessment has therefore focused on the impact of the proposed development on concentrations of NO₂, PM₁₀ and PM_{2.5}.

2 Site Description

- 2.1 The development site is located on the northeastern corner of Lytham Green Drive Golf Course. Agricultural land is located to the north of the site. Saltcotes Road runs along the eastern site boundary. Lytham Green Drive Golf Course is to the south and west of the site. The closest residential dwelling is approximately 130 m from the site boundary and is located on Saltcotes Road. The site location is shown in **Appendix A**.
- 2.2 The development site is not located within or close to an Air Quality Management Area (AQMA).

3 Proposed Development

- 3.1 An additional hole is proposed at the development site as well as landscaping.

4 Policy Context

4.1 Air Quality Objectives

- 4.1.1 The standards and objectives relevant to the LAQM framework have been prescribed through the Air Quality (England) Regulations (2000) and the Air Quality (England) (Amendment) Regulations 2002; the Air Quality

¹ Department for the Environment Food and Rural Affairs (2022). Local Air Quality Management Technical Guidance Document LAQM.TG(22)

² EPUK and IAQM (January 2017) Land Use Planning and Development Control: Planning for Air Quality (v1.2)

Standards Regulations 2010 set out the combined Daughter Directive limit values and interim targets for Member State compliance.

- 4.1.2 The United Kingdom left the European Union on 31st January 2020 and is no longer a member state. However, the current framework of air quality legislation was converted into domestic law through the European Union (Withdrawal) Act 2018³.
- 4.1.3 The relevant air quality standards and objectives are presented in **Table 1**. Pollutant standards relate to ambient pollutant concentrations in air, set on the basis of medical and scientific evidence of how each pollutant affects human health.

Table 1: Air Quality Strategy Objectives (England) for the Purposes of Local Air Quality Management

Pollutant	Air Quality Objective	
	Concentration	Measured As
Nitrogen dioxide (NO ₂)	200 µg/m ³	1-hour mean not to be exceeded more than 18 times per year
	40 µg/m ³	Annual mean
Particles (PM ₁₀)	50 µg/m ³	24-hour mean not to be exceeded more than 35 per year
	40 µg/m ³	Annual mean
Particles (PM _{2.5})	25 µg/m ³	Annual mean (target)

- 4.1.4 Where an air quality objective is unlikely to be met by the relevant deadline, local authorities must designate those areas as AQMAs and take action to work towards meeting the objectives. Following the designation of an AQMA, local authorities are required to develop an Air Quality Action Plan (AQAP) to work towards meeting the objectives and to improve air quality locally.
- 4.1.5 Possible exceedances of air quality objectives are generally assessed in relation to those locations where members of the public are likely to be regularly present and are likely to be exposed for a period of time appropriate to the averaging period of the objective.
- 4.1.6 As the development is a golf club, the annual mean air quality objectives do not apply; however, the short-term objectives still apply¹.

³ UK Parliament (2018): <http://www.legislation.gov.uk/ukpga/2018/16/contents/enacted>

5 Methodology

5.1 Data Sources

5.1.1 The air quality assessment has been undertaken and prepared with reference to information from several sources, as detailed in **Table 2**.

Table 2: Key Information Sources

Data Source	Reference
Fylde Borough Council (FBC)	FBC (2022) <i>2022 Air Quality Annual Status Report (ASR)</i>
Institute of Air Quality Management (IAQM)	IAQM "Guidance on the assessment of dust from demolition and construction" v2.2 2024
Department for Environment Food and Rural Affairs (Defra)	Defra <i>Local Air Quality Management Technical Guidance TG(22), updated 2022</i>
Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM)	EPUK and IAQM (January 2017) <i>Land Use Planning and Development Control: Planning for Air Quality (v1.2)</i>
Ministry of Housing, Communities & Local Government	Planning Practice Guidance: Air Quality, November 2019 National Planning Policy Framework (NPPF), September 2023
Defra's LAQM Support Tools	Local Air Quality Management 1 km x 1 km grid background pollutant maps
SCP Transport Planning	Traffic Data

5.2 IAQM Construction Dust Assessment

5.2.1 The IAQM has produced guidance⁴ on the assessment of air quality impacts arising from dust associated with construction and demolition activities and provides a methodology by which to complete such assessments. The IAQM methodology provides a risk assessment structure to determine the likely impact of the development on nearby receptor locations and recommends mitigation measures that should be implemented to reduce any such impact. The methodology for the assessment is shown in **Appendix B**. The study area in relation to dust and the zones of interest used within the assessment (<20 m, 20 m – 50 m and 50 – 100 m from the site) are shown in **Appendix C**. The dust assessment informed the DEMP which is located in **Appendix D**.

⁴ IAQM "Guidance on the assessment of dust from demolition and construction" v2.2 2024

5.3 Simple Air Quality Assessment

5.3.1 A simple assessment of air quality in terms of the impact of the development and suitability of the site, which relies on already published information, has been completed using sources such as the Local Authority's monitoring network and the Defra LAQM support tools.

5.4 Dust and Emissions Management Plan

5.4.1 A DEMP has been included in **Appendix D** that identifies the control measures for the potential dust arising from an extended earthworks phase.

6 Baseline Air Quality

6.1 Local Air Quality

6.1.1 Baseline air quality at the proposed development has been established by examining monitoring data produced by FBC (provided in the 2022 Annual Status Report) and background concentration maps provided by Defra for the grid squares covering the proposed development.

6.1.2 Currently, FBC does not have any declared AQMAs. The closest AQMA is approximately 9.7 km northwest of the development site in Blackpool.

6.1.3 FBC does not undertake any automatic monitoring.

6.2 Air Quality Monitoring

Nitrogen Dioxide (NO₂)

6.2.1 FBC has 15 NO₂ diffusion tubes. There is one tube, 25n, within 1 km of the site. The results from the diffusion tube are shown in **Table 3** and the monitor location is shown in **Appendix A**.

Table 3: Annual Mean NO₂ Concentrations Monitored by FBC within the Study Area

Site ID (classification)	Location	Annual Mean NO ₂ Concentrations (µg/m ³)				
		2017	2018	2019	2020	2021
25n (kerbside)	337780 427917	22.5	23.1	21.8	12.8	15.1
Annual Mean NO ₂ air quality objective					40 µg/m ³	

6.2.2 The monitoring results in **Table 3** indicate that annual mean concentrations of NO₂ were below the NO₂ annual mean objective at 25n during the period shown.

6.2.3 The results indicate that the short-term objective for NO₂ was unlikely to be exceeded at 25n as monitored annual mean concentrations were well below the indicative screening concentration of 60 µg/m³ during the period shown.

Particulate Matter (PM_{10} & $PM_{2.5}$)

6.2.4 FBC does not undertake PM_{10} or $PM_{2.5}$ monitoring.

6.3 Background Concentrations

6.3.1 There are no background monitoring locations in the vicinity of the proposed development site or at receptor locations included in the air quality assessment.

6.3.2 Background concentrations of NO_2 , PM_{10} and $PM_{2.5}$ obtained from the background concentration maps provided by Defra for the grid squares covering the proposed development and receptor locations⁵ are shown in **Table 4**.

Table 4: Background Pollutant Concentrations Obtained for the 1km x 1km Grid Squares Covering the Site*

Grid Square	Pollutant	2023
		($\mu\text{g}/\text{m}^3$)
337500,428500	NO_2	5.48
	PM_{10}	8.72
	$PM_{2.5}$	5.57

* Background concentrations obtained from the latest 2018 based background maps

7 Construction Dust Impact Assessment

7.1 Step 1 – Requirement for a Detailed Assessment

7.1.1 There are sensitive receptors located within 250m of the site boundary, therefore, a detailed assessment of the earthworks phase of the development has been undertaken. There are no ecological designations within 50m of the site boundary or 50 m of the route(s) used by earthworks vehicles on the public highway, up to 250 m from the site entrance(s) which require assessment.

7.2 Step 2 – Assess the Risk of Dust Impacts

Step 2A Dust Emission Magnitude

7.2.1 The potential dust emission magnitude in relation to the development has been determined using the criteria detailed in **Table B1** in **Appendix B**. The scale and nature of works onsite were considered to determine the potential dust emission magnitude for earthwork and trackout activities. No demolition or construction is required at the development site.

7.2.2 Information to determine the classification has been estimated from the site plans, Google Earth and information provided by the Applicant. The dust emission magnitude is outlined in **Table 5**.

⁵ <http://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>

Table 5: Dust Emission Magnitudes for Each Activity

Activity	Dust Emission Magnitudes	Justification for Sensitivity Classification
Earthworks	Medium	<ul style="list-style-type: none"> the site area is between 18,000 m² – 110,000 m².
Trackout	High	<ul style="list-style-type: none"> there are likely to be more than 50 HDV outward movements in any one day

Step 2B Sensitivity of the Receptors to Dust Soiling and Health Effects

- 7.2.3 The closest dwelling is approximately 130 m from the site boundary. Dwellings are located within a distance of 20 m of road edges used by traffic associated with the site earthworks. In accordance with the criteria in **Table B2** in **Appendix B** and the IAQM guidance, the sensitivity of human receptors is **high**.

Step 2B Sensitivity of the Area to Dust Soiling and Human Health Effects of PM₁₀

- 7.2.4 The sensitivity of the area for dust soiling and human health effects has been determined using the criteria detailed in **Table B3** and **Table B4** respectively in **Appendix B**.
- 7.2.5 The sensitivity of the area to dust soiling and human health for each activity is summarised in **Table 6**.

Table 6: Outcome of Defining the Sensitivity of the Area

Pollution	Activity	Sensitivity of the Surrounding Area	Justification for Sensitivity Classification
Dust Soiling	Earthworks	Low	There are 1 – 10 highly sensitive receptors between 100 m and 250 m of the site boundary.
	Trackout	Low	There are 1 – 10 highly sensitive receptors between 50 m and 100 m of the trackout route, up to 50 m of the site exit.
Human Health	Earthworks	Low	There are 1 – 10 highly sensitive receptors between 100 m and 250 m of the site boundary. Background PM ₁₀ pollutant concentrations are below 24 µg/m ³ .
	Trackout	Low	There are 1 – 10 highly sensitive receptors between 50 m and 100 m of the trackout route, up to 50 m of the site exit. Background PM ₁₀ pollutant concentrations are below 24 µg/m ³ .

Step 2C Risk of Impacts

- 7.2.6 The dust emission magnitude and sensitivity of the area were combined and the risk of impacts have been determined using the criteria detailed in **Table B5** to **Table B8** in **Appendix B**.
- 7.2.7 A summary of the risks, before mitigation measures are applied, for dust soiling and human health are shown in **Table 7**.

Table 7: Risk of Dust Impacts

Potential Impact	Dust Risk	
	Earthworks	Trackout
Dust Soiling	Low	Low
Human Health	Low	Low

7.3 Step 3 – Site-Specific Mitigation

- 7.3.1 Step 3 of the IAQM guidance identifies appropriate site-specific mitigation. These measures are related to the site risk for each activity. Specific mitigation measures are proposed based on the risk classifications in **Table 7**. The general mitigation measures (for site management, preparing and maintaining the site, operating vehicle/machinery, operations and waste management), are appropriate for a site with a ‘low risk’ classification⁶. The Dust and Emissions Mitigation Plan is provided in **Appendix D**.

⁶ For those mitigation measures that are general, the highest risk category should be applied. For example, if the site is medium risk for earthworks and construction, but a high risk for demolition and track-out, the general measures applicable to a high risk site should be applied.

7.4 Step 4 – Determine Significant Effects

7.4.1 The characteristics of the site and the surrounding area suggest that mitigation would not be impracticable or ineffective. With the implementation of the mitigation measures, therefore, the residual impacts from the earthworks are considered to be not significant when considered following IAQM guidance.

8 Effect of Air Quality on the Proposed Development

- 8.1 As discussed, as the development is a golf club, the annual mean air quality objectives do not apply; however, the short-term objectives still apply¹.
- 8.2 The background concentrations in **Table 4** show that background concentrations of NO₂, PM₁₀ and PM_{2.5} are well below health-based air quality objectives of 40 µg/m³ for both pollutants.
- 8.3 There is a diffusion tube approximately 500 m southeast of the development site. Since 2017, annual mean concentrations of NO₂ were well below the NO₂ annual mean objective at the identified monitoring site.
- 8.4 The identified diffusion tube is located on a minor road off Saltcotes Road (B5259). Saltcotes Road runs along the eastern site boundary. Therefore, although the diffusion tube is not representative of conditions at the development site, it provides insight into NO₂ concentrations within the study area.
- 8.5 The closest AQMA is approximately 9.7 km northwest of the development site in Blackpool.
- 8.6 The evidence from existing information sources is that the proposed development site is likely to experience levels of NO₂ and PM₁₀ below the short-term objectives for the pollutants and below the annual mean target for PM_{2.5}.

9 Impact of the Proposed Development on Existing Air Quality

9.1 Earthworks Phase

- 9.1.1 The closest AQMA is approximately 9.7 km northwest of the site in Blackpool. Therefore, the IAQM² thresholds are 500 LDV AADT and 100 HDV AADT.
- 9.1.2 The transport consultant, SCP Transport Planning, has confirmed the traffic data during the earthworks phase to be 120 HDV AADT.
- 9.1.3 The traffic distribution is not confirmed. However, during the earthworks phase, deliveries are expected to come from the Preston or Blackpool areas, with nearly all deliveries routing via:
- A583 Preston New Road / either the B5260 Fox Lane Ends or B5259 Ribby Road / B5259 Moss Side Lane / B5259 Saltcotes Road; or
 - A583 Blackpool Road / A584 Preston New Road / B5259 Saltcotes Road.

9.1.4 Therefore, it is likely that a proportion of the development trip generation is likely to travel along Saltotes Road north of the development site and south of the development site rather than all of the 120 HDV AADT travelling along the same roads.

9.1.5 Furthermore, the construction phase is temporary and will cease once the earthworks phase is complete. The earthworks phase is currently estimated to take place over 20 – 24 months.

9.2 Operational Phase

9.2.1 SCP Transport Planning has confirmed that the operational phase of the development is expected to introduce 204 AADT with minimal HDV movements. The increase in traffic is associated with the improvements to the golf club by adding a hole. Therefore, the traffic associated with the operational phase of the development is well below the IAQM² thresholds.

9.2.2 Consequently, the proposed development is not expected to have a significant impact on local air quality.

10 Summary of Impacts and Conclusion

10.1 This air quality report assesses the potential changes in air quality due to the earthworks and operation of the proposed development and whether these potential changes would significantly alter air quality.

10.2 The assessment of dust soiling and human health impacts during the earthworks phase of the development results in the proposal of dust mitigation measures. The implementation of these will ensure that residual dust impacts during the earthworks phase are not significant.

10.3 Concentrations of NO₂ and PM₁₀ are likely to be below their respective short-term objectives at the proposed development site which is therefore considered suitable for its intended use with regards to air quality. Concentrations of PM_{2.5} are expected to be below the annual mean target.

10.4 The proposed development is not expected to have a significant impact on local air quality.

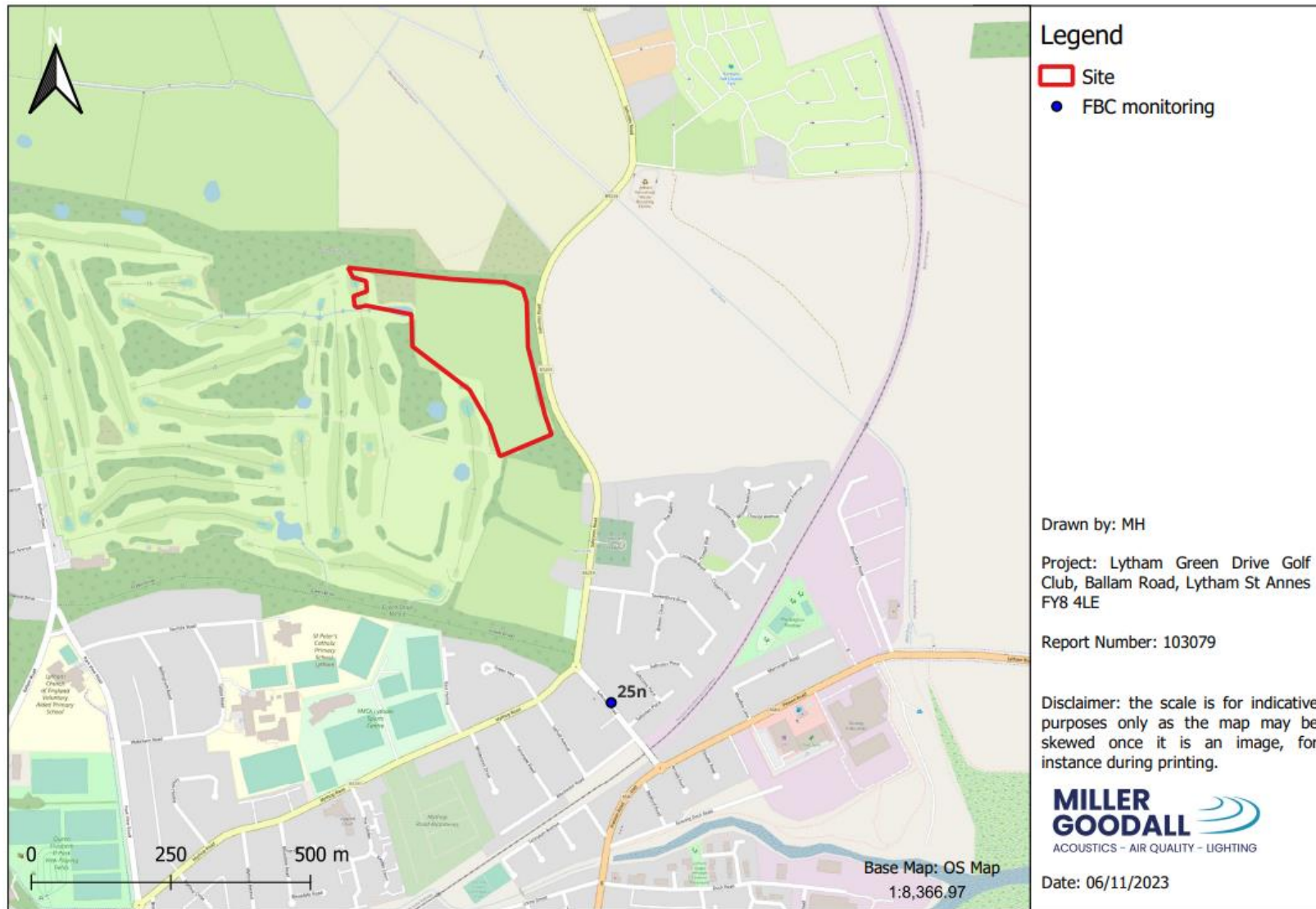
10.5 There is, therefore, no reason for this application to be refused on the grounds of air quality.

This page is left blank intentionally

APPENDICES

This page is left blank intentionally

Appendix A: Location of the site and FBC monitoring



This page is left blank intentionally

Appendix B: IAQM Dust Risk Assessment Methodology

The following section outlines criteria developed by the IAQM for the assessment of air quality impacts arising from construction and demolition activities⁴. The assessment procedure is divided into four steps and is summarised below:

Step 1: Screen the Need for a Detailed Assessment

An assessment will normally be required where there are human receptors within 250 m of the site boundary and/or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s). Ecological receptors within 50 m of the site boundary or within 50 m of the route(s) used by construction vehicles on the public highway, up to 200 m from the site entrance(s), are also identified at this stage. An ecological receptor refers to any sensitive habitat affected by dust soiling. For locations with a statutory designation, such as a Site of Specific Scientific Interest (SSSI), Special Area of Conservation (SACs) and Special Protection Areas (SPAs), consideration should be given as to whether the particular site is sensitive to dust. Some non-statutory sites may also be considered if appropriate.

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

Step 2: Assess the Risk of Dust Impacts

In step two, a site is allocated to a risk category on the basis of the scale and nature of the works (Step 2A) and the sensitivity of the area to dust impacts (Step 2B). These two factors are combined in Step 2C to determine the risk of dust impacts before the implementation of mitigation measures. The assigned risk categories may be different for each of the construction activities outlined by the IAQM (construction, demolition, earthworks and trackout). A site can be divided into zones, for example on a large site where there are differing distances to the nearest receptors.

Step 2A: Define the Potential Dust Emission Magnitude

Dust emission magnitude is based on the scale of the anticipated works and is classified as Small, Medium or Large. The IAQM guidance recommends that the dust emission magnitude is determined separately for demolition, earthworks, construction and trackout. **Table B1** describes the potential dust emission class criteria for each outlined activity.

Table B1: Criteria Used in the Determination of Dust Emission Magnitude

Activity	Criteria used to Determine Dust Emission Magnitude		
	Small	Medium	Large
Demolition	Total building volume <12,000 m ³ , construction materials with low potential for dust release.	Total building volume 12,000 m ³ – 75,000 m ³ , potential dusty construction material.	Total building volume >75,000 m ³ , potentially dusty construction material.
Earthworks	Total site area <18,000 m ² , soil type with large grain	Total site area 18,000 – 110,000 m ² , moderately dusty soil type	Total site area >110,000 m ² , potentially dusty soil type
Construction	Total building volume <12,000 m ³ .	Total building volume 12,000 – 75,000 m ³ .	Total building volume >75,000 m ³ .

Activity	Criteria used to Determine Dust Emission Magnitude		
	Small	Medium	Large
Trackout	<20 outward HDV trips in any one day. Unpaved road length <50 m.	20-50 outward HDV trips in any one day. Unpaved road length 50-100 m.	>50 outward HDV trips in any one day. Unpaved road length >100 m.

Step 2B: Define the Sensitivity of the Area

The sensitivity of the area takes into account the following factors:

- the specific sensitivities of receptors in the area;
- the proximity and number of receptors;
- the local background PM₁₀ concentration; and
- site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of windblown dust.

The criteria detailed in **Table B2** is used to determine the sensitivity of the receptor in relation to dust soiling, health effects and ecological effects.

Table B2: Criteria for Determining Sensitivity of Receptors

Sensitivity of Receptor	Criteria for Determining Sensitivity		
	Dust Soiling Effects	Health Effects of PM ₁₀	Ecological Sites
High	Dwellings, museums and other culturally important collections, medium and long-term car parks and car showrooms	Residential properties, hospitals, schools and residential care homes	International or national designation <i>and</i> the features may be affected by dust soiling; or locations where there is a community of a particularly dust sensitive species such as vascular species included in the Red Data List For Great Britain
Medium	Parks, places of work	Office and shop workers not occupationally exposed to PM ₁₀	Presence of an important plant species where dust sensitivity is uncertain or locations with a national designation with features that may be affected by dust deposition
Low	Playing fields, farmland, footpaths, short-term car parks and roads	Public footpaths, playing fields, parks and shopping streets	Local designation where features may be affected by dust deposition

Table B3 and **Table B4** are then used to define the sensitivity of the area to dust soiling and human health effects. **Table B5** is used to define the sensitivity of the area to ecological impacts. This should be derived for each of construction, demolition, earthworks and trackout.

Table B3: Sensitivity of the Area to Dust Soiling Effects on People and Property.

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

*distances considered are to the dust source

Table B4: Sensitivity of the Area to Human Health Impacts

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

Low - >1 Low Low Low Low

Table B5: Sensitivity of the Area to Ecological Impacts^{a, b, c}

Receptor Sensitivity	Distance from Source (m) ^c	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

^a The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout and for each designated site. See STEP 2B, Box 8 and Box 9 of IAQM guidance.

^b Only the highest level of area sensitivity from the table needs to be considered.

^c For trackout, the distances should be measured from the side of the roads used by construction traffic. The impact declines with distance from the site.

The sensitivity of the area is then summarised.

Step 2C Define the Risks of Impacts

The dust emission magnitude from **Table B1** and sensitivity of the area and receptors from **Table B2**, **Table B3**, **Table B4** and **Table B5** are combined, and the risk of impacts from each activity (demolition, earthworks, construction and trackout) before mitigation is applied, is determined using the criteria detailed in **Table B6** to **Table B9**.

Table B6: Risk of Dust Impacts - Demolition

Potential Impact Sensitivity of the 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

Table B7: Risk of Dust Impacts- Earthworks

Potential Impact Sensitivity of the 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
-----	----------	----------	------------

Table B8: Risk of Dust Impacts- Construction

Potential Sensitivity of the Area	Impact of the 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

Table B9: Risk of Dust Impacts- Trackout

Potential Sensitivity of the Area	Impact of the 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

Step 3 Determine Site Specific Mitigation

Step three of the IAQM guidance identifies appropriate site-specific mitigation. These measures are related to whether the site is a low, medium or high risk site.

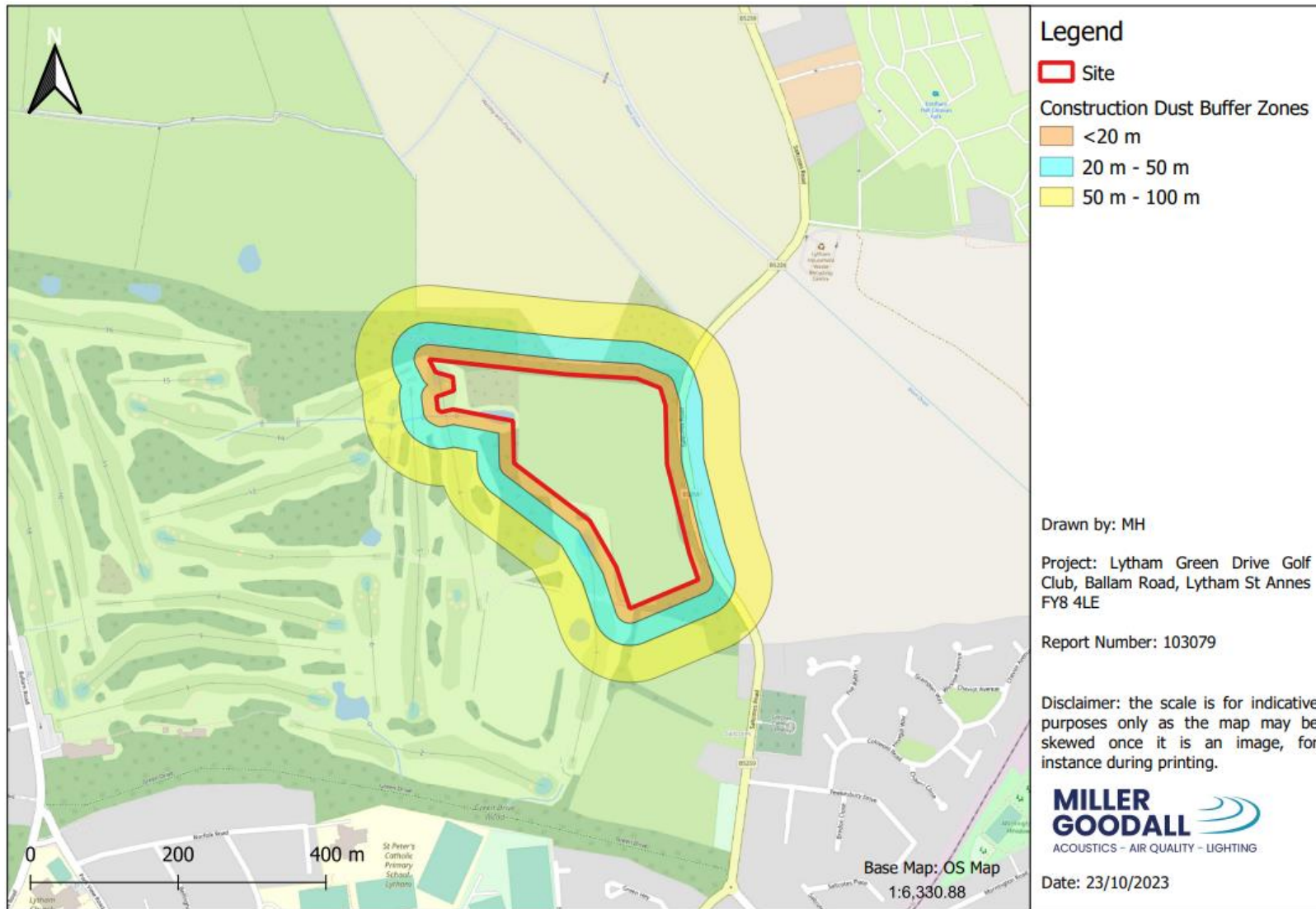
Step 4 Determine Significance of Residual Effects

At step four the significance of residual effects is assessed. For almost all construction activity, the aim should be to prevent significant effects on receptors through the use of effective mitigation. Experience shows that this is normally possible. Hence the residual effect will normally be ‘not significant’.

There may be cases where, for example, there is inadequate access to water for dust suppression to be effective, and even with other mitigation measures in place there may be a significant effect. Therefore, it is important to consider the specific characteristics of the site and the surrounding area to ensure that a conclusion of no significant effect is robust.

This page is left blank intentionally

Appendix C: Construction Dust Buffer Zones



This page is left blank intentionally

Appendix D: Dust and Emissions Mitigation Plan

This Dust and Emission Mitigation Plan (DEMP) identifies the dust mitigation measures required to control, minimise and limit dust generation and transport at the site. This document should be updated once the contractor is finalised and as per requirements.

Earthworks Timeline

The proposed works are scheduled to begin from

The programme is intended to be completed over weeks. Where necessary, further details of the timeframe, phasing or specific activity timeframes can be outlined below [by the contractor].

.....

Appointed Contractor

The details of the appointed contractor carrying out the demolition works is identified in **Table 1**. This will be updated as required.

Table 1: Contractor Details

Item	Contractor Details
Company	
Named Person(s) – Contractor/Site Manager	
Contact Details (Email & Phone Number)	

Responsibilities

It is the responsibility of the contractor to ensure this DEMP is enforced at all times during the earthworks phase. Failure to do so could result in environmental impact and amenity loss to residents, complaints and enforcement by the Local Authority.

- The appointed contractor will nominate appropriate members to enforce this DEMP during the earthworks period. This will as a minimum include a contractor, and a member of staff who will be working on the day.
- Display the name and contact details of the person(s) accountable for air quality and dust issues on the site boundary fencing. The head or regional office contact information should also be displayed.
- Ensure the DEMP and the mitigation measures in it are communicated to staff, including sub-contractors. This may include toolbox talks at periods to be defined by the contractor.
- Supervise and lead on any dust complaints that may arise. Complaints should be resolved promptly. Implement additional mitigation to avoid re-occurrences.

- The DEMP will be reviewed annually. New versions of the DEMP will be issued as and when necessary and employees made aware of any changes.

Daily Visual Inspection and Record Keeping

The Contractor, or an appointed employee, will carry out at least one daily visual inspection of the working areas, site access and site exit. A zone 50 m north and south of the site exit will be inspected for any trackout mud and debris, or wheel tracking, evidence. The visual inspection will, as a minimum, include the following:

- Inspection of the current dust-generating activities/areas. Inspections shall be reactive and on the identification of adverse dust generation (e.g. airborne dust seen visually leaving the site boundaries), details will be relayed back to the Contractor so further mitigation can be taken as necessary. Dampening activities present the most effective method to reduce dust generation and transport promptly.
- Dust generation can be readily identified by the coating of a surface. Inspection of street furniture outside the site boundary is recommended, if available and safe to do so; such as lamp posts, benches, cars or window sills.
- Details of the daily activities. This may include timeframes, delivery information or other such useful information on the day.

The daily inspection results will be recorded in an environmental logbook or other diary-type document. Information that should be recorded includes administration (date, time, signature of completion), meteorological conditions at the time of the visual check (wind speed, wind direction) and any other information relating to dust management or activities that may differ from the day-to-day operations.

General Dust Mitigation

The following overarching mitigation is required during the day-to-day operation:

- Enforcement of a 10mph speed limit at the site;
- Plan site layout so that machinery and dust-generating activities are located away from receptors, as far as is possible;
- Erect solid screens or barriers around the site boundary that are at least as high as any stockpiles on site. Keep site fencing, barriers and scaffolding clean using wet methods;
- Avoid site runoff of water or mud;
- Remove materials that have the potential to produce dust from the site as soon as possible, unless being re-used on site;
- Cover, seed or fence stockpiles and unsealed surfaces to prevent wind whipping;
- Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable;
- Drop heights from loading and unloading activities will be minimised to avoid dust generation;
- Ensure all vehicles switch off engines when stationary - no idling vehicles; and
- Avoid bonfires and burning of waste materials.

Water Suppression

- Vehicles exiting the site will have the wheels cleaned using a pressurised hose. The drainage will meet the requirements of the planning permission.
- A water bowser, or expandable hose that stretches to all dust-generating areas of the site, will be maintained on site at all times and used, as and when necessary to dampen down dust-generating areas such as stockpiles, access routes and unsealed surfaces. A water bowser will be kept filled when not in use to ensure a timely implementation. A continuous water supply will be maintained for the site.
- Stockpiles and unsealed surfaces will be dampened as and when necessary to reduce dust generation and transportation of dust. This action is required when drying out of surfaces is observed. Prolonged dry periods (exceeding 2 days) may require increased dampening and will be identified from the daily visual inspections.

Trackout

- All heavy-duty vehicles entering and leaving the site shall be sheeted to prevent escape of materials during transport.
- Water dampening and the cleaning of road surfaces both on-site and off-site will be undertaken. The daily visual inspection and reactive observations during day-to-day working will inform the requirement for cleaning of surfaces. A road sweeper may be required in exceptional circumstances.
- Avoid dry sweeping of large areas.

Monitoring

- Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary.
- Carry out regular site inspections to monitor compliance with the DEMP, record inspection results, and make an inspection log available to the local authority when asked.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- If requested by the Local Authority, dust monitoring may be required, the locations and procedure of which needs to be agreed with.

Reporting and Complaints Response

Engagement with the Community

On receipt of a complaint relating to dust, details of the complaint will be recorded in the environmental logbook and potential sources, or occurrences will be investigated by the Contractor or appointed employee(s). Records of all complaints and the mitigation remedial action taken will be recorded in the environmental logbook.

Complaints will be promptly investigated, and further mitigation taken at site, as necessary, to remedy the situation. Details of the action taken and to determine whether the complaint has been resolved will be communicated back to the complainant; unless it is an anonymous complaint, or the complainant has requested not to be contacted.

The results of the complaint investigation and the mitigation undertaken will be recorded in the environmental logbook and made available to the Regulator upon request.

An example complaint form is provided on the following page.

Time and Date	Notes
Contact details and address of complainant	
Date and time dust complaint was raised	
Description of complaint and dust observed (e.g. visible mud deposits on road, falling on car, airborne dust) <i>Details should be appended to this Form as necessary (e.g. photos of dust deposition on car)</i>	
Weather conditions at time of complaint (wind speed, wind direction, temperature, atmosphere conditions). <i>The complaint reporting time may sometimes differ by several hours from the time of when the issue occurred.</i>	
Identification of potential dust sources (e.g. stockpile near complainant, removal of top soil of day of complaint)	
Details of investigation and action taken (including administration details)	

The contractor may operate to a relevant complaint policy procedure stipulated by their company, which should be followed.

Steps should be taken by site manger to maintain good communication between the operators and surrounding communities in order to help alleviate any anxieties in local communities. This shall include providing information as freely as possible.

Distribution and Training

A physical copy of the DEMP will be retained on site for the duration of the earthworks works. A digital copy will be held at the Contractor head office.

The Contractor will ensure sufficient training and Personal Protective Equipment is provided for the employees to ensure the procedures, control measures, mitigation and actions of this DEMP can be carried out safely and to the best ability. Employee(s) will be made aware of their responsibility to reduce dust generation during their day-to-day activities

Glossary of Terms

AADT Annual Average Daily Traffic flow

Air Quality Standard Pollutant standards relate to ambient pollutant concentrations in air, set on the basis of medical and scientific evidence of how each pollutant affects human health and the environment

Air Quality Objective Pollutant Objectives incorporate future dates by which a standard is to be achieved, taking into account economic considerations, practicability and technical feasibility

Annual Mean A mean pollutant concentration value in air which is calculated on a yearly basis, yielding one annual mean per calendar year. In the UK air quality regulations, the annual mean for a particular substance at a particular location for a particular calendar year is:

- (a) in the case of lead, the mean of the daily levels for that year;
- (b) in the case of nitrogen dioxide, the mean of the hourly means for that year;
- (c) in the case of PM₁₀, the mean of the 24-hour means for that year.

Annoyance (Dust) Loss of amenity due to dust deposition or visible dust plumes, often related to people making complaints, but not necessarily sufficient to be a legal nuisance.

AQAP Air Quality Action Plan

AQMA Air Quality Management Area

AQMP Air Quality Management Plan

AQO Air Quality Objective

AQS Air Quality Strategy for England, Scotland, Wales and Northern Ireland

Background Concentrations The term used to describe pollutant concentrations which exist in the ambient atmosphere, excluding local pollution sources such as roads and stacks

Construction Any activity involved with the provision of a new structure (or structures), its modification or refurbishment. A structure will include a residential dwelling, office building, retail outlet, road, etc.

Construction Impact Assessment An assessment of the impacts of demolition, earthworks, construction and trackout. In this Guidance, specifically the air quality impacts.

Defra Department for Environment, Food and Rural Affairs

Demolition Any activity involved with the removal of an existing structure (or structures). This may also be referred to as de-construction, specifically when a building is to be removed a small part at a time.

Deposited Dust that is no longer in the air and which has settled onto a surface. Deposited dust is also sometimes called amenity dust or nuisance dust, with the term nuisance applied in the general sense rather than the specific legal definition.

DEMP Dust and Emissions Management Plan; a document that describes the site-specific methods to be used to control dust emissions.

Dust Solid particles that are suspended in air, or have settled out onto a surface after having been suspended in air. The terms dust and particulate matter (PM) are often used interchangeably, although in some contexts one term tends to be used in preference to the other. In this guidance the term 'dust' has been used to include the particles that give rise to soiling, and to other human health and ecological effects. Note: this is different to the definition given in BS 6069, where dust refers to particles up to 75 µm in diameter.

Earthworks Covers the processes of soil-stripping, ground-levelling, excavation and landscaping.

Effects The consequences of the changes in airborne concentration and/or dust deposition for a receptor. These might manifest as annoyance due to soiling, increased morbidity or mortality due to exposure to PM₁₀ or PM_{2.5} or plant dieback due to reduced photosynthesis. The term 'significant effect' has a specific meaning in EIA regulations. The opposite is an insignificant effect. In the context of construction impacts any effect will usually be adverse, however, professional judgement is required to determine whether this adverse effect is significant based in the evidence presented.

EPUK Environmental Protection UK

HDV Heavy Duty Vehicle

Impacts The changes in airborne concentrations and/or dust deposition. A scheme can have an 'impact' on airborne dust without having any 'effects', for instance if there are no receptors to experience the impact.

LAQM Local Air Quality Management

LDV Light Duty Vehicle

Mg/m³ Microgrammes (of pollutant) per cubic metre of air. A measure of concentration in terms of mass per unit volume. A concentration of 1 µg/m³ means that one cubic metre of air contains one microgramme (millionth of a gramme) of pollutant

NO₂ Nitrogen Dioxide

NO_x A collective term used to represent the mixture of nitrogen oxides in the atmosphere, as nitric oxide (NO) and nitrogen dioxide (NO₂)

NPPF National Planning Policy Framework

Nuisance The term nuisance dust is often used in a general sense when describing amenity dust. However, this term also has specific meanings in environmental law:

Statutory nuisance, as defined in S79(1) of the Environmental Protection Act 1990 (as amended from time to time).

Private nuisance, arising from substantial interference with a person's enjoyment and use of his land.

Public nuisance, arising from an act or omission that obstructs, damages or inconveniences the right of the community.

Each of these applying in so far as the nuisance relates to the unacceptable effects of emissions. It is recognised that a significant loss of amenity may occur at lower levels of emission than would constitute a statutory nuisance.

Note: as nuisance has a specific meaning in environmental law, and to avoid confusion, it is recommended that the term is not used in a more general sense.

PM_{2.5} The fraction of particles with a mean aerodynamic diameter equal to, or less than, 2.5 µm. More strictly, particulate matter which passes through a size selective inlet as defined in the reference method for the sampling and measurement of PM_{2.5}, EN 14907, with a 50% efficiency cut-off at 2.5 µm aerodynamic diameter

PM₁₀ The fraction of particles with a mean aerodynamic diameter equal to, or less than, 10 µm. More strictly, particulate matter which passes through a size selective inlet as defined in the reference method for the sampling and measurement of PM₁₀, EN 12341, with a 50% efficiency cut-off at 10 µm aerodynamic diameter

Running Annual Mean A mean pollutant concentration value in air which is calculated on an hourly basis, yielding one running annual mean per hour. The running annual mean for a particular substance at a particular location for a particular hour is the mean of the hourly levels for that substance at that location for that hour and the preceding 8759 hours

Trackout The transport of dust and dirt from the construction/demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. This arises when heavy duty vehicles (HDVs) leave the construction/demolition site with dusty materials, which may then spill onto the road, and/or when HDVs transfer dust and dirt onto the road having travelled over muddy ground on site.

