

# LAND FOR SPORTS FACILITIES: HOYLAND COMMON

## AIR QUALITY ASSESSMENT

VC-103210-AQ-RP-0002  
R01

AUGUST 2020



VANGUARDIA  
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DOCUMENT CONTROL

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## 1. INTRODUCTION

- 1.1. Vanguardia has been commissioned by Newlands Developments to undertake an air quality assessment to accompany a planning application for a site, to the west of Hoyland and approximately 6km south of Barnsley.
- 1.2. The site currently comprises of open fields and is bounded to the north and east by existing residential dwellings off Parkside Road, Warren View, and Bluebell Close. To the south the site is bounded by agricultural land and to the west by the A6135 Sheffield Road. The National Grid Reference for the centre of the site is E: 436029, N: 399809. The location of the site is shown in Figure 1.



**Figure 1** Site Location

- 1.3. The planning application to which this air quality assessment is associated with is for the construction element associated with the remodelling and creation of plateaus to create a topsail surface ready for BMBC to seed / turf for archery and football pitches uses.
- 1.4. The proposed Site Layout is set out in Appendix A.
- 1.5. This assessment has been undertaken to assess if the proposed development is likely to give rise to any adverse air quality and dust impacts, and to establish if the site is suitable for the proposed development with respect to the prevailing air quality.
- 1.6. The report is structured as follows:

- Section 2, sets out an overview of the national and local air quality policy context, in relation to the development proposals;
- Section 3, details the methodology for estimating the air quality impacts;
- Section 4, describes the baseline conditions;
- Section 5, considers the construction phase dust and vehicular traffic impacts;
- Section 6, describes potential mitigation measures for the construction phase (where required); and
- Section 7, summaries and concludes the assessments.

## 2. POLICY CONTEXT

### EUROPEAN LEGISLATION

- 2.1. Air pollutants at high concentrations can give rise to adverse effects upon the health of both humans and ecosystems. The European Union (EU) legislation on air quality forms the basis for the national UK legislation and policy.
- 2.2. The EU Framework Directive 2008/50/EC came into force in May 2008 and sets out legally binding limits for concentrations of the major air pollutants that can impact on public health. This Directive came into force in England in June 2010.

### NATIONAL LEGISLATION

- 2.3. Part IV of the Environment Act 1995<sup>1</sup>, requires local authorities to review and assess the air quality within their boundaries. As a result, the Air Quality Strategy was adopted in 1997, with national health-based standards and objectives set out for the, then, eight key air pollutants including benzene, 1-3 butadiene, carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter and sulphur dioxide.
- 2.4. The purpose of the Air Quality Strategy was to identify areas where air quality was unlikely to meet the objectives prescribed in the regulations. The strategy was reviewed in 2000 and the amended Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2000) was published. This was followed by an Addendum in February 2003 and again in July 2007, when an updated Air Quality Strategy was published.
- 2.5. The pollutant standards relate to ambient pollutant concentrations in air, set on the basis of medical and scientific evidence regarding how each pollutant affects human health. Pollutant objectives are the future dates by which each standard is to be achieved, taking into account economic considerations, practical and technical feasibility.
- 2.6. The air quality objectives are managed through the Local Air Quality Management, (LAQM) regime, which is defined within the Air Quality (England) Regulations 2000, (SI 928), The Air Quality (England) (Amendment) Regulations 2002, (SI 3043). Table 1 shows the objectives with the number of exceedances in each year that are permitted, (where applicable). Table 2

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<sup>1</sup> Department for Environment, Food and Rural Affairs (1995) The Environment Act. HMSO, London.

shows the targets and limits that are permitted for protection of ecosystems and vegetation, (where applicable) which are relevant to this assessment.

**Table 1** Human Health Air Quality Standards, Objectives, Limit and Target Values

Pollutant	Time Period	Objective
Nitrogen Dioxide (NO <sub>2</sub> )	1-hour Mean	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year
	Annual Mean	40 µg/m <sup>3</sup>
Fine Particles (PM <sub>10</sub> )	24-hour Mean	50 µg/m <sup>3</sup> not to be exceeded more than 35 times a year
	Annual Mean	40 µg/m <sup>3</sup> *
Fine Particles (PM <sub>2.5</sub> )	Annual Mean	25 µg/m <sup>3</sup> **

\*A proxy value of 32 µg/m<sup>3</sup> as an annual mean is used in this assessment to assess the likelihood of the 24-hour mean PM<sub>10</sub> objective being exceeded. Measurements have shown that, above this concentration, exceedances of the 24-hour mean PM<sub>10</sub> objective are possible (Defra, 2009).

\*\*The PM<sub>2.5</sub> objective, which is to be met by 2020, is not in Regulations and there is no requirement for local authorities to meet it.

**Table 2** Vegetation and Ecosystem Critical Levels

Pollutant	Time Period	Objective
Nitrogen Dioxide (NO <sub>2</sub> )	Annual Mean	30 µg/m <sup>3</sup>
	24-Hour Mean	75 µg/m <sup>3</sup>

## AIR QUALITY STANDARDS REGULATIONS AND LEGISLATION

- 2.7. The Air Quality Standards Regulations (2016)<sup>2</sup>, impose duties on the Secretary of State relating to achieving of the limit values set out within the regulations.
- 2.8. The statutory nuisance regime applies to dust within section 79(d) of the Environmental Protection Act 1990<sup>3</sup> and is defined as:

*'Any dust or effluvia arising from an industrial, trade or business premises and being prejudicial to health or a nuisance'*

<sup>2</sup>The Air Quality Standards Regulations (Amendments), 2016.

<sup>3</sup> The Environment Act 1995 HMSO, London.

## PLANNING POLICY

### *NATIONAL POLICIES*

2.9. A revised National Planning Policy Framework was published in July 2018 and updated in February 2019. The NPPF (2019)<sup>4</sup> sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally prepared plans for housing and other development can be produced.

2.10. Paragraph 103 states:

*"The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."*

2.11. Paragraph 170 states:

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

*[..]*

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

*[..]"*

2.12. Paragraph 180 states:

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<sup>4</sup> Department of Communities and Local Government (2019). National Planning Policy Framework. HMSO, London.

*"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development."*

2.13. Paragraph 181 states:

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

2.14. Paragraph 183 states:

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

2.15. The NPPF is supported by Planning Practice Guidance (PPG) (DCLG, 2014)<sup>5</sup>, which includes guiding principles on how planning can take account of the impacts of new development on air quality.

2.16. Paragraph: 001 Reference ID: 32-001-20191101 states:

*"The 2008 Ambient Air Quality Directive sets legally binding limits for concentrations in outdoor air of major air pollutants that affect public health such as particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) and nitrogen dioxide (NO<sub>2</sub>).*

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<sup>5</sup> Department for Communities and Local Government (2019). National Planning Policy Guidance. HMSO, <http://planningguidance.planningportal.gov.uk/>

*The UK also has national emission reduction commitments for overall UK emissions of 5 damaging air pollutants:*

- fine particulate matter (PM<sub>2.5</sub>)*
- ammonia (NH<sub>3</sub>)*
- nitrogen oxides (NO<sub>x</sub>)*
- sulphur dioxide (SO<sub>2</sub>)*
- non-methane volatile organic compounds (NMVOCs)*

*"As well as having direct effects on public health, habitats and biodiversity, these pollutants can combine in the atmosphere to form ozone, a harmful air pollutant (and potent greenhouse gas) which can be transported great distances by weather systems. Odour and dust can also be a planning concern, for example, because of the effect on local amenity."*

2.17. Paragraph: 005 Reference ID: 32-005-20191101 states:

*"Whether 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 have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and/or breach legal obligations (including those relating to the conservation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity.*

*Where air quality is a relevant consideration the local planning authority may need to establish:*

- The 'baseline' local air quality, including what would happen to air quality in the absence of the development;*
- whether the proposed development could significantly change air quality during the construction and operational phases (and the consequences of this for public health and biodiversity); and*
- whether occupiers or users of the development could experience poor living conditions or health due to poor air quality"*

## LOCAL POLICIES

2.18. The Barnsley Local Plan<sup>6</sup> was adopted on the 3<sup>rd</sup> January 2019 and at the time of writing is the current policy framework to aid in deciding planning applications.

2.19. Policy T5 *Reducing the Impact of Road Travel* states:

- *Developing and implementing robust, evidence-based air quality action plans to improve air quality;*
- *Working with our sub regional partners, fleet and freight operators to improve the efficiency of vehicles and goods delivery, and reduce exhaust emissions; and*
- *Implementing measures to ensure the current road system is used efficiently.”*

2.20. Policy Poll1 *Pollution Control and Protection* states:

*"Development will be expected to demonstrate that it is not likely to result, directly or indirectly, in an increase in air, surface water and groundwater, noise, smell, dust, vibration, light or other pollution which would unacceptably affect or cause a nuisance to the natural and built environment or to people.*

*We will not allow development of new housing or other environmentally sensitive development where existing air pollution, noise, smell, dust, vibration, light or other pollution levels are unacceptable and there is no reasonable prospect that these can be mitigated against.*

*Developers will be expected to minimise the effects of any possible pollution and provide mitigation measures where appropriate.”*

2.21. Policy AQ1 *Development in Air Quality Management Areas* states:

*"Development which impacts on areas sensitive to air pollution in air quality management areas will be expected to demonstrate that it will not have a harmful effect on the health or living conditions of any future users of the development in terms of air quality (including residents, employees, visitors and customers), taking into account any suitable and proportionate mitigation required for the development.*

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<sup>6</sup> Barnsley Metropolitan Borough Council (2019) Local Plan

*We will only allow residential development which impacts on areas sensitive to air pollution, where the developer provides an assessment that shows living conditions will be acceptable for future residents, subject to any required mitigation.*

*We will only allow development which impacts on areas sensitive to air pollution which could cause more air pollution, where the developer provides an assessment that shows there will not be a significantly harmful effect on air quality, subject to any required mitigation.*

*Furthermore, development which impacts on areas sensitive to air pollution due to traffic emissions will be expected to demonstrate suitable and proportionate mitigation relative to the increased traffic emissions generated by the development."*

### ***NATIONAL AIR QUALITY ACTION PLAN***

2.22. Defra has produced an Air Quality Plan<sup>7</sup> to tackle roadside nitrogen dioxide (NO<sub>2</sub>) throughout the United Kingdom. Along with a package of infrastructure, initiatives and grants, the plan requires Local Authorities to produce local action plans by March 2018, with the aim of reducing the air quality concentrations below the objective as soon as practically possible, should they be predicting exceedances of the air quality objectives beyond 2020.

### ***LOCAL AIR QUALITY ACTION PLAN***

2.23. The latest Barnsley Metropolitan Borough Council Air Quality Action Plan<sup>8</sup> was produced in 2017, and further updated in 2019. The document sets out 26 measures to aid in reducing emissions.

### ***BARNSLEY METROPOLITAN BOROUGH COUNCIL (2018) AIR QUALITY AND EMISSIONS GOOD PRACTICE PLANNING GUIDANCE***

2.24. The Barnsley Metropolitan Borough Council Air Quality guidance<sup>9</sup> was adopted in October 2018. The document sets out a methodology for undertaking air quality assessment and a template for integrating air quality considerations into air quality assessments.

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<sup>7</sup> Defra (2017) UK plan for tackling roadside nitrogen dioxide concentrations

<sup>8</sup> Barnsley Metropolitan Borough Council (2017) Air Quality Action Plan

<sup>9</sup> Barnsley Metropolitan Borough Council (2018) Air Quality and Emissions Good Practice Planning Guidance

2.25. This document has been utilised as part of this assessment.

## 3 . A S S E S S M E N T   A P P R O A C H

### APPROACH TO THE ASSESSMENT

3.1. This Air Quality Assessment has been undertaken by means of:

- A review of the existing air quality information;
- A review of the development proposals;
- A qualitative assessment of the construction dust impacts;
- A qualitative assessment of the construction traffic impacts;
- Provision of recommendations of mitigation measures, where appropriate, designed to minimise any adverse effects on air quality; and
- The identification of any residual impacts resulting from the proposed development.

### CONSTRUCTION IMPACTS

3.2. During the construction phase, activities may lead to the generation of particulate matter (dust), as well as gaseous emissions from construction vehicles and stationary plant. These emissions could give rise to complaints regarding potential impact upon human / ecological receptor health.

3.3. There is currently no formal assessment criterion for dust. Therefore, the approach developed by the Institute of Air Quality Management, (2014)<sup>10</sup> has been utilised as part of this assessment. The assessment consists of a five step processes to assess the potential level of risks, (Large, Medium, Small or Negligible), regarding the four main phases of development, (demolition, earthworks, construction, and trackout). The assessment includes consideration of pre-mitigation, and post-mitigation impacts, based upon the scale and nature of the development.

3.4. The approach states that an assessment will normally be required where there are:

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<sup>10</sup> Institute of Air Quality Management (2014) *Guidance on the Assessment of Dust from Demolition and Construction*.

- residential receptors within 350m of the site boundary and/or within 50m of the routes used by construction vehicles on the local highway network and up to 500m from site entrances; and/or
- Ecological receptors within 50m of the site boundary or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).

- 3.5. An ecological receptor refers to any sensitive habitat that is susceptible to dust soiling. For locations with a statutory designation, such as Sites of Specific Scientific Interest (SSSI), Special Areas 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 (such as local nature reserves), may also have to be considered if appropriate
- 3.6. The degree of risk is then derived from the level of the risk, and the sensitivity of the receptor being considered. To note, not all the criteria for a particular risk class need to be met for magnitude or significance. It is suggested in the IAQM (2014) guidance that other criteria (such as professional judgement) can be used to justify the assessment.
- 3.7. The full Construction Dust Impact Assessment methodology is set out in Appendix B and the assessment is described in Section 5.

## CONSTRUCTION TRAFFIC IMPACTS ON HUMAN RECEPTORS

- 3.8. Three key guidance documents have been used to determine the potential for impact upon air quality. These are the Design Manual for Roads and Bridges (DMRB)<sup>11</sup>, Environmental Protection UK (EPUK) Development Control: Planning for Air Quality (2010 update)<sup>12</sup> and the EPUK & IAQM (2017) Land-Use Planning and Development Control: Planning for Air Quality.<sup>13</sup>
- 3.9. The more stringent EPUK & IAQM (2017) guidance, provides indicative criteria for the requirement of an Air Quality Impact Assessment (which is summarised below, and further set out in greater detail in Appendix C).

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11 Highways Agency (2007). Design Manual for Roads and Bridges (DMRB), Volume 11: Environmental Assessment, Section 3: Environmental Assessment Techniques, Part 1, HA 207/07

12 Environmental Protection UK (2010). Development Control: Planning for Air Quality, (2010 Update) This guidance has been produced to help ensure that air quality is properly accounted for in local development control processes.

13 Environmental Protection UK & Institute of Air Quality Management (EPUK & IAQM) (2017) Land-Use Planning & Development Control: Planning for Air Quality, EPUK & IAQM, London

## LOCAL HIGHWAY NETWORK

### Step 1

- If any of the following apply to the development:
  - Contains 10 or more residential units or a site area of more than 0.5ha; or
  - Contains more than 1,000 m<sup>2</sup> of floor space for all other uses or a site area greater than 1ha.
- Coupled with any of the following:
  - The development has more than 10 parking spaces; or
  - The development will have a centralised energy facility or other centralised combustion process.

### Step 2

- A change of LGV, (light goods vehicle) flow of:
  - More than 100 AADT within or adjacent to an AQMA; or
  - More than 500 AADT elsewhere.
- A change of HGV, (heavy goods vehicle) flow of:
  - More than 25 AADT within or adjacent to an AQMA; or
  - More than 100 AADT elsewhere.

3.10. Should these criteria not be met, then the guidance document considers air quality impacts associated with a scheme to be negligible and no further assessment is required.

3.11. As the proposals are for an area greater than 1ha and potential associated parking, this exceeds the criteria in Step 1.

3.12. A review of the traffic data provided by the construction contractor has been screened against the Step 2 criteria. This is further discussed in Section 5, (for Construction Impacts).

3.13. A review of the proposals against Table 3 of the Barnsley Metropolitan Borough Council, (2018) *Air Quality and Emissions Good Practice Planning Guidance*, indicates the proposals could classify the Development as 'Major', on the basis of 'Where significant construction works are proposed,' Which could be argued the earthworks would form the 'construction' element of the proposals.

3.14. It is requested within this guidance, that the assessment includes an assessment of the monetisation of the impacts arising from emission changes in line with Defra IGCB Damage

Costs. However, on the basis the vehicular traffic associated with the proposals are temporary in nature, it's not considered that a damage calculation is required.

## CONSTRUCTION TRAFFIC IMPACTS ON ECOLOGICAL RECEPTORS

3.15. The DMRB guidance (HA207/07) <sup>14</sup> sets out when a full impact assessment on sensitive ecological receptors are to be undertaken, due to the changes in the following highway conditions, (if within 200m of the centre of the affected highway):

- Horizontal road alignment will change by 5m or more;
- Daily traffic flows will change by more than 1,000 Annual Average Daily Traffic (AADT);
- Heavy Duty Vehicle (HDV) flows will change by more than 200 AADT;
- Daily average speed will change by more than 10kph; or
- Peak hour speed will change by more than 20kph.

3.16. To note, the DMRB assessment criterion is based upon considering impacts in isolation and in combination with other plans and projects. Furthermore, increases in vehicular volumes are also reiterated in the IAQM (2020), A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites guidance<sup>15</sup>.

3.17. A review of the traffic data provided by the construction contractor has been screened against the DMRB criteria. This is further discussed in Section 5 (for Construction Impacts).

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<sup>14</sup> Highways Agency (2007). Design Manual for Roads and Bridges (DMRB), Volume 11: Environmental Assessment, Section 3: Environmental Assessment Techniques, Part 1, HA 207/07

<sup>15</sup> Institute of Air Quality Management (IAQM) (2020) A guide to the assessment of air quality impacts on designated nature conservation sites, IAQM, London

## 4. BASELINE CONDITIONS

### AIR QUALITY REVIEW AND ASSESSMENT

- 4.1. Under the Air Quality Strategy there is a duty on all Local Authorities to consider the air quality within their boundaries and to report annually to Defra. Local air quality management in the Hoyland area has been assessed by Barnsley Metropolitan Borough Council through the national Review and Assessment process, in fulfilment of Part IV of the Environmental Act 1995.
- 4.2. Barnsley Metropolitan Borough Council have six declared Air Quality Management Area's, (AQMA's) for exceedances of the nitrogen dioxide (NO<sub>2</sub>) annual mean objective (and in one case also the hourly mean objective). The closest AQMA to the Site is, 'Barnsley AQMA 1, which is located on the western area of the Site, as it covers a large area along the M1 between Junction 35a and Junction 38, including Haigh, Darton, Cawthorne Dike, Higham, Dodworth, Gilroyd, Rockley, Birdwell, and Tankersley. The area extends 100m either side of the central reservation and the AQMA is highlighted in green in Figure 2.

### LOCAL AIR QUALITY MONITORING

- 4.3. Barnsley Metropolitan Borough Council have three automatic monitoring locations, monitoring nitrogen dioxide (NO<sub>2</sub>) and PM<sub>10</sub>. These automatic monitoring locations are supported by a network of non-automatic, nitrogen dioxide (NO<sub>2</sub>) diffusion tubes.
- 4.4. Table 3 sets out the nitrogen dioxide (NO<sub>2</sub>) monitoring data collected between 2016 and 2019 for the closest monitoring sites to the Application Site. The nearest monitoring locations are illustrated in Figure 2.

**Table 3** Summary of Nitrogen Dioxide (NO<sub>2</sub>) Monitoring (2016 – 2019)

Site ID	Site	Site Type	2016	2017	2018	2019
<b>Diffusion Tubes – Annual Mean (µg/m<sup>3</sup>)</b>						
DT24	A6135 Hoyland	Kerbside	32.5	40.0	30.2	30.3
DT25	A61 Sheffield Road	Roadside	<b>42.9</b>	<b>40.2</b>	34.3	38.6

DT26	A61 Sheffield Road	Roadside	<b>44.8</b>	<b>43.2</b>	<b>40.1</b>	<b>40.3</b>
DT27	A61 Sheffield Road	Roadside	39.5	38.6	39.1	39.8
DT28	Tankersley School	Roadside	25.5	22.6	23.9	23.6
<b>Objective</b>			<b>40</b>			

**BOLD** indicates exceedance of the objective



**Figure 2** Local Monitoring Locations

- 4.5. The annual mean concentrations for the closest monitoring locations, indicates consistent exceedances of the nitrogen dioxide (NO<sub>2</sub>) objective of 40ug/m<sup>3</sup> at DT26. Monitoring location DT25 monitored exceedances in 2016 and 2017. DT24 almost exceeded the objective in 2017, but has consistently complied with the annual mean objective, as has DT27 and DT28.

## BACKGROUND CONCENTRATIONS

4.6. The Defra website<sup>16</sup> includes estimated background air pollution data for NO<sub>x</sub>, NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> for each 1km by 1km OS grid square. Background pollutant concentrations are modelled from the base year of 2017 and based on ambient monitoring, meteorological data from 2017 and then projected for future years. Projected pollutant concentrations for the existing baseline year (2020) covering the closest OS grid square to the site are provided in Table 4 below, which have been utilised as part of this assessment. To note, sensitivity background concentrations have been derived using the CURED methodology.

**Table 4** Summary of DEFRA Background NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> Concentrations

Source	Site Type	2020
<b>NO<sub>2</sub> (µg/m<sup>3</sup>)</b>		
Defra	Background	11.07
<b>NO<sub>2</sub> (µg/m<sup>3</sup>)</b>		
CURED	Background	11.71
<b>PM<sub>10</sub> (µg/m<sup>3</sup>)</b>		
Defra	Background	10.69
<b>PM<sub>2.5</sub> (µg/m<sup>3</sup>)</b>		
Defra	Background	6.66

4.7. Annual mean concentrations are within the relevant objective limits for NO<sub>2</sub> and PM<sub>10</sub>. There are no ambient air quality limit PM<sub>2.5</sub>.

<sup>16</sup> Defra: UK-AIR. <http://www.uk-air.defra.gov.uk>

## 5. CONSTRUCTION PHASE IMPACT ASSESSMENT

### CONSTRUCTION DUST ASSESSMENT

5.1. The main air quality impacts associated with construction activities relate to the potential release of particulate matter of both PM<sub>10</sub> and PM<sub>2.5</sub> size fractions. There is also the potential for the evolution of other air quality pollutants (secondary pollutants). The sources of potential construction impact specifically associated with the proposals are set out below:

- Potential for generation of airborne dusts from exposure and movement of soils and construction materials;
- Generation of fumes on-site by construction plant and tools throughout the construction phase;
- Increase in vehicle emissions (smoke/fumes) from vehicles (and potentially as a result of slow-moving traffic, should local congestion ensue); and
- Re-suspension of dust as a result of vehicle tyres travelling over dusty surfaces.

5.2. A construction dust assessment has been undertaken in line with the IAQM (2014) guidance methodology as set out in Appendix B and a summary of the process is set out as follows.

### SCREENING THE NEED FOR A FULL ASSESSMENT

5.3. Having reviewed the Site location, it is evident that the Site has a number of human receptors within 350m of the Site boundary and therefore a detailed dust impact assessment is required.

5.4. A review of the Defra Magic website<sup>17</sup> indicates two ecological sites (Potter Holes Plantation nature reserve and Worsbrough Country Park nature reserve) are located near to the site, but these are greater than 500m of the site entrance. On this basis, the dust impacts on any habitats within these sites have been scoped out of the assessment.

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<sup>17</sup> <http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx>

## POTENTIAL DUST EMISSION MAGNITUDE

### *DEMOLITION*

5.5. A review of the site and the proposals indicates any demolition will be very minimal and has therefore been scoped out of the assessment.

### *EARTHWORKS*

5.6. The total area where earthworks will occur is greater than 10,000m<sup>2</sup> and therefore, in accordance with the criteria outlined in Table B1 in Appendix B, the magnitude of potential dust emissions from earthworks activities is classified as Large.

### *CONSTRUCTION*

5.7. The proposals to which this assessment relates to is for the creation of a plateau for future sports related pitches, and a further planning application will be made for the consideration of any operational buildings. Therefore, this element has not been included in the assessment.

### *TRACKOUT*

5.8. The construction contractor has advised that 3 daily HGV vehicles movements will occur over a four-week period. Therefore, in accordance with the criteria outlined in Table B1 in Appendix B, the magnitude of potential dust emissions from trackout activities is classified as Small.

5.9. Table 5 summarises the dust emission magnitude for the proposed development.

**Table 5** Summary of Dust Emission Magnitude

<b>Activity</b>	<b>Dust Emission Magnitude</b>
Demolition	None
Earthworks	Large
Construction	None
Trackout	Small

## SENSITIVITY OF THE AREA

5.10. Step 2B considers the number and the sensitivity of the receptors. A consideration is also made for background PM<sub>10</sub> concentrations when looking at human health impacts.

### *SENSITIVITY OF THE AREA TO EFFECTS OF DUST SOILING*

5.11. The presence of over 100 'High' sensitive human (residential receptors) within approximately 20m of the site boundary, indicates that the area for and construction activities would be of a 'High' sensitivity, (based upon Table B3 in Appendix B).

5.12. The construction contractor has advised that the material to form the plateau will be taken from the adjacent site (identified as ES13 in Barnsley's Local Plan) and take the route, as illustrated in Figure 3.



**Figure 3** Route for Moving Material

5.13. There are potentially of 10-100 'High' (residential) sensitive receptors within 50m of where trackout may occur for a distance of up to 500m from the site entrance. This would be considered to be of a 'Medium' sensitivity, (Based upon Table B3 in Appendix B).

*SENSITIVITY OF THE AREA TO ANY HUMAN HEALTH EFFECTS*

- 5.14. The presence of over 100 'High' sensitive human (residential) receptors within approximately 20m of the site boundary and background PM<sub>10</sub> concentration (detailed in Table 4), would indicate that the area around the construction site, has a 'Medium' sensitivity, (Based upon Table B4 in Appendix B).
- 5.15. There are potentially 10-100 'High' (residential) sensitive receptors within 50m of where trackout may occur for a distance of up to 500m from the site entrance. Along with the background PM<sub>10</sub> concentrations, (detailed in Table 4), would indicate the area would have a 'Low' sensitivity, (Based upon Table B4 in Appendix B).

*SENSITIVITY OF THE AREA TO ANY ECOLOGICAL EFFECTS*

- 5.16. As discussed earlier in this Section the ecological sites consideration within the assessment has been scoped out.

**RISK AND SIGNIFICANCE**

- 5.17. The dust emission magnitude described in the sections above is combined with the sensitivity of the area as set out in the assessment matrix, (Table B6 of Appendix B). The resulting risk categories for the four construction activities, without mitigation, are set out in Table 6.

**Table 6** Summary of Area Sensitivity

Activity	Sensitivity of the Area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	N/A	High Risk	N/A	Negligible
Human Health	N/A	Medium Risk	N/A	Negligible

- 5.18. The IAQM (2014) guidance does not provide a method for assessing the significance of effects before mitigation and advises that pre-mitigation significance should not be determined. With appropriate mitigation in place (as set out in Section 6 and Appendix D), the IAQM (2014) guidance is clear that the residual effect will normally be 'not significant'

## CONSTRUCTION TRAFFIC ASSESSMENT SCREENING ON ECOLOGICAL RECEPTORS

- 5.19. The predicted impacts of the construction traffic has been screened against the DMRB criteria.
- 5.20. This does not represent an AADT increase of 1,000 or greater or represent an HGV AADT increase of 200, (AADT) or more, on the highway links adjacent to Potter Holes Plantation nature reserve and Worsbrough Country Park nature reserve. Therefore, an impact assessment has been scoped out, and any impact would be temporary, negligible (adverse), but not significant.

## CONSTRUCTION TRAFFIC ASSESSMENT SCREENING ON HUMAN RECEPTORS

- 5.21. The predicted impacts of the construction traffic will see an increase of 3 daily HGV's movements from the adjacent site (identified as ES13 in Barnsley's Local Plan) to the application site for a 4-week period. This does not breach the EPUK & IAQM (2017) thresholds set out in Appendix C. Therefore, in line with the guidance, any impact would be temporary, negligible (adverse), but not significant.

## 6. MITIGATION

### CONSTRUCTION PHASE

- 6.1. A construction dust assessment has been undertaken in Section 5 of this assessment and the outcome of which has been utilised within this section to advise upon the adequate level of mitigation that will be required.
- 6.2. A range of measures relates to construction and trackout activities are suggested, which could be utilised during the construction phase.
- 6.3. Further general guidance on potential mitigation measures can be found in Appendix D.

### *EARTHWORKS*

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable;
- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable; and
- Only remove the cover in small areas during work and not all at once

### *TRACKOUT*

- 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.
- Avoid dry sweeping of large areas;
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport;
- Record all inspections of haul routes and any subsequent action in a site log book; and
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

## **7. CONCLUSIONS**

- 7.1. Vanguardia were appointed by Newlands Developments to undertake an air quality assessment to be submitted as part of a planning application for the construction of a plateau for the future creation of sports facilities.
- 7.2. A qualitative assessment of the potential, temporary dust impacts upon local residential and ecological receptors, has been carried out in line with IAQM (2014) guidance. This assessment identified that due to the close proximity of existing residential receptors, the construction phase is considered to be a 'Large' risk for dust soiling and 'Medium' risk for human health. Through good site practice and the implementation of suitable mitigation measures, as set out in this assessment, these effects can be minimised, and the residual effects would be expected to be local, temporary, with a negligible impact and not significant.
- 7.3. The impacts of the construction phase traffic upon human and ecological receptors are anticipated to be temporary, negligible, but not significant.
- 7.4. Construction mitigation measures have been set out in Section 6 and Appendix D, which will aid in reducing and minimising any adverse impacts.
- 7.5. The proposed development is therefore expected to comply with all relevant air quality policy.

## **APPENDIX A – PROPOSED SITE LAYOUT**

**Notes;**

To enable the archery club to have a continuous use it is proposed to undertake the works as indicated in two phases.

**Phase 1 will comprise;**

- Undertake site clearance to form new entrance off Sheffield Road;
- Provide a temporary surfaced access way and car park area;
- Undertake earthworks and re-modelling to create plateaus for new archery zone area and sports pitches.
- Subject to the timing of the land exchange the archery area is proposed to be part turfed (to the archery runs) and part grass seeded to the remainder.
- The provision of new archery zone will be located within the Trust Land area. The archery zone has been designed around 5m shooting lanes to a maximum of 70m range.
- Provide container storage.

**Phase 2 will comprise;**

- Finalise clearance and earthworks re-modelling to create required level plateau for sports pitches
- playing areas to be left with a topsoil surface ready to receive seeding/turf as part of BMBC phase of works;
- Form new permanent entrance off Sheffield Road together with underground electricity and surface and foul water supplies to serve the future community building;
- Provide new tarmac car park complete with drainage, kerbing and external lighting. Note no white-lining will be provided.



Phase 2.  
form permanent access, electricity, foul and surface drainage supplies, capped off as necessary for future connection

Phase 1.  
earthworks plateauing

Phase 2.  
finalise levels and topsoil surface pitches

Phase 1.  
existing drains to remain

Phase 1.  
temporary surfaced access and parking area

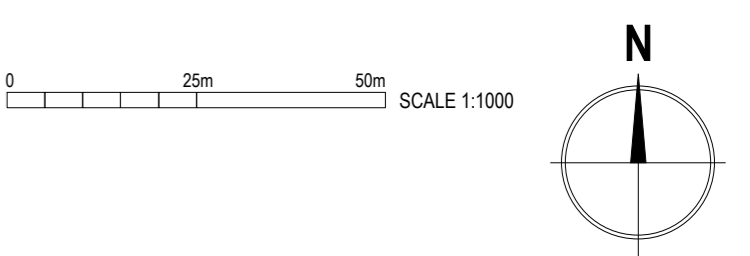
Phase 1.  
provide container storage and temporary portakabin type changing/toilets

Phase 2.  
tarmac surfaced car park and access roadway with drainage, kerbs and external lighting.

Phase 1.  
turf/seeding of archery zone

indicative overhead electricity cable zone

Revision:		
P1	first issue	14Jul2020 PL
P2	notes added	16Jul2020 PL
P3	layout adjusted to suit exg drains	20Jul2020 PL
P4	updated pitch orientation to match RPS plateaus	22Jul2020 PL
P5	pitches set out revised	23Jul2020 PL
P6	archery updated to new earthworks design	24Jul2020 PL



Hoyland Common  
Barnsley M1, J36



php Architects  
www.peter-haddon.com  
Land for Sports Facilities  
Phase 1 and Phase 2 works  
Drawing Status: Preliminary  
CAD Reference: 4400-001  
Drawn: PL  
Date: feb2020  
Scale @A1: 1/1250

Project No: 4400 Drawing No: SK008 Rev: P6

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## **APPENDIX B - CONSTRUCTION DUST ASSESSMENT METHODOLOGY**

The criteria developed by IAQM is divides the activities on construction sites into four different types to assess their different level of impacts upon receptors. These are:

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

The assessment procedure includes four steps summarised below:

### **STEP 1 - SCREENING THE NEED FOR A FULL ASSESSMENT**

The following screening criterion has been applied to the assessment: An assessment will normally be required where there is:

- A 'human' receptor within:
  - 350m of the Site boundary; or
  - 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).
- An 'ecological' receptor within:
  - 50m of the Site boundary; or
  - 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).

Should this criterion not be met it can be concluded that the level of risk upon receptors is negligible and there the effects are not significant, and therefore no mitigation measures will be required.

### **STEP 2 - ASSESS THE RISK OF DUST ARISING**

The Site is given a risk classification based upon the following two factors:

- The scale and nature of the construction works, to provide the potential dust emission magnitude (Step 2A); and
- The sensitivity of the area / receptors to the dust impacts (Step 2B).

These two factors are combined in Step 2C, which is to determine the risk of dust impacts with no mitigation applied. The risk categories assigned to the site may be different for each of the four potential sources of dust (demolition, earthworks, construction and trackout).

## STEP 2A - DEFINE THE POTENTIAL DUST EMISSION MAGNITUDE

The dust magnitude is categorised by the following:

- Small;
- Medium; or
- Large.

The IAQM provide a brief description upon what could apply for each classification (as set out in Table B1) and should be based upon professional judgement.

**Table B1** Dust Magnitude Classification

<b>Magnitude Class</b>	
<b>Demolition</b>	
Large	Total building volume >50,000m <sup>3</sup> , potentially dusty material, on-site crushing and screening, activities >20m above ground level.
Medium	Total building volume 20,000-50,000m <sup>3</sup> , potentially dusty construction material, demolition activities 10-20m above ground level.
Small	Total building volume <20,000m <sup>3</sup> , construction material with low potential for dust release, demolition activities <10m above ground, works during wetter months.
<b>Earthworks</b>	
Large	Total site area over 10,000 m <sup>2</sup> , potentially dusty soil type (e.g. clay), >10 heavy earth moving vehicles active at any one time, formation of bunds > 8 m in height, total material moved > 100,000 tonnes.
Medium	Total site area between 2,500 to 10,000 m <sup>2</sup> , moderately dusty soil type (e.g. silt), 5 – 10 heavy earth moving vehicles active at any one time, formation of bunds 4 - 8 m in height, total material moved 20,000 to 100,000 tonnes.
Small	Total site area less than 2,500 m <sup>2</sup> . Soil type with large grain size (e.g. sand), < 5 heavy earth moving vehicles active at any one time, formation of bunds < 4 m in height, total material moved < 10,000 tonnes earthworks during winter months.

<b>Construction</b>	
Large	Total building volume over 100,000 m <sup>3</sup> , activities include piling, on-site concrete batching, and sand blasting. Period of activities more than two years.
Medium	Total building volume between 25,000 and 100,000 m <sup>3</sup> , use of construction materials with high potential for dust release (e.g. concrete), activities include piling, on-site concrete batching. Period of construction activities between one and two years.
Small	Total building volume below 25,000m <sup>3</sup> , use of construction materials with low potential for dust release (e.g. metal cladding or timber). Period of construction activities less than one year.
<b>Trackout</b>	
Large	> 50 HDV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100m. (Trackout may occur up to 500m from the site entrance).
Medium	10-50 HDV (>3.5t) outwards movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50m – 100m. (Trackout may occur up to 200m from the site entrance).
Small	<10HDV (>3,5t) outward movements in any one day. (Trackout may occur up to 50m from the site entrance).

## STEP 2B - DEFINE THE SENSITIVITY OF THE AREA

The sensitivity of the area / receptor is defined by taking account of the following factors and the criteria set out in Tables(s) B2 to B5:

- The type of receptors in the area;
- The distance and number of receptors; and
- Background PM<sub>10</sub> concentrations.

**Table B2** Defining Receptor Sensitivity

Receptor Sensitivity	Human	Ecological
High	Very densely populated area, 10-100 dwellings within 20m of site. Annual mean concentrations of PM10 close to/in exceedence of the national objective (40 µg m <sup>3</sup> ). Very sensitive receptors (e.g. residential properties, hospitals, schools, care homes).	Internationally or nationally designated site, the designated features may be affected by dust soiling. A location where there is dust sensitive species present.
Medium	Densely populated area, 1-10 dwellings	Nationally designated site where the

	<p>within 20m of site. Annual mean concentrations of PM10 below the national objective (<math>&gt; 28 \mu\text{g m}^{-3}</math>). Medium sensitivity receptors (e.g. office and shop workers).</p>	<p>features may be affected by dust deposition. A location with a particularly important plant species where its dust sensitivity is unknown.</p>
Low	<p>Sparsely populated area, 1 dwelling within 20m of site. Annual mean concentrations well below the national objectives (<math>&lt; 28 \mu\text{g m}^{-3}</math>). Low sensitivity receptors (e.g. public footpaths, playing fields, shopping streets).</p>	<p>Locally designated site where the features may be affected by dust deposition.</p>

**Table B3** Sensitivity of the Area to Effects on People and Property from Dust Soiling

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		20	50	100	350
High	>100	High	High	Medium	Low
	10 – 100	High	Medium	Low	Low
	1 – 10	Medium	Low	Low	Low
Medium	>1	Low	Low	Low	Low
Low	>1	Low	Low	Low	Low

**Table B4** Sensitivity of the Area to Human Health Effects

Receptor Sensitivity	Annual Mean PM <sub>10</sub>	Number of Receptors	Distance from the Source (m)				
			<20	<50	<100	<200	<350
High	>32 $\mu\text{g}/\text{m}^3$	>100	High	High	High	Medium	Low
		10 – 100	High	High	Medium	Low	Low
		1 – 10	High	Medium	Low	Low	Low
	28 - 32 $\mu\text{g}/\text{m}^3$	>100	High	High	Medium	Low	Low
		10 – 100	High	Medium	Low	Low	Low
		1 – 10	High	Medium	Low	Low	Low
	24 - 28 $\mu\text{g}/\text{m}^3$	>100	High	Medium	Low	Low	Low
		10 – 100	High	Medium	Low	Low	Low
		1 – 10	Medium	Low	Low	Low	Low

	<24 µg/m <sup>3</sup>	>100	Medium	Low	Low	Low	Low
		10 – 100	Low	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low	Low
Medium	-	>10	High	Medium	Low	Low	Low
	-	1 – 10	Medium	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

**Table B5** Sensitivity of the Area to Ecological Effects

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

## STEP 2C - DEFINE THE RISK OF IMPACTS

The dust emission magnitude determined at Step 2A is combined with the sensitivity of the area determined at Step 2B to determine the risk of impacts with no mitigation applied. The IAQM provides the matrix in Table B6 as a method of assigning the level of risk for each activity.

**Table B6** Defining the Risk of Dust Impacts

Sensitivity of the Area	Dust Emission Magnitude		
	Large	Medium	Small
<b>Demolition</b>			
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible
<b>Earthworks</b>			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk

Low	Low Risk	Low Risk	Negligible
<b>Construction</b>			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
<b>Trackout</b>			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

### STEP 3 – IDENTIFY THE NEED FOR SITE SPECIFIC MITIGATION

From the identification of the risk of impacts with no mitigation, it is possible to determine the specific mitigation measures that can be applied in relation to the level of risk associated with the construction activity. The mitigation measures described below are suggested as measures that should be included in a site-specific Construction Environmental Management Plan (CEMP). Specific measures of which are included in Section 6 (and general mitigation measures are set out in Appendix D) of this report.

### STEP 4 – DETERMINE SIGNIFICANT IMPACTS

The IAQM does not provide a method for assessing the significance of effects before mitigation, and advises that pre-mitigation significance should not be determined. With appropriate mitigation in place, the IAQM guidance is clear that the residual effect will normally be 'not significant'

## APPENDIX C - EPUK & IAQM PLANNING FOR AIR QUALITY GUIDANCE

The guidance issued by EPUK & IAQM (2017) is comprehensive in its explanation of the place of air quality in the planning regime. The key section of the guidance not previously discussed within Section 3 are set out below.

### AIR QUALITY AS A MATERIAL CONSIDERATION

The guidance states:

*"Any air quality issue that relates to land use and its development is capable of being a material planning consideration. The weight, however, given to air quality in making a planning application decision, in addition to the policies in the local plan, will depend on such factors as:*

- The severity of the impacts on air quality;
- The air quality in the area surrounding the proposed development;
- The likely use of the development, i.e. the length of time people are likely to be exposed at that location; and
- The positive benefits provided through other material considerations."

### SCREENING

The guidance sets out two stages of screening criteria that can be used to identify whether a detailed air quality assessment is required, in terms of the impact of the development on the local area. The first stage is that you should proceed to the second stage if any of the follow apply:

- 10 or more residential units or a site area of more than 0.5 ha residential use; or
- More than 1,000 m<sup>2</sup> of floor space for all other uses or a site area greater than 1 ha

Coupled With:

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

If the above do not apply then the development can be screened out as not requiring a detailed air quality assessment of the impact of the development on the local area. If they do apply then you proceed to stage 2, the criteria for which are set out below.

- The development will lead to a change in light vehicle flows of more than 100 AADT within or adjacent to an Air Quality Management Area (AQMA) or more than 500 AADT elsewhere;
- The development will lead to a change in heavy vehicle flows of more than 25 AADT within or adjacent to an AQMA or more than 100 AADT elsewhere;
- Where the change is 5m or more and the road is within an AQMA;
- Introduction of a new junction that cause traffic to significantly change vehicle accelerate/decelerate, e.g. traffic lights, or roundabouts;
- The development will introduce or change a bus station where bus flows will change by more than 25 AADT within or adjacent to an AQMA or more than 100 AADT elsewhere;
- The development will have an underground car park with more than 100 movements per day (total in and out) with an extraction system that exhausts within 20 m of a relevant receptor; or
- Have one or more substantial combustion processes, where there is a risk of impacts at relevant receptors.

Should none of the above apply then the development can be screened out as not requiring a detailed air quality assessment of the impact of the development on the local area.

## **APPENDIX D – GENERAL MITIGATION**

### *COMMUNICATIONS*

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site;
- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager; and
- Display the head or regional office contact information.

### *SITE MANAGEMENT*

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken;
- Make the complaints log available to the local authority when asked;
- Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book; and
- Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/ deliveries which might be using the same strategic road network routes.

### *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 100m of site boundary, with cleaning to be provided if necessary;
- Carry out regular site inspections, record inspection results, and make an inspection log available to the local authority when asked; and

- 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.

### *PREPARING AND MAINTAINING THE SITE*

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible;
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site;
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period;
- Avoid site runoff of water or mud;
- Keep site fencing, barriers and scaffolding clean using wet methods;
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below; and
- Cover, seed or fence stockpiles to prevent wind whipping.

### OPERATING VEHICLE/MACHINERY AND SUSTAINABLE TRAVEL

- Ensure all vehicles switch off engines when stationary - no idling vehicles;
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable; and
- Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).

### *OPERATIONS*

- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate;

- Use enclosed chutes and conveyors and covered skips; and
- Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

### *WASTE MANAGEMENT*

- Avoid bonfires and burning of waste materials



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