Quobleigh Breach, One Horton Heath

Air Quality Assessment for Reserved Matters Planning Application

Stantec

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1 Introduction

Stantec have been commissioned by Eastleigh Borough Council (the 'Applicant') to prepare an Air Quality Assessment (AQA) to support the reserved matters planning application for a residential development (the 'Proposed Development') on land east of Allington Lane, Horton Heath (the 'Site'). The Site is known as the Quobleigh Breach (P6) parcel and comprises part of the wider One Horton Heath (OHH) development.

The Site is located within the administrative boundary of Eastleigh Borough Council (EBC) (the 'LPA') and is centred on the approximate National Grid Reference (NGR); x448450 y117460, as shown in Figure 1.

Figure 1: Site Location

The Site is located approximately 1.2km south west of Fair Oak village and 1km west of Horton Heath village in Hampshire. Fir Tree Lane dissects the Site from east to west and it is understood that a new link road will route through the Site from north to south.

1.1 Proposed Development

The Proposed Development seeks approval for:

> *"Application for the approval of reserved matters (appearance, layout, scale and landscaping) for the development of 269 dwellings, associated open space, landscaping, parking and other associated works, pursuant to outline permission O/20/89498".*
>
> *[see Planning Statement and Application forms for full description of development]*

1.2 Planning Context and Previous Assessments

To support the outline planning application (OPA) (O/20/89498) for the wider OHH development and the Phase 3 Link Road, several AQAs have been undertaken to assess and determine the air quality effects of the scheme as highlighted in Table 1:

Table 1: Previous Assessments

Date	Title	Conclusions	Significance of Impacts
December 2020	Original Air Quality ES Chapter	• Construction phase assessment predicted a high risk of dust impacts. With adoption of appropriate mitigation, risks would be reduced to negligible • Operational phase assessment predicted no exceedances of the air quality assessment levels (AQALs). All impacts were predicted to be negligible	Not Significant
April 2021	Technical Note[1]	• Prepared in response to technical queries raised by the LPA during planning determination following submission of the original ES chapter. • This note reported supplementary modelling data, a PM_{10} model adjustment factor and a separate model adjustment factor for the Eastleigh AQMA No.1 applied to modelled receptor R35, on Southampton Road • The note concluded that the findings of the ES Chapter remained valid.	Not Significant
May 2021	ES Addendum	• Prepared in response to a series of minor changes made to the One Horton Heath project. The revised EIA parameters did not result in changes that would alter the assessment of potential effects, and the conclusions reached in the original ES. Accordingly, no additional technical assessment was prepared	Not Significant
June 2021	Letter Response[2]	• This provided a number of additional points of clarity in relation to construction dust, odour, energy strategy and mitigation measures. • The letter confirmed that the findings of the ES Chapter remained valid.	Not Significant

[1] Document reference C-09820-C_OHH_Response_AQ
[2] Document reference OHH-HYD-ZZ-XX-LT-2001-P01

Date	Title	Conclusions	Significance of Impacts
December 2021	ES Addendum	• Prepared as part of the Phase 3 Link Road application ES Addendum, which concluded no likely significant effects • As part of the ES Addendum, a supplementary AQA[3] was prepared in response Natural England's statutory consultee response. The supplementary AQA formed Appendix 7.1 to the December 2021 ES Addendum • This supplementary AQA showed that the predicted changes in NO_x, NH_3, nutrient nitrogen deposition and acid deposition are insignificant in the context of the Site relevant Critical Levels and Critical Loads, which is consistent with the findings of the Local Plan Habitats Regulation Assessment (HRA)[4].	Not Significant
July 2024	ES Addendum	• Prepared to ensure the findings of the original ES remained valid with an updated baseline environment • This ES Addendum captured updates to local planning policy including the adoption of the new Eastleigh Local Plan, as well as updates to industry guidance and tools specific to Air Quality. • This Addendum concluded no significant effects and conclusions of the original Air Quality ES Chapter remain valid	Not Significant

1.3 Purpose of the Air Quality Assessment

The assessment describes the relevant legislation, policy and the baseline conditions currently existing in the area. It then presents an assessment of potential impacts during the construction and operational phases of the Proposed Development, and an evaluation of the significance of these effects with respect to air quality.

[3] Document reference: 17826-Air_Quality_Ecological_Assessment-P02
[4] https://www.eastleigh.gov.uk/media/11235/hra-addendum-eastleigh-mm1.pdf

2 Relevant Legislation and Policy

2.1 Air Quality Regulations and Objectives

The Air Quality (England) Regulations 2000 (AQR) defined National Air Quality Objectives (NAQOs, a combination of concentration-based thresholds, averaging periods and compliance dates) for a limited range of pollutants. Subsequent amendments were made to the AQR in 2001 and 2002 to incorporate 'limit values' and 'target values' for a wider range of pollutants as defined in European Union (EU) Directives.

These amendments were consolidated by the Air Quality Standards Regulations 2010 (AQSR) (with subsequent amendments most notably in 2016 and for the devolved administrations), which transposed the EU's Directive on ambient air quality and cleaner air for Europe (2008/50/EC)[5].

Following the Transition Period after the UK's departure from the EU in January 2020, the Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019 (and subsequent amendments for the devolved administrations) have amended the Air Quality Standards Regulations 2010 to reflect the fact that the UK has left the EU. The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020 amended the $PM_{2.5}$ limit value in the AQSR to 20 µg/m^3.

The Air Quality Strategy (AQS)[6] sets out the government's policies and framework for improving air quality in England with the aim of meeting the requirements of above legislation. The AQS also outlines the Limit Values, Target Values, Standards, Objectives, Critical Levels and Exposure Reduction Targets for the protection of human health and the environment (collectively termed Air Quality Assessment Levels (AQALs)) throughout this report. Those relevant to this assessment are provided below, in Table 2:

Table 2: National AQALs

Pollutant	Averaging Period	AQALs	
NO_2	1 Hour Mean	200 µg/m^3	Not to be exceeded more than 18 times in a year.
	Annual Mean	40 µg/m^3	
PM_{10}	24 Hour Mean	50 µg/m^3	Not to be exceeded more than 35 times in a year.
	Annual Mean	40 µg/m^3	
$PM_{2.5}$	Annual Mean	20 µg/m^3	
	Annual Mean Concentration Target ('AMCT')	10 µg/m^3	To be met across England by 2040
	-	Population Exposure Reduction Target ('PERT')	35% reduction in population exposure by 2040 (compared to a base year of 2018).

[5] Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe
[6] https://www.gov.uk/government/publications/the-air-quality-strategy-for-england/air-quality-strategy-framework-for-local-authority-delivery

With reference to the AMCT for $PM_{2.5}$, it should be noted that the date for compliance is 2040. However, in line with the Defra "$PM_{2.5}$ Interim Planning Guidance"[7] this AQA will consider the 2040 AMCT for $PM_{2.5}$, identify key sources of $PM_{2.5}$ air pollution from the Proposed Development, and outline the measures proposed to minimise emissions of $PM_{2.5}$ and its precursors as far as is reasonably practicable.

Further $PM_{2.5}$ targets are outlined in the Environmental Improvement Plan 2023[8], which provides interim targets stating that by January 2028 annual mean concentrations must be 12µg/m^3 or lower and the population exposure must be reduced by at least 22% compared to 2018.

Defra's Local Air Quality Management Technical Guidance 2022 (LAQM.TG(22))[9] provides guidance on where the above AQAL's should apply. This is summarised below, in Table 3.

Table 3: Summary of where AQALs should apply

Averaging Period	Objectives should apply at:	Objectives should generally NOT apply at:
Annual Mean	All locations where members of the public might be regularly exposed. Building facades of residential properties, schools, hospitals, care homes etc.	Building facades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to other locations at the building façade) or any other location where public exposure is expected to be short term.
24 Hour Mean and 8 Hour Mean	All locations where the annual mean objective would apply, together with hotels. Gardens of residential properties	Kerbside sites (as opposed to other locations at the building façade) or any other location where public exposure is expected to be short term.
1 Hour Mean	All locations where the annual Mean and: 24 and 8-hour mean objectives apply. Kerbside site (for example, pavements of busy shopping streets). Those parts of car parks, bus stations and railways stations etc. which are not fully enclosed, where members of the public might be expected to spend one hour or more. Any outdoor locations where members of the public might reasonably expect to spend one hour or longer.	Kerbside sites where the public would not be expected to have regular access.

[7] https://uk-air.defra.gov.uk/pm25targets/planning
[8] HM Government, Environmental Improvement Plan 2023 https://www.gov.uk/government/publications/environmental-improvement-plan
[9] Defra, "LAQM Technical Guidance (TG22)" (Department for Food, Environment and Rural Affairs (Defra), August 2022), https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf

Averaging Period	Objectives should apply at:	Objectives should generally NOT apply at:
15 Minute Mean	All locations where member of the public might reasonably be exposed for a period of 15 minutes	

2.2 Local Air Quality Management

Obligations under the Environment Act 2021[10] (which provides an amendment to the Environment Act 1995[11]) requires local authorities to review and assess air quality in their administrative boundaries. Where AQALs are predicted to be exceeded, the local authority must declare an Air Quality Management Area (AQMA) at sensitive receptor locations and formulate an Air Quality Action Plan (AQAP) to reduce pollution concentrations to values below AQALs.

The LPA declared AQMAs and published AQAP are discussed in Section 4.1.

2.3 National Planning Policy Framework

The National Planning Policy Framework (NPPF)[12] sets out the Government's planning policy for England. It requires planning decisions for any new development to prevent new and existing development from contributing to, or being put at risk from, unacceptable levels of air pollution (paragraph 187). It also states that planning decisions should sustain and contribute towards compliance with relevant limit values or national objectives for air pollutants, taking into account the presence of AQMAs and Clean Air Zones (CAZ)s (paragraph 199), and the cumulative impacts from other sites (paragraph 198).

Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. Furthermore, planning decisions should ensure that any new development in AQMAs and CAZs is consistent with the local air quality action plan.

Also, to help reduce congestion and emissions, to improve air quality and public health, significant development should be focused on locations which are / can be made sustainable through limiting the need to travel (paragraph 110).

2.4 Planning Practice Guidance

Reference ID 32 (Air Quality) of the National Planning Practice Guidance (NPPG)[13] provides guiding principles on how planning can take account of the impact of new development on air quality. The NPPG summarises the importance of air quality in planning and the key legislation relating to it.

[10] https://bills.parliament.uk/bills/2593/publications
[11] Environment Agency, "Environment Act 1995" (The Environment Agency, 2002), http://www.legislation.gov.uk/ukpga/1995/25/contents.
[12] Department for Levelling Up, Housing & Communities. National Planning Policy Framework (December, 2024). [online] Available: https://assets.publishing.service.gov.uk/media/675abd214cbda57cacd3476e/NPPF-December-2024.pdf
[13] Ministry of Housing, Communities & Local Government, "Reference ID (32) Air Quality" (Ministry of Housing, Communities & Local Government, 2019), https://www.gov.uk/guidance/air-quality--3.

2.5 Local Planning Policy

The Eastleigh Local Plan 2016-2036[14] was adopted in April 2022 and represents an evolution of the previous Local Plan. Within the Local Plan Policy DM8 Pollution relates to air quality as follows:

> *" Development will not be permitted if it is likely to cause loss of amenity or impact on public health or other unacceptable environmental impacts through;*
>
> *i) air pollution (including odours or particulate emissions) …*
>
> *Development susceptible to particular forms of pollution will not be permitted;*
>
> *a. where it will be affected by such pollution, unless measures can be taken that adequately mitigate the polluting effects…"*

The Wider OPA OHH development is allocated within the adopted Local Plan as site HH1.

[14] https://www.eastleigh.gov.uk/media/11806/to-be-published-final-local-plan-april-2022-v4.pdf

3 Methodology

3.1 Consultation

Full details of the proposed methodology for the AQA were sent to the LPA on 26th August 2025. The LPA agreed with the methodology, which is outlined below.

3.2 Guidance

The following guidance has been used to undertake this AQA:

- Defra's LAQM.TG(22)[9];
- Environmental Protection UK (EPUK) & Institute of Air Quality Management (IAQM) Land-use Planning & Development Control: Planning for Air Quality[15];
- The IAQM's guidance on assessing impacts from construction[16].

3.3 Baseline Air Quality

The baseline air quality conditions in the vicinity of the Site have been established through the compilation and review of the following sources. The Baseline Assessment can be found in Section 4.

- Data from the National Atmospheric Emissions Inventory (NAEI)[17], Environment Agency (EA)[18] and Defra's Pollutant Release and Transfer Register (PRTR) data[19];
- Defra's modelled background concentrations of AQS pollutants (UK-AIR)[20]. These estimates are produced using detailed modelling tools and are available as concentrations at central 1km^2 National Grid square locations across the UK. Mapped background concentrations have been obtained based upon the 2021 base year Defra update (November 2024 publication);
- Defra's predicted roadside concentrations of NO_2 produced from their pollution climate mapping (PCM)[21] model;
- Multi Agency Geographic Information for the Countryside (MAGIC)[22] which incorporates Natural England's interactive maps; and,
- The LPA's latest available air quality monitoring data, derived from the latest available air quality annual status report published in 2025[23] .

[15] EPUK & IAQM, "Land-Use Planning & Development Control: Planning for Air Quality" (Institute for Air Quality Management (IAQM), January 2017), http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf.
[16] IAQM, "Guidance on the Assessment of Dust from Demolition and Construction" (Institute of Air Quality Management (IAQM)), January 2024), https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf.
[17] National Atmospheric Emissions Inventory, UK Emissions Interactive Map (beis.gov.uk).
[18] https://data.gov.uk/dataset/cfd94301-a2f2-48a2-9915-e477ca6d8b7e/pollution-inventory
[19] UK Pollutant Release and Transfer Register (PRTR) https://prtr.defra.gov.uk/map-search
[20] UK-AIR, "Background Mapping Data for Local Authorities - 2021," n.d., https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021.
[21] https://uk-air.defra.gov.uk/data/gis-mapping/
[22] https://magic.defra.gov.uk/MagicMap.aspx
[23] Eastleigh Borough Council 2025 Air Quality Annual Status Report (ASR), In fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management, June 2025.

3.4 Construction Phase Assessment

3.4.1 Dust Risk Assessment

The construction dust risk assessment is provided in Section 5 and has been undertaken in line with IAQM guidance[16]. This considers the risk of impacts during the construction phase in terms of nuisance dust, human health (PM_{10} exposure) and ecological impacts.

With regard to ecological receptors, risk assessment should be taken where high-sensitivity receptors are located within 50m of a Site boundary, or within 50m of any routes used by construction vehicles on the public highway, up to 250m from the Site entrance. The MAGIC website[22] has been reviewed to identify whether any statutory ecological sensitive receptors present in the area. *No receptors were identified within 50m of the Site boundary or expected Trackout route and therefore no further consideration of ecological receptors is required.*

Sensitive receptors were identified within 250m of the Site boundary. Based on the IAQM guidance residential dwellings, museums, car parks and car show room are indicative examples of high sensitivity receptors in relation to both dust soiling and health effects of PM_{10}. Indicative examples of medium sensitivity receptors include places of work and parks.

The IAQM guidance states that the potential dust emission magnitude from Demolition, Earthworks, Construction and Trackout should all be assessed individually. In addition, the sensitivity of the area to adverse dust impacts should also be defined.

The overall significance of the risk of adverse impacts during the construction phase can then be defined using the 'risk of impacts matrix' for each stage of the construction phase described above.

3.4.2 Construction Traffic

The IAQM guidance[16] states that from experience of assessing exhaust emissions from site traffic, it is unlikely that any significant adverse impacts on local air quality would be caused and in the vast majority of cases, quantitative assessment is not needed. As such, short term effects of construction traffic emissions have not been assessed.

3.5 Operational Phase Assessment

3.5.1 Traffic

Additional traffic from the operation of the Proposed Development has the potential to increase concentrations of air pollutants and cause adverse air quality impacts at sensitive receptors within the Site locale.

Traffic movements associated with the operational phase was assessed within the previous AQA work as presented in Table 1. All assessment work concluded negligible impacts for NO_2, PM_{10}, and $PM_{2.5}$ at all receptors within the study area and subsequently no significant effects were reported.

It is understood from the client team and transport consultants, Paul Basham Associates that the trip generation associated with the Quobleigh Breach parcel remains unchanged to that included for and assessed within the OHH wider AQA work.

Furthermore, as demonstrated in Section 4 the baseline air quality conditions at the Site and surrounding locale are showing an improvement as concentrations of air pollutants, particularly NO_2, continue to decline.

As such operational phase traffic related impacts have not been considered further within this AQA as the impacts have been extensively considered within previous assessment work, with the conclusions of which are considered to remain valid.

3.5.2 Energy

The proposed energy strategy comprises air source heat pumps (ASHP) and Solar Photovoltaics. No combustion will be required. Therefore, it has been assumed that the Proposed Development will not introduce additional sources of stationary / plant combustion and no further assessment has been undertaken.

3.5.3 Exposure Assessment

Due to the introduction of high sensitivity receptors, a qualitative exposure assessment has been undertaken drawing on the conclusions of previous assessment work, particularly the results of the detailed dispersion modelling within the Quobleigh Breach parcel, current baseline conditions and future trends.

4 Baseline Air Quality Conditions

4.1 Local Air Quality Management

The LPA have declared three AQMAs for exceedances of the annual mean NO_2 AQAL. The 2025 ASR[23] proposes to revoke the AQMA 4 (Botley) and has revoked the AQMA 2 (M3). The closest AQMA to the Site is the Eastleigh AQMA situated c2.7km to the north west.

The LPA have an AQAP[24] to help reduce pollutants within the AQMAs. Actions include, promoting sustainable transport including buses, cycling, providing resources to help raise awareness and educate and increased Electric Vehicle charging provision.

4.2 Local Emission Sources

4.2.1 Road Traffic Emissions

The main source of air pollution in the Site locale are vehicles using the local road network, predominantly B3354 to the east and M27 to the south.

4.2.2 Point Source Emissions

A review of the NAEI[17], EA[18] and Defra's PRTR[19] data indicates that there are no major industrial pollution sources in within 1km of the Site that will influence local air quality.

4.3 DEFRA Mapped Background Concentrations

Mapped background concentrations of NO_2, PM_{10} and $PM_{2.5}$ were downloaded for the grid square containing the Site. Background pollutant concentrations for 2025 (current year), 2028 (opening year of Quobleigh Breach) and 2030 (opening year of OHH) are displayed in Table 4.

Table 4: Defra Mapped Background Concentrations

Grid Square (x,y)	Pollutant	AQAL (µg/m³)	Annual Mean Concentration (µg/m³)		
			2025	2028	2030
448500, 117500	NO_2	40	9.1	8.2	7.6
	PM_{10}	40	11.4	11.2	11.0
	$PM_{2.5}$	20	6.7	6.5	6.4

The data show that annual mean background concentrations of NO_2, PM_{10} and $PM_{2.5}$ at the grid square within which the Site is located is below the AQALs. The $PM_{2.5}$ concentrations are also below the AMCT.

[24] https://www.eastleigh.gov.uk/media/7202/summary-aqap1-2020-2025.pdf

Concentrations of all pollutants are predicted to decline incrementally each year. These reductions are principally due to the forecast effect of the roll out of cleaner vehicles and strategies to reduce emissions across all sectors.

4.4 Air Quality Monitoring Data

The UK Automatic Urban and Rural Network (AURN) is a countrywide network of air quality monitoring stations operated on behalf of the Defra. Monitoring data for AURN sites is available from the UK Air website[25].

The closest AURN monitor to the Site is over 8km south in Southampton Centre and therefore not considered representative of Site locations. As such, this monitoring network has not been considered further.

EBC monitor air quality at key locations across the borough through a network of automatic (continuous) and non-automatic sites (passive diffusion tubes). The latest Annual Status Report states that the monitoring network consisted of 3 automatic monitors and 55 passive sites.

4.4.1 Automatic Monitoring

The closest of EBC's monitoring locations is ES1 on Southampton Road in Eastleigh, approximately 3km west of the Site. The location of ES1 (x445495, y118237) is shown on Figure 2 and recent results are shown in Table 5.

Table 5 Automatic Monitoring Results

Monitor	Pollutant	AQAL (µg/m^3)	Results					
			2019	2020	2021	2022	2023	2024
ES1 Southampton Road (Roadside)	NO_2	Annual Mean – 40	34.1	26.3	-	28.2	25.7	24
		1-Hour Mean 200 (A)	0	0	0	0	0	0
	PM_{10}	Annual Mean – 40	21.1	16.9	-	-	13.7	16
		24-Hour Mean – 50 (B)	4	0	-	0	0	2
	$PM_{2.5}$	Annual Mean - 20	-	8.7	-	-	6.4	8

Notes:
(A) 200µg/m3 not to be exceeded more than 18 times/year.
(B) 50µg/m3 not to be exceeded more than 35 times/year

Table 5 shows there have been no exceedances of the NO_2 annual mean AQAL at automatic monitor ES1, which is located at an 'roadside' location during 2019 to 2024.

Furthermore, there have been no exceedances of the NO_2 hourly mean AQAL in any year presented.

There are no exceedances of the annual mean PM_{10} or $PM_{2.5}$ AQAL. The annual mean $PM_{2.5}$ concentration is below the 2028 interim $PM_{2.5}$ target of 12µg/m^3 and below the AMCT of 10µg/m^3.

[25] Automatic Urban and Rural Network (AURN) - Defra, UK

However, data capture during 2023 was below 75% and therefore results should be treated with caution as pollution episodes may have been missed.

Exceedances of the PM_{10} 24-hour mean occurred during 2019 and 2024, however 35 exceedances are allowed and therefore the AQAL was not breached.

2020 and 2021 data should be treated with caution due to the impacts of the COVID-19 pandemic and 'lockdowns' on local traffic flows.

4.4.2 Passive Monitoring

Passive NO_2 diffusion tube monitoring is undertaken at numerous locations within the EBC area. The location of the closest monitoring sites in relation to the Site are shown in Figure 2 with data reported in Table 6.

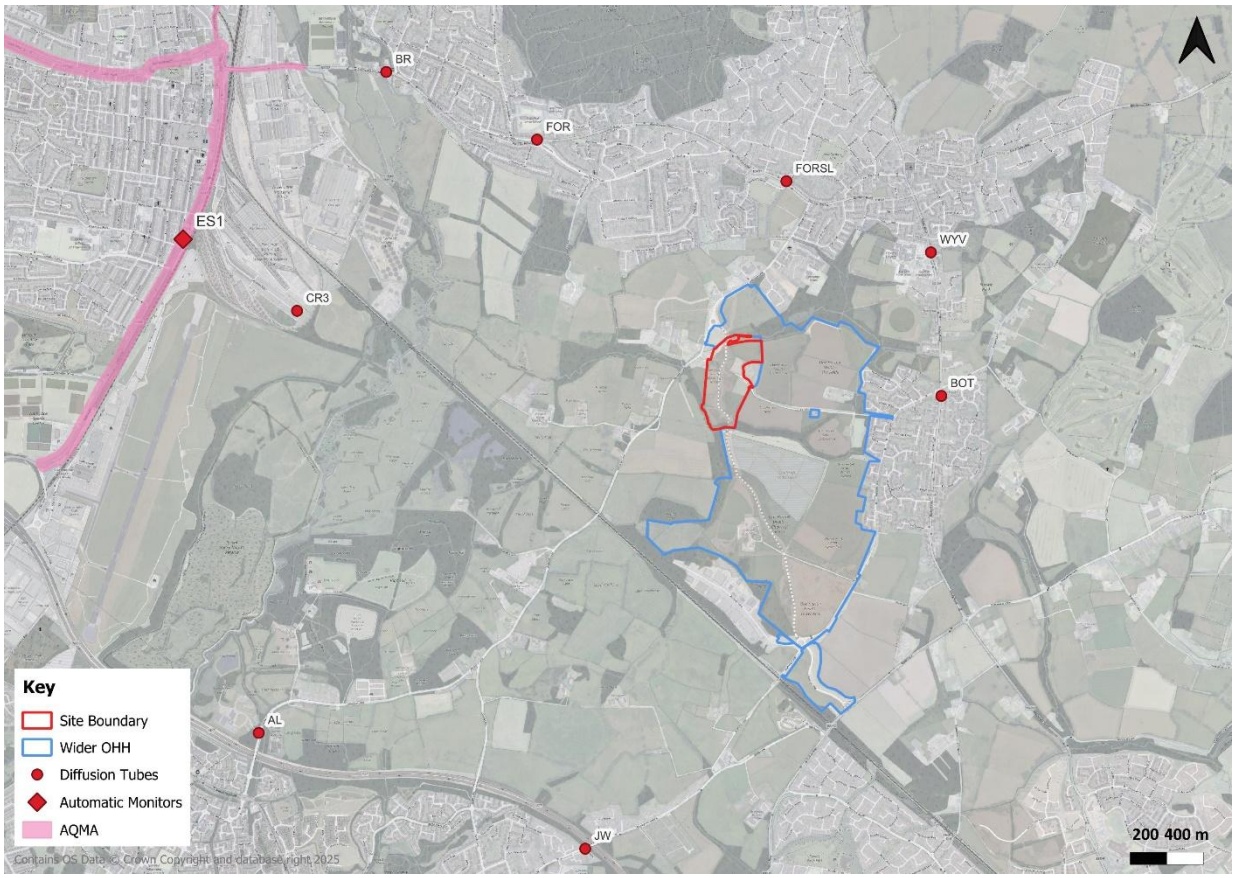

Figure 2: Local Authority Monitoring

Table 6: Passive Diffusion Tube Monitoring Concentrations

Site ID	Site Type	X (m)	Y (m)	Distance from Site (km)	Annual Mean Concentration (µg/m³)					
					2019	2020	2021	2022	2023	2024
FORSL	Roadside	448788	118553	0.8 - N	28.0	23.4	23.9	24.6	23.6	21.4
BOT	Roadside	449634	117382	1.0 - E	31.9	27.6	28.0	27.3	23.9	21.7

Site ID	Site Type	X (m)	Y (m)	Distance from Site (km)	Annual Mean Concentration (µg/m^3)					
					2019	2020	2021	2022	2023	2024
WYV	Roadside	449577	118165	1.0 - NE	24.1	23.4	24.7	23.6	21.1	20.6
FOR	Roadside	447427	118780	1.5 - NW	20.1	17.6	17.3	16.8	16.5	-
AL	Roadside	445908	115544	3.0 – SW	23.5	19.0	19.8	20.7	18.8	15.1
JW	Roadside	447690	114912	2.4 – S	21.3	16.5	17.4	18.6	16.2	14.9
CR3	Industrial	446117	117846	2.3 - W	-	13.8	15.9	14.3	13.0	11.7
BR	Roadside	446604	119149	2.3 – NW	33.8	29.6	29.0	30.5	25.4	22.7

The data in Table 6 shows there have been no exceedances of the NO_2 annual mean AQAL at any monitoring locations close to the Site between 2019 and 2024. The highest recorded concentration of NO_2 was monitored by BR which is situated in along Bishopstoke Road towards Eastleigh, to the east of the Site. All locations illustrate a downward trend over the past 6 years. This trend is predominately contributed to traffic and its diurnal spread between pre and post-pandemic years, as well as upgrades in the local fleet following various Council incentives regarding air quality, transportation and climate[23].

BOT and FORSL diffusion tubes are considered to be the most representative of the Site due to their proximity and location within semi-rural villages. Measured concentrations have been well below the AQAL in recent years.

There has been no recorded exceedance of an annual mean greater than 60µg/m^3. indicating that an exceedance of the 1-hour mean objective is unlikely at these sites.

5 Construction Phase Assessment

5.1 Overview

The construction phase of the Proposed Development will involve several activities that will release polluting emissions to air. Predominantly, these will be emissions of dust. As such, a qualitative construction dust risk assessment has been carried out in accordance with IAQM guidance[16].

Construction activities will include:

- material export and import;
- temporary stockpiling of materials;
- groundwork for foundations and services;
- construction of buildings;
- landscaping works; and
- vehicle movements (with the potential to track-out material from site).

5.2 Potential Dust Emission Magnitude

The potential dust emission magnitude for each construction activity is presented in Table 7.

Table 7: Potential Dust Emission Magnitude

Activity	Potential Dust Emission Magnitude	Justification
Demolition	N/A	The Site comprises agricultural land and therefore no demolition is required. As such, demolition activities have not been considered further.
Earthworks	**Large**	The total area of the Site is c.118,000m^2, and subsequently falls into the IAQM 'Large' criteria. The prevailing soil-type at the Site is described as '*Loamy and Clayey*' following review of Soilscapes[26]. Loamy and Clayey soils have a moderate to high potential for dust as they are composed of small particles.
Construction	**Large**	The total volume of the completed built form of the Proposed Development is estimated to be >75,000 m^3 which falls within the IAQM's 'Large' criteria. The construction materials will comprise concrete and masonry. No concrete batching or sandblasting will occur on-site during construction.
Trackout	**Medium**	The expected unpaved road length required for Trackout will be <50m. Vehicles will access via the local road network, including the new link road. In addition, the number of site vehicles is unlikely to exceed the IAQM's 'Medium' threshold of 20-50 HDV (>3.5t) outward movements per day.

[26] http://www.landis.org.uk/soilscapes/

5.3 Sensitivity of Area

The prevailing wind direction for the closest regionally representative meteorological measurement station to the Site, at Southampton Airport, is shown for 2020 to 2024 in Appendix A. The wind rose shows that the prevailing winds are from the south.

Figure 3 shows the construction phase distance buffers (20m, 50m, 100m and 250m) around the Construction boundary, as well as identified high and medium sensitivity receptor locations within these buffers.

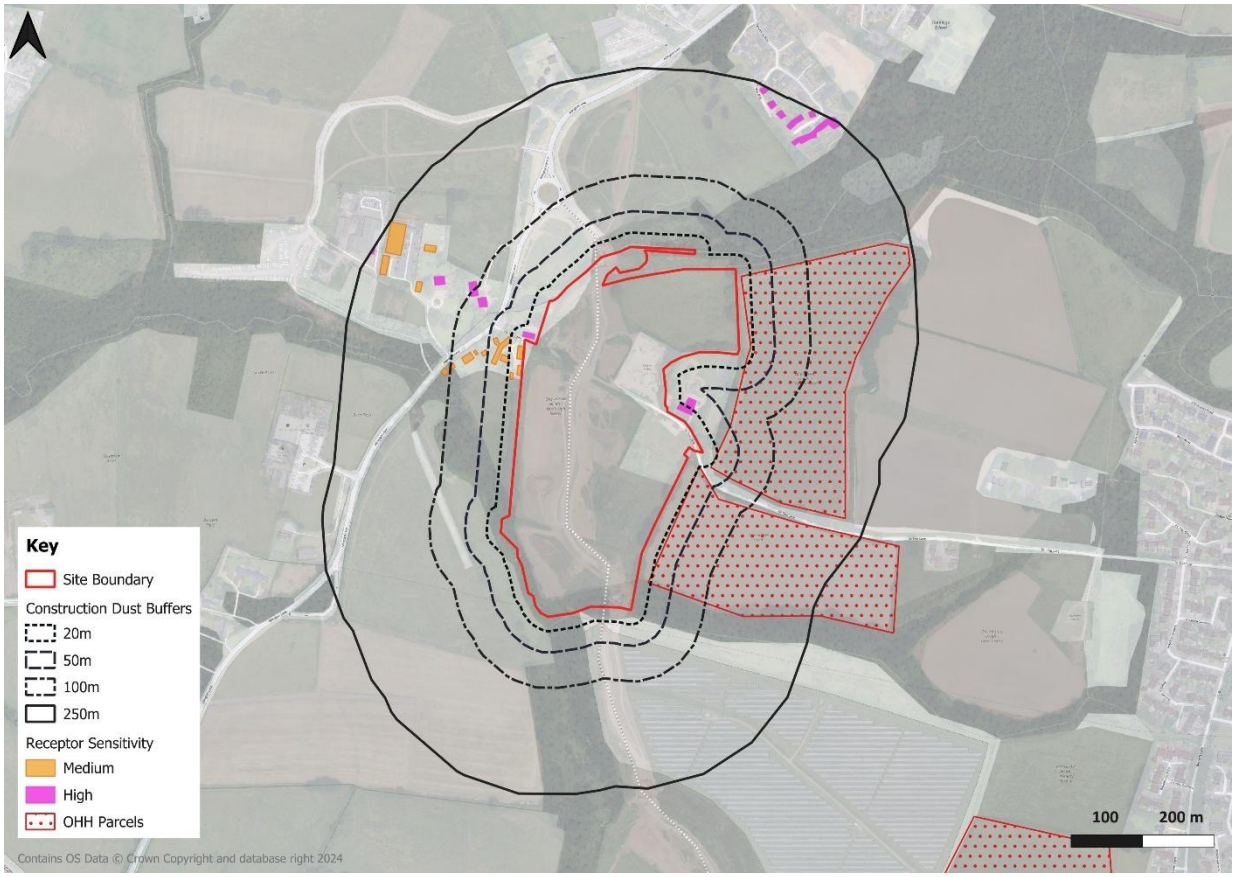

Figure 3: Construction Phase Receptors

5.3.1 Dust Soiling Impacts

Figure 3 illustrates there <10 high sensitivity receptors within 20m. However, as a conservative approach it has been assumed the neighbouring OHH parcels could be occupied prior to Quobleigh Breach. As such, the overall sensitivity of the surrounding area to nuisance dust soiling effects during earthworks and construction, according to IAQM guidance, is defined as '**High'**.

The sensitivity for Trackout is assessed where receptors are located within 50m of Trackout routes up to 250m from the Site. All potential Trackout routes have been considered. As a conservative approach it has been assumed the parcels to the south could be occupied and therefore >10 high-sensitivity receptors

would be located within 20m of potential Trackout routes from the Site. As such, the sensitivity to dust soiling impacts from Trackout is defined as '**High'**.

5.3.2 Human Health Impacts

Defra mapped background predictions (Table 4) show that annual mean concentrations of PM_{10} are not likely to exceed 24 µg/m^3 in the vicinity of the Site based on 2025 estimates. According to IAQM guidance, where PM_{10} concentrations are <24 µg/m^3 and there are less than 100 high sensitivity receptors within 20m of construction works, the overall sensitivity of the surrounding area to human health impacts is defined as '**Low**' for Earthworks, Construction and Trackout.

5.4 Risk of impacts

Using the methodology prescribed in the IAQM guidance, the overall risk of impacts can be defined by combining the sensitivity of the area with the potential dust emission magnitude of each stage of the construction phase as described above.

Table 8 below provides a summary of the construction dust risk assessment. Overall, the Proposed Development is **High Risk** for nuisance dust soiling effects and **Low Risk** for PM_{10} health effect, in the absence of mitigation.

Table 8: Risk of Adverse Impacts During Construction Phase

Potential Impact	Sensitivity of Area	Dust Impact Risk		
		Earthworks	Construction	Trackout
Dust Soiling	High	High Risk	High Risk	Medium Risk
Human Health	Low	Low Risk	Low Risk	Low Risk

The overall risk determined above is in line with the assessments contained within the ES Addendums and Original ES Chapter.

6 Exposure Assessment

Due to the nature of the Proposed Development, which proposed high sensitivity use in terms of air quality exposure, a qualitative exposure assessment has been undertaken to determine the risk of exceedance of the relevant AQALs at the Site.

The data provided in Section 4 illustrates:

- Annual mean 2025 background concentrations of NO_2, PM_{10} and $PM_{2.5}$ are predicted to be below the AQALs by 77%, 72% and 67% respectively, with a forecasted declining trend;
- The background 2025 annual mean PM_{10} concentration is <32 µg/m^3, therefore an exceedance of the 24-hour AQAL is unlikely[16].
- The closest local monitoring data for annual mean NO_2 have been below 60µg/m^3, indicating the 1-hour AQAL for NO_2 has not been exceeded at these monitoring locations in reported years.

With the tools and data available at the time of the assessment, the 2021 ES Addendum illustrates:

- Modelled concentrations within the Quobleigh Breach parcel adjacent to the new Link Road are predicted to be below the annual mean AQALs. The maximum concentration predicted with a 2030 opening year and assuming a fully operational wider OHH development and link road was 13.2µg/m^3, 14.3µg/m^3 and 9.4µg/m^3 for NO_2, PM_{10} and $PM_{2.5}$ respectively at Receptor R9 located within the Quobleigh Breach parcel adjacent to the Phase 3 link road.

With the tools and data available at the time of the assessment, the 2024 ES Addendum illustrates:

- Modelled concentrations within the Quobleigh Breach parcel are predicted to be below the annual mean AQALs for NO_2, PM_{10} and $PM_{2.5}$. The maximum total concentration predicted within a 2030 opening year and assuming a fully operational wider OHH development was 15.2µg/m^3, 15.5µg/m^3 and 10.2µg/m^3 for NO_2, PM_{10} and $PM_{2.5}$ respectively at Receptor R10 located on the western Site boundary along Fir Tree Lane.

Further to the above, it is worth noting that since the Addendum assessments were undertaken, which assumed Fir Tree Lane would be open to road traffic, it has been confirmed that vehicle trips travelling along Fir Tree Lane through the Site will no longer occur. This section of Fir Tree Lane will be a bridle path only and therefore no through road, with no vehicles travelling from Allington Lane to Burnetts Lane and vice versa. As such, locations adjacent to Fir Tree Lane within the Quobleigh Breah parcel are likely to have lower concentrations than those predicted above.

With regard to the Proposed Opening year of the development, whilst this is anticipated to be 2028 and therefore a couple of years prior to the assessed 2030 year in the OPA assessment work, the 2028 predicted background concentrations are still well below the relevant AQALs, as illustrated in Table 4. On this basis, it is deemed likely that the total concentrations, including the process contribution from the OHH development, within the Site would be below the relevant objectives.

From the evidence presented in this Section, and the data in Section 4, it is concluded that the risk of exceedance of the relevant AQALs at the Site is low, and future occupants of the Proposed Development will not be introduced into an area of existing poor air quality.

7 Consideration of $PM_{2.5}$

In terms of how $PM_{2.5}$ has influenced the selection of the Site, the DEFRA background $PM_{2.5}$ concentration at the Site in the opening year (2028) is 6.5µg/m^3. Background concentrations of $PM_{2.5}$ within the Site are therefore below the annual mean concentration target of 10µg/m^3 which is to be achieved by 2040.

Furthermore, the OHH air quality assessment work demonstrated negligible annual mean $PM_{2.5}$ impacts associated with the additional traffic movements. Implementation of measures within the travel plan should further reduce the potential impacts. Furthermore, the Proposed Development will not introduce any combustion sources as part of the energy strategy. On this basis, there are considered to be no significant sources of $PM_{2.5}$ emissions or precursors from the Proposed Development.

8 Mitigation Measures

8.1 Construction Phase

The qualitative construction dust risk assessment shows that the works are **High Risk** for adverse impacts during construction, in the absence of mitigation.

To effectively reduce the risk of impacts to Negligible, appropriate mitigation measures should be adopted. The measures outlined in the 2024 ES Addendum are deemed appropriate and should be implemented within a Construction Environment Management Plan (CEMP) to effectively reduce the risk of impacts to Negligible during the construction phase. These mitigation measures are also outlined at Appendix B of this report for reference.

8.2 Operational Phase

8.2.1 Electric Vehicle Charging Infrastructure

From the 15th June 2022 onwards, Approved Document S 2021[27] came into force which provides requirements for electric vehicle charging points. It is understood that the Proposed Development will comply with the specified requirements.

8.2.2 Travel Plan Measures

The measures outlined in the Travel plan (TP)[28] will seek to encourage sustainable modes of transport and discourage the use of car travel, such as;

- Travel Plan Coordinator
- Travel website
- Resident Welcome Pack
- Initiatives to promote walking and cycling
- Initiatives to promote public transport; and
- Initiatives to promote car sharing and car clubs.

These measures provide an opportunity to promote and establish sustainable modes of transport which will help to reduce potential air quality impacts.

[27] The Building Regulations 2010, Approved Document S: Infrastructure for the charging of electric vehicles, HM Government, 15 June 2022.
[28] 131.0010/TP/1 Quobleigh Breach One Horton Heath, Travel Plan, October 2025

9 Discussion and Conclusion

Stantec were commissioned by Eastleigh Borough Council to prepare an AQA for the residential development at Quobleigh Breach, One Horton Heath, Eastleigh.

Modelled UK-AIR background concentrations, and local air quality monitoring data have been used to establish baseline air quality at the Site and surrounding locale. Predicted background concentrations of NO_2, PM_{10} and $PM_{2.5}$ at the Site and surrounding locale are all below the relevant AQALs. Local air quality monitoring has shown no exceedances of the annual mean AQAL for NO_2, PM_{10} or $PM_{2.5}$ in recent years. Compliance with the short term AQALs has also been demonstrated by local monitoring data.

A qualitative construction dust risk assessment has been undertaken in line with IAQM guidance[16]. The conclusions reflect those within the ES Chapter and Addendums and therefore the conclusions of the OPA ES Chapter remain valid. Through implementation of appropriate mitigation measures as outlined in the 2024 ES Addendum, also shown at Appendix B of this report for reference, it is expected that the release of dust would be effectively controlled and mitigated, with residual effects considered to be 'not significant'. All dust impacts are temporary and short-term in nature.

Operational phase traffic was considered in detail through dispersion modelling within the Original ES Air Quality Chapter and subsequent ES Addendum work. The proposed trip generation associated with the Quobleigh Breach parcel is not considered likely to differ from that assessed previously. In addition to this baseline air quality conditions in the proposed opening year are likely to be below the relevant AQALs. Therefore, no further assessment of operational phase traffic impacts has been undertaken and the conclusions of the ES Chapter remain valid whereby effects were deemed negligible and not significant.

A qualitative exposure assessment has also been undertaken. This shows that the Proposed Development is not expected to introduce sensitive use to an area of exceedance of relevant AQALs. Therefore, the Site is assessed to be acceptable for its proposed use, in air quality terms.

From the evidence presented, the Proposed Development is expected to comply with all relevant air quality policy. As such, air quality should not pose any significant obstacles to the planning process.

Appendix A Meteorological Data

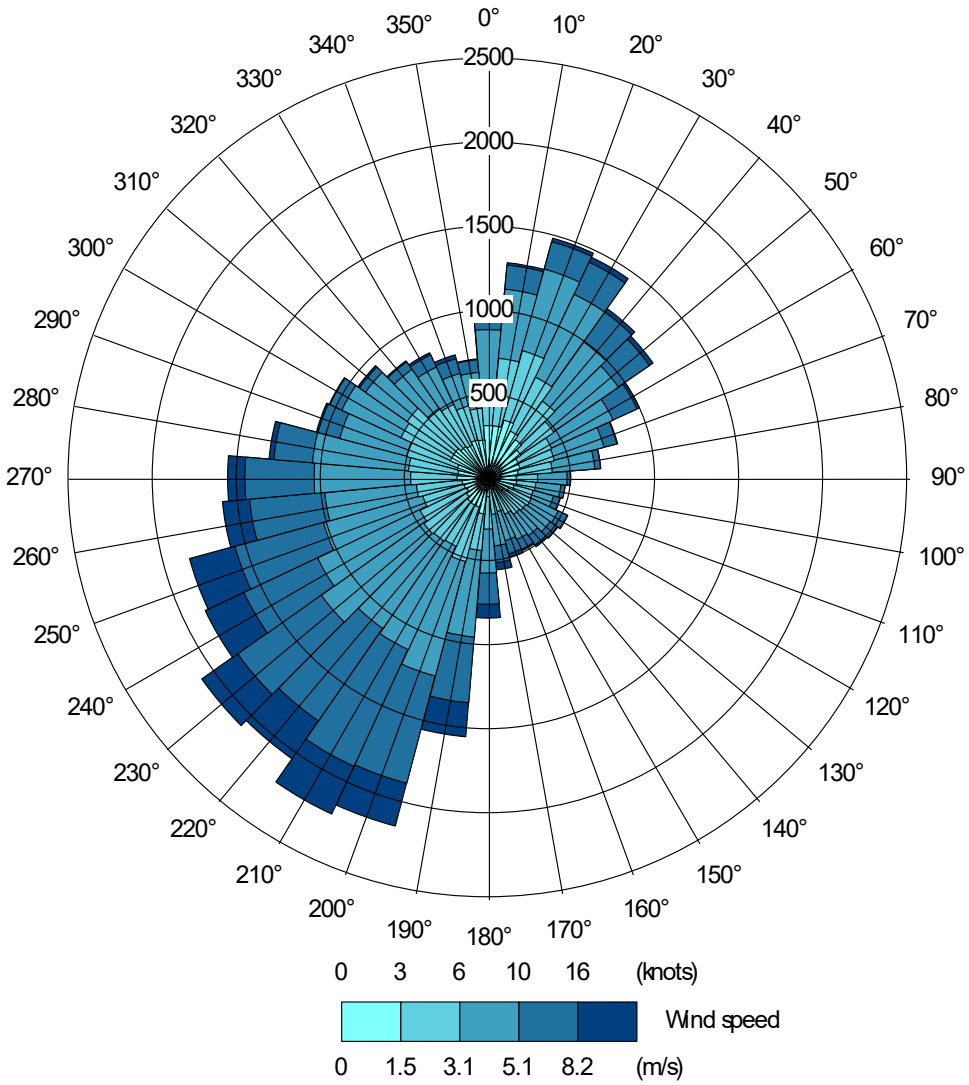

Figure 4 Wind Rose Southampton Airport 2020 – 2024 (infilled with Thorney Island)

Appendix B Construction Dust Mitigation

In order to mitigate the worst-case dust impacts the following general mitigation measures are highly recommended by the IAQM for High Risk construction sites.

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.
- Display the head or regional office contact information
- Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. In London additional measures may be required to ensure compliance with the Mayor of London's guidance. The DMP may include monitoring of dust deposition, dust flux, realtime PM_{10} continuous monitoring and/or visual inspections

Site management

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to the local authority when asked.
- Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book.
- Hold regular liaison meetings with other high risk construction sites within 250 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 100 m of site boundary, with cleaning to be provided if necessary.
- Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Agree dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.

Preparing and maintaining the site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- Fully enclose site or specific operations where there is a high potential for dust production and the site is actives 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.
- 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.
- All construction plant and equipment should be maintained in good working order and not left running when not in use.
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
- 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)
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials
- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- 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

- No bonfires and burning of waste materials.

Measures Specific to Earthworks (High Risk)

- 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.
- Only remove the cover in small areas during work and not all at once

Measures Specific to Construction (High Risk)

- Avoid scabbling (roughening of concrete surfaces) if possible.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery
- Desirable only - For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust

Measures Specific to Trackout (Medium Risk)

- 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.
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- Record all inspections of haul routes and any subsequent action in a site log book.
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- Access gates to be located at least 10 m from receptors where possible.

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