



Air Quality Assessment

Land at Kingston Lane, East Preston

September 2026

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1. Introduction

Background

- 1.1 Phlorum Limited has been commissioned by Seaward Properties Limited to undertake an Air Quality Assessment for the proposed erection of 47 residential dwellings on land at Kingston Lane, East Preston. The National Grid Reference for the centre of the site is 507835, 102725. A site location plan is included in Figure 1.
- 1.2 The site is bound by residential uses to the north and west, with agricultural uses to the east and greenspaces to the south.
- 1.3 The main sources of air pollution in the vicinity of the site are vehicles travelling on the local road network, including Kingston Lane which bounds the site to the south and North Lane, to the west. The nearest major road, the A259 Roundstone By-Pass Road, is located over 500m from the application site.
- 1.4 Air quality is managed locally by Arun District Council (ADC), who do not currently operate any Air Quality Management Areas (AQMA) within the district.
- 1.5 The closest AQMA to the site is the Worthing / Grove Lodge AQMA, located approximately 6km to the north-east. This AQMA was declared in 2010 due to exceedances of the long-term (annual mean) UK Air Quality Standard (AQS) for concentrations of nitrogen dioxide (NO₂).

Scope of Assessment

- 1.6 The Air Quality Assessment is primarily required to provide the necessary information to assist in discharging Planning Condition 5 from Decision Notice K/46/23/PL, which states:

"Prior to any works commencing, an air quality assessment must be submitted to and approved in writing by the Local Planning Authority. The applicant must follow the Air Quality and Emissions Mitigation Guidance for Sussex (2020): www.sussexair.net/Reports/SussexAQGuidanceV.12020.pdf. The assessment shall include full details of the measures necessary to mitigate the emissions calculated by the assessment.

Reason: To protect the amenity of local residents in accordance with Arun Local Plan policy QE SP1 and QE DM3. It is necessary for this to be a pre-commencement condition because all aspects of the development from commencement will contribute to air quality."

- 1.7 This report focuses on assessing the potential for traffic generated by the proposed development to impact local air quality, as well as the suitability of the development site, in air quality terms, for the introduction of new highly sensitive (residential) receptors.
- 1.8 Furthermore, this report includes an assessment of the potential for dust nuisance/soiling and airborne particulate matter impacts to occur due to the construction of the proposed development.
- 1.9 An Emissions Mitigation Assessment has also been undertaken, in line with the *Sussex-Air Air Quality and Emissions Mitigation Guidance for Sussex*.

2. Policy Context

The UK Air Quality Strategy

- 2.1 The UK Air Quality Strategy¹ sets out Air Quality Standard (AQS) concentrations for a number of key pollutants that are to be achieved at sensitive receptor locations across the UK by corresponding Air Quality Objective (AQO) dates. The sensitive locations at which the standards and objectives apply are those where the population are reasonably expected to be exposed to said pollutants over the particular averaging period.
- 2.2 For those objectives to which an annual mean standard applies, the most common sensitive receptor locations used to compare concentrations against the standards are areas of residential housing. It is reasonable to expect that people living in their homes could be exposed to pollutants over such a period of time.
- 2.3 Schools and children's playgrounds are also often used as sensitive locations for comparison with annual mean objectives due to the increased sensitivity of young people to the effects of pollution (regardless of whether or not their exposure to the pollution could be over an annual period). For shorter averaging periods of between 15 minutes, 1 hour or 1 day, the sensitive receptor location can be anywhere where the public could be exposed to the pollutant over these shorter periods of time. A summary of the AQSs and AQOs relevant to this assessment are included in Table 2.1, below.

Table 2.1 UK Air Quality Standards and Objectives

Pollutant	Averaging Period	Air Quality Standard ($\mu\text{g.m}^{-3}$)	Air Quality Objective
Nitrogen dioxide (NO_2)	1 hour	200	200 $\mu\text{g.m}^{-3}$ not to be exceeded more than 18 times a year
	Annual	40	40 $\mu\text{g.m}^{-3}$
Particulate Matter (PM_{10})	24-hour	50	50 $\mu\text{g.m}^{-3}$ not to be exceeded more than 35 times a year
	Annual	40	40 $\mu\text{g.m}^{-3}$
Particulate Matter ($\text{PM}_{2.5}$)	Annual	20	20 $\mu\text{g.m}^{-3}$

¹ Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volumes 1 and 2) July 2007.

- 2.4 The objectives adopted in the UK are based on the Air Quality (England) Regulations 2000², as amended, for the purpose of Local Air Quality Management. These Air Quality Regulations have been adopted into UK law from the limit values required by European Union Daughter Directives on air quality.
- 2.5 The UK AQS for PM_{2.5} was amended from 25 µg.m⁻³ to 20 µg.m⁻³ in 2020 as part of the Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020³.
- 2.6 The Department for Environment, Food & Rural Affairs' (Defra) *Environmental Improvement Plan 2023*⁴ outlines a legal target of 10 µg.m⁻³ for annual mean PM_{2.5} concentrations to be achieved by 2040. To progress towards achieving this standard, an interim annual mean target of 12 µg.m⁻³, has also been set, to be achieved by December 2030.
- 2.7 Obligations under the Environment Act 1995 require local authorities to declare an AQMA at sensitive receptor locations where an objective concentration has been predicted to be exceeded. In setting an AQMA, the local authority must then formulate an Air Quality Action Plan (AQAP) to seek to reduce pollution concentrations to values below the objective levels.
- 2.8 Air quality is managed locally by ADC, who do not operate any AQMAs within the district. Consequently, ADC have not published an AQAP.

National Planning Policy Framework

- 2.9 The National Planning Policy Framework (NPPF)⁵, which was revised in August 2026, sets out the Government's planning policies for England. At its heart is the objective of achieving sustainable development.
- 2.10 In relation to sustainable development and the environmental impacts of traffic and transport, Policy TR3 - *Locating development in sustainable locations* states:

"1. So that development is located where it can support sustainable patterns of movement, enable good accessibility for different users and make the most of existing and proposed transport infrastructure, development proposals should reflect the following principles, taking into account the vision for the site, the type of development and its location: [...]"

d. The environmental impacts of traffic and transport infrastructure should be identified, assessed and taken into account – including taking opportunities to avoid or mitigate any adverse environmental effects, and to secure net environmental gains such as reductions in air pollution [...]"

2 The Air Quality (England) (Amendment) Regulations 2002 - Statutory Instrument 2002 No.3043.

3 The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020

4 Department for Environment, Food & Rural Affairs (2023). *Environmental Improvement Plan 2023*.

5 Ministry of Housing, Communities & Local Government (2026). *National Planning Policy Framework*.

- 2.11 Regarding the design of new development, Policy DP3 - *Key principles for well-designed places* states that development proposals should incorporate and/or connect to a network of high-quality, accessible and multifunctional green infrastructure, which can provide opportunities for recreation and healthy living, strengthen habitats, improve climate change resilience and improve air and water quality.
- 2.12 The NPPF also includes a number of policies to ensure that new development is appropriate for its location, taking into account risks posed by pollution.
- 2.13 Policy P1 – *Planning for clean and safe spaces*, states the following:

“1. To support efforts to avoid and mitigate risks from natural and man-made hazards, minimise levels of pollution and create clean, liveable and safe places for people to live, work and visit, development plans should:

a. Allocate land for development where, taking into account the potential for mitigation: [...]

iii. Development proposals will not cause unacceptable levels of pollution, either alone or in combination with other pollution sources, taking into account communities which may be particularly vulnerable to its effects, such as children and older people, as well as habitats and species which may be vulnerable to pollution [...]

b. Consider any wider opportunities to reduce air, water, soil, noise or other forms of pollution, and contribute to compliance with national and local environmental targets and objectives, through the spatial strategy and policies for specific parts of the plan area (such as by identifying opportunities for strategic nature-based solutions) [...]”

- 2.14 Policy P3 – *Living conditions and pollution* states the following:

“1. Development proposals should be appropriate for their location, taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, whether these effects are on or off-site; and whether this is as a result of the development itself or the product of preexisting conditions in its vicinity. In assessing the potential effects of pollution, consideration should be given to the potential sensitivity of the site, and its intended occupiers and users, as well as that of the environment and population in the surrounding area (including where certain groups could be particularly vulnerable to its effects, such as children and older people).

2. Within this context development proposals should:

a. Provide healthy living conditions for occupiers and users in terms of adequate access to light and avoiding exposure to levels of air, noise, artificial light or other sources of pollution which could have an unacceptable adverse effect on health

and the quality of life. Where necessary suitable mitigation measures should be incorporated to secure acceptable living conditions;

- b. Not give rise to, or contribute to, an unacceptable level of access to daylight and sunlight for neighbouring residents and occupiers, or unacceptable levels of air, noise, artificial light, water, soil or other forms of pollution on or beyond the site. Adverse impacts of this nature should be avoided where possible, or else mitigated to an acceptable degree. Where possible, opportunities should be taken to reduce pollution affecting the wider area (such as through traffic and travel management or improved external lighting);*
- c. Sustain and contribute to compliance with relevant limit values or national objectives and targets for air pollutants including PM2.5. Development proposals should take account of Air Quality Management Areas and be consistent with the objectives of relevant Air Quality Action Plans, Clean Air Plans and Local Air Quality Strategies; [...]"*

2.15 Lastly, Policy P4 – *Impact of development on existing activities* states the following:

"[...] 2. Where the operation of an existing activity could have a significant adverse effect on a proposed new development in its vicinity, development proposals should:

- a. Identify the nature of the potential impacts, informed where necessary by early discussions between the applicant (i.e. the 'agent of change') and those existing uses which could be affected by the proposal to inform the scope for mitigation; and*
- b. Be able to demonstrate that suitable mitigation can be provided before first occupation of the development, if it is to be acceptable. Planning conditions or obligations should be used to secure agreed mitigation measures. [...]"*

2.16 The NPPF offers a broad framework but does not afford a detailed methodology for assessments. Specific guidance for air quality continues to be provided by organisations such as the Department for Environment, Food and Rural Affairs (Defra), Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM).

Local Planning Policy

2.17 The *Arun Local Plan 2011 to 2031*⁶ currently acts as the primary document guiding development within the district up to 2031. The Local Plan sets out a vision for the district and details policies intended to shape development within the district towards this vision.

⁶ Arun District Council (2018). *Arun Local Plan 2011 to 2031*.

- 2.18 The key Local Plan policy concerning air quality is Policy QE DM3 – Air pollution, which states the following:

“All major development proposals will be required to assess the likely impacts of the development on air quality and mitigate any negative impacts by:

- a. Ensuring the development is located within easy reach of established public transport services;*
- b. Maximising provision for cycling and pedestrian facilities;*
- c. Encouraging the use of cleaner transport fuels on site, through the inclusion of electric car charging points; and*
- d. Contributing towards the improvement of the highway network where the development is predicted to result in increased congestion on the highway network.*

Development proposed nearby any Air Quality Management Area (AQMA) declared within the District within the Plan period, will require an air quality assessment to identify likely impacts of development upon the designated area. Developers will be required to ensure delivery of the actions set out within any Air Quality Action Plan.

Industrial development which is regulated by environmental permits (that creates or results in dust, smell, fumes, smoke, heat, radiation, gases, steam or other forms of pollution) must be located in such a position which ensures that the health, safety and amenity of users of the site or surrounding land is not put at risk and the quality of the environment would not be damaged or put at risk.

Developments shall also be consistent with all other Local Plan policies.”

- 2.19 Furthermore, environmental quality is addressed under Policy QE SP1, which specifies:

“The Council requires that all development contributes positively to the quality of the environment and will ensure that development does not have a significantly negative impact upon residential amenity, the natural environment or upon leisure and recreational activities enjoyed by residents and visitors to the District.

The location of existing industrial and commercial uses, including waste management uses, must be taken into consideration when assessing proposals for development sensitive to noise, light, odour and outputs to air. This is to ensure that land allocated for these uses are protected and to ensure that the amenity of new developments and facilities is safeguarded from the impacts of incompatible land uses.”

3. Assessment Methodology

Guidance

- 3.1 Defra's *Local Air Quality Management Technical Guidance* (LAQM.TG(22))⁷ was followed in carrying out the assessment, in addition to the latest EPUK & IAQM guidance on *Planning for Air Quality*⁸ which was also referred to throughout the assessment.
- 3.2 Guidance published by the IAQM on the *Assessment of Dust from Demolition and Construction*⁹ was also used to assess the risk of dust emissions during the construction phase of the proposed development. This guidance, together with the Greater London Authority's (GLA) *Supplementary Planning Guidance*¹⁰ on the control of dust from construction have also been referred to in recommending mitigation measures to minimise adverse impacts from dust and fine particles.
- 3.3 The AEA's *Diffusion Tubes for Ambient NO₂ Monitoring: Practical Guidance*¹¹ was referred to within this assessment to establish the suitability of the site for its proposed end use.
- 3.4 ADC is a member of the Sussex Air partnership, and therefore an Emissions Mitigation Assessment (EMA) has been carried out following Sussex-Air's *Air Quality and Emissions Mitigation Guidance*¹².

Baseline Conditions

- 3.5 Baseline air quality conditions in the vicinity of the site are established through the compilation and review of appropriately sourced background concentration estimates and local monitoring data.
- 3.6 Defra provides estimated background concentrations of the UKAQS pollutants at the UK Air Information Resource (UK-AIR) website¹³. These estimates are produced using detailed modelling tools and are presented as concentrations at central 1km² National Grid square locations across the UK. At the time of writing, the most recent background maps were from November 2024 and based on monitoring data from 2021.

7 Department for Environment, Food & Rural Affairs (2025). *Part IV of the Environment Act 1995, Environment (Northern Ireland) Order 2002 Part III, Local Air Quality Management, Technical Guidance LAQM(TG22)*.

8 Environmental Protection UK & Institute of Air Quality Management (2017). *Land-Use Planning & Development Control: Planning for Air Quality*.

9 Institute of Air Quality Management (2024). *Guidance on the Assessment of Dust from Demolition and Construction*.

10 Greater London Authority (2014). *The Control of Dust and Emissions During Construction and Demolition*.

11 AEA Energy and Environment (2008). *Diffusion Tubes for Ambient NO₂ Monitoring: Practical Guide for Laboratories and Users*.

12 Sussex Air Quality Partnership (2021). *Air Quality and Emissions Mitigation Guidance for Sussex*.

13 Department for Environment, Food & Rural Affairs: UK-AIR. www.uk-air.defra.gov.uk

- 3.7 Being background concentrations, the UK-AIR data are intended to represent a homogenous mixture of all emissions sources within the general area of a particular grid square location. Concentrations of pollutants at various sensitive receptor locations can, therefore, be calculated by modelling the emissions from a nearby pollution source, such as a busy road, and then adding this to the appropriate UK-AIR background datum.
- 3.8 Monitoring at roadside and background locations from local air quality monitoring networks is also considered an appropriate source of data for the purposes of describing baseline air quality. To this end, ADC's automatic and non-automatic monitoring data were reviewed to establish baseline air quality. The most recent available data at the time of writing, from ADC's *2025 Air Quality Annual Status Report (ASR)*¹⁴, have been reviewed and discussed, where relevant.

Construction Phase

- 3.9 The construction phase of the proposed development will involve a number of activities that could potentially produce polluting emissions to air. Predominantly, these will be emissions of dust.
- 3.10 The IAQM's guidance to assess the impacts of construction emissions on human and ecological receptors has been followed in carrying out this air quality assessment. The guidance suggests that where a receptor is located within 250m (50m for statutory ecological receptors) of a site boundary and/or 50m of a route used by construction vehicles, up to 250m from the site entrance, a dust assessment should be undertaken. High sensitivity receptors are considered particularly sensitive when located within 20m of a works area. Figure 2 shows the area located within 250m of the application site that could be sensitive to construction dust emissions.
- 3.11 The Multi Agency Geographic Information for the Countryside (MAGIC) website¹⁵, which incorporates Natural England's interactive maps, has been reviewed to identify whether any statutory ecological sensitive receptors are situated within 50m of the site boundary or within 50m of any routes used by construction vehicles on the public highway, up to 250m from the site entrance.

Construction Significance

- 3.12 The IAQM guidance suggests that Demolition, Earthworks, Construction and Trackout should all be assessed individually to determine the overall significance of the construction phase.

¹⁴ Arun District Council (2025). *2025 Air Quality Annual Status Report (ASR)*.

¹⁵ Natural England and MAGIC partnership organisations. Multi Agency Geographic Information for the Countryside. <http://www.magic.defra.gov.uk> [Accessed September 2025].

- 3.13 In the IAQM dust guidance, the first step in assessing the risk of impacts is to define the potential dust emission magnitude. This can be considered 'Negligible', 'Small', 'Medium' or 'Large' for each of the construction stages. Whilst the IAQM provides examples of criteria that may be used to assess these magnitudes, the vast number of potential variables mean that every site is different and therefore professional judgement must be applied by what the IAQM refer to as a "technically competent assessor". The construction phase assessment therefore relies on the experience of the appraiser.
- 3.14 As such, attempts to define precisely what constitutes a negligible, small, medium or large dust emission magnitude should be treated with caution. Factors such as the scale of the work, both in terms of size and duration, the construction materials and the plant to be used must be considered.
- 3.15 The second step is to define the sensitivity of the area around the construction site. As stated in the IAQM guidance:
- "the sensitivity of the area takes into account a number of factors:*
-  *the specific sensitivities of receptors in the area;*
 -  *the proximity and number of those receptors;*
 -  *in the case of PM₁₀, the local background concentrations; and*
 -  *site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of wind-blown dust."*
- 3.16 Based on these factors, the area is categorised as being of 'Low', 'Medium' or 'High' sensitivity.
- 3.17 When dust emission magnitudes for each stage and the sensitivity of the area have been defined, the risk of dust impacts can be determined. The IAQM provides a risk of impacts matrix for each construction stage. The overall significance for the construction phase can then be judged from the stages assessed. Again, this is subject to professional judgement.
- 3.18 Combustion exhaust gases from diesel-powered plant and construction vehicles accessing the site will also be released. However, the volumes and periods over which these releases will occur are unlikely to result in long-term impacts on local air quality and therefore this has been scoped out of the assessment.

Operational Phase

Impacts on Local Air Quality

- 3.19 Vehicle emissions will arise from the combustion of fossil fuels in vehicle engines and their subsequent release to atmosphere via tailpipe exhausts. The most significant pollutants released by cars and other vehicles are oxides of nitrogen (NO₂/NO_x) and particulate matter (PM₁₀ and PM_{2.5}). Releases of carbon monoxide (CO) and some volatile hydrocarbons (e.g. benzene and 1,3-butadiene) are of less significance and are not assessed further in this report.
- 3.20 As it is elevated annual mean concentrations of NO₂ and PM₁₀ that have resulted in the declaration of most AQMAs across the UK, these are the pollutants of most concern, and they have therefore been the focus of this air quality assessment. PM_{2.5}, which is another fraction of particulate matter, has also been considered.
- 3.21 The latest EPUK & IAQM planning guidance⁸ provides indicative thresholds for changes in traffic flows which would require a detailed, dispersion modelling, assessment of potential air quality impacts to be undertaken.
- 3.22 These are a change in 24-hour Annual Average Daily Traffic (AADT) flows exceeding 100 Light-duty Vehicles (LDVs) and/or 25 Heavy-duty Vehicles (HDVs) on any specific road link within or adjacent to an AQMA or a change in AADT flows exceeding 500 LDVs and/or 100 HDVs elsewhere. Changes in traffic flows below these thresholds can be reasonably considered to have an insignificant impact on air quality.
- 3.23 Full justification behind the screening of air quality related impacts on existing receptor locations in the local area has been provided in Chapter 6 of this report.

Site Suitability

- 3.24 In addition, it is necessary to determine whether the proposed development could introduce new receptors into an area of existing poor air quality. Further analysis of the site's suitability, in air quality terms, for the introduction of new high-sensitivity (residential) receptors has been undertaken and is presented in Section 6 of this report.

Emission Mitigation Assessment

- 3.25 The Sussex-Air guidance¹² advocates that an Emissions Mitigation Assessment should be undertaken to assess and mitigate the impact that new developments may have on local air quality with regards to transport emissions from new development.

- 3.26 The purpose of an Emissions Mitigation Assessment is to determine an appropriate level of mitigation required for a development. An Emissions Mitigation Assessment sets out a methodology to assess the impact of a development's associated emissions on air quality and provides an approach to mitigating emissions for developments, even those which have no significant impact on air quality.
- 3.27 As the proposed development is classified as a *Major* development with reference to the Sussex-Air Guidance¹², an Emissions Mitigation Assessment with a damage cost calculation is required. The damage cost calculation was undertaken following the Sussex-Air guidance and Defra's latest Damage Cost guidance¹⁶. The latest Defra air quality damage cost appraisal toolkit¹⁷ was also utilised within the assessment.

Damage Cost Calculation

- 3.28 The emissions calculation utilised the latest Defra Emission Factor Toolkit (EFT v14.2)¹⁸ to determine total transport related emissions (NO_x & PM_{2.5}) that would be generated by the proposed development.
- 3.29 Defra provides 'damage costs', which are a set of impact values, defined per tonne of pollutant for use in this calculation. Damage costs estimate the societal costs associated with changes in pollutant emissions, which are then combined with the forecasted emissions changes to provide an approximation of the monetary cost (or benefit) to society caused by development.
- 3.30 Defra's Appraisal Toolkit, which incorporates the latest damage cost values, was used in the calculation. The principal of the calculation is summarised in the equation below:

$$EFT \text{ output} \times \text{Damage costs} \times 5 \text{ years} = 5 \text{ year exposure cost value (in £)}$$

- 3.31 As a number of the inputs are based on assumptions, the resulting figure should be treated with caution, but it can be used to give an idea of the scale of a development in terms of total generated transport emissions and therefore a gauge of what level of mitigation might be appropriate.
- 3.32 It is usual for costs established in this way to be apportioned to low emission measures associated with a proposed development. In doing this it should be possible for the 'damage cost' to be offset.

16 Department for Environment, Food & Rural Affairs (2026). *Air quality appraisal: damage cost guidance*. Available from: <https://www.gov.uk/government/publications/assess-the-impact-of-air-quality/air-quality-appraisal-damage-cost-guidance>

17 Department for Environment, Food & Rural Affairs (2025). *Air Quality Damage Cost Appraisal Toolkit*.

18 Department for Environment, Food & Rural Affairs (2026). *Emission Factor Toolkit (version 14.2)*.

4. Baseline Assessment

- 4.1 This chapter is intended to establish prevailing air quality conditions in the vicinity of the site.

UK-AIR Background Pollution

- 4.2 UK-AIR¹³ predicted annual mean background concentrations of NO₂, PM₁₀ and PM_{2.5} for 2021 to 2030 are presented in Table 4.1. These data were taken from the central grid square location within which the site is situated (grid reference: 507500, 102500).

Table 4.1: Predicted Background Concentrations of Pollutants at the Site

Pollutant	Predicted Annual Mean Background Concentration (µg.m ⁻³)									
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
NO ₂	8.7	8.4	8.1	7.8	7.5	7.3	7.0	6.7	6.5	6.2
PM ₁₀	10.3	10.2	10.1	10.0	9.9	9.9	9.8	9.7	9.6	9.6
PM _{2.5}	6.7	6.6	6.5	6.4	6.3	6.3	6.2	6.1	6.1	6.0

- 4.3 The data in Table 4.1 show that annual mean background concentrations of NO₂, PM₁₀ and PM_{2.5}, at, and in the vicinity of, the site between 2021 and 2030, are predicted to be well below their respective AQSS.
- 4.4 The data show that in 2026 (the current assessment / reporting year), NO₂, PM₁₀ and PM_{2.5} concentrations are predicted to be well below their respective annual mean AQSSs by approximately 82%, 75% and 69%, respectively.
- 4.5 Furthermore, in the proposed development's opening year of 2027, background NO₂, PM₁₀ and PM_{2.5} concentrations are predicted to be well below their respective annual mean AQSSs by approximately 83%, 76% and 69%, respectively.
- 4.6 Background annual mean PM_{2.5} concentrations are anticipated to be consistently below the 10 µg.m³ legal target, to be achieved by 2040.
- 4.7 Therefore, annual mean background pollutant concentrations are likely to be well below their respective AQSSs and the PM_{2.5} interim target at, and in the vicinity of, the site.
- 4.8 Concentrations of all pollutants are predicted to decline each year. These reductions are principally due to the forecast effect of the roll out of cleaner vehicles, but also due to UK national and international plans to reduce emissions across all sectors.

Local Sources of Monitoring Data

- 4.9 Local authority operated air quality monitoring networks are also considered an appropriate source of data for the purposes of describing baseline air quality.
- 4.10 At the time of writing, ADC's most recent air quality monitoring results, from the year 2024, were published in their most recent ASR¹⁴. These data have been reviewed and discussed below.

Automatic Monitoring

- 4.11 At the time of writing, ADC did not undertake automatic air quality monitoring within the district.

Non-Automatic Monitoring

- 4.12 ADC operates a non-automatic, NO₂ diffusion tube monitoring network comprising 26 sites positioned in strategic locations across the district.
- 4.13 The most recent annual mean NO₂ monitoring results for the five closest monitoring locations to the site from ADC's latest ASR, are included in Table 4.2, below.

Table 4.2: Monitoring data from Local NO₂ Diffusion Tubes

Monitor	Type	Distance to Site (km)	Annual Mean NO ₂ Concentration (µg.m ⁻³)				
			2020	2021	2022	2023	2024
32	R	0.3	15.6	16.8	16.2	16.3	14.7
33	R	0.8	11.6	13.5	13.6	14.5	12.6
31	R	1.1	13.8	14.8	16.7	16.2	15.2
34	R	1.3	13.4	13.7	15.5	14.2	13.4
30	R	1.7	23.3	22.4	24.7	28.2	23.9

Note: "R" = Roadside.

- 4.14 The data in Table 4.2 show that annual mean concentrations of NO₂ recorded at the five closest diffusion tubes to the application site were below the 40 µg.m⁻³ AQS for NO₂ between 2020 and 2024.
- 4.15 Diffusion tube 32 is the closest diffusion tube to the site, located in a roadside setting adjacent to the B2140 Old Worthing Road and in proximity to its junctions with Roundstone Lane and North Lane. This monitor recorded an annual mean NO₂ concentration of 14.7 µg.m⁻³ in 2024, which is 63.0% below the long-term AQS.

- 4.16 In 2024, diffusion tube 30 recorded the highest NO₂ concentration of the closest five diffusion tubes. Diffusion tube 30 is located approximately 1.7km north-west of the development site in a roadside location adjacent to the A259 New Road. Despite being adjacent to a busy A-road, this monitor recorded an annual mean NO₂ concentration of 23.9 µg.m⁻³, which is below the annual mean AQS by approximately 40.0%.
- 4.17 Annual mean NO₂ concentrations recorded in 2020 and 2021 are generally reduced compared to 2022, likely due to the impacts of COVID-19 on traffic emissions. From 2022 to 2024, there is a general decline in annual mean NO₂ concentrations at all five monitors, following the national trend of general improvements in air quality over time.

Summary

- 4.18 The UK-AIR background projections and local monitoring data indicate that annual mean concentrations of NO₂, PM₁₀ and PM_{2.5} are well below their respective long-term AQSs and the 2030-based legal target for PM_{2.5}, in the area around and at the site.
- 4.19 Local monitoring data indicates that air quality in the area is generally good, although the monitoring locations are primarily focused on major road links. The site itself is located away from these roads and is therefore air quality in the vicinity of the site is considered to be less influenced by traffic emissions.
- 4.20 Both UK-AIR and local monitoring data show a general decline in pollutant concentrations over recent years, which is expected and which follows national trends.

5. Construction Phase Impacts

- 5.1 The construction phase of the proposed development will involve a number of activities that could produce polluting emissions to air. Predominantly, these will be emissions of dust.
- 5.2 The estimates for the dust emission magnitude for demolition, earthworks, construction and trackout below are based on the professional experience of Phlorum's consultants, information provided by the client and Google Earth imagery.

Dust Emission Magnitude

Demolition

- 5.3 As the development site is a greenfield site, no demolition will be required as part of the proposed development. Therefore, potential dust emissions from demolition activities have not been considered further within this assessment.

Earthworks

- 5.4 Where the total site area is between 18,000m² and 110,000m², the potential dust emission magnitude for the demolition phase is defined as *Medium* according to the IAQM guidance. The total site area is approximately 21,600m², falling comfortably within the IAQM's *Medium* dust emission magnitude category for earthworks.
- 5.5 Fewer than five heavy earth moving vehicles are expected to be operating on site at any one-time during earthworks, falling into the IAQM's *Small* dust emission category.
- 5.6 Therefore, the overall dust emission magnitude for the earthworks phase is considered to be *Medium* with reference to the IAQM guidance.

Construction

- 5.7 During construction, activities that have the potential to cause emissions of dust may include piling, sandblasting and concrete batching. Localised use of cement powder and general handling of construction materials (such as aggregate for road construction) also have the potential to generate dust emissions, as does the effect of wind-blow from stockpiles of friable materials. It is understood that no piling, sandblasting or concrete batching will be undertaken on site during construction.
- 5.8 The primary construction materials to be utilised include brick and block under tiled roofs.

- 5.9 The total volume of structures to be constructed at the site is expected to be above 75,000m³, which falls within the IAQM's *Large* dust emission category.
- 5.10 Therefore, based on the volume of structures to be constructed at the site, the overall dust emission magnitude for the construction phase is considered to be *Large* with reference to the IAQM guidance.

Trackout

- 5.11 Construction traffic, when travelling over soiled road surfaces, has the potential to generate dust emissions and to also add soil to the local road network. During dry weather, soiled roads can lead to dust being emitted due to physical and turbulent effects of vehicles. There will be no use of unpaved roads by vehicles accessing the site during construction, with the site to be accessed via Kingston Lane.
- 5.12 During the construction of the proposed development, it is anticipated that fewer than 20 heavy-duty vehicles would access the site per day, falling within the IAQM's *Small* dust emission magnitude category.
- 5.13 Therefore, the dust emission magnitude for the trackout phase is considered to be *Small* with reference to the IAQM guidance.

Emission Magnitude Summary

- 5.14 A summary of the dust emission magnitude as a result of the activities of Earthworks, Construction, and Trackout, as specified in the IAQM guidance, and as discussed above, are listed in Table 5.1 below.

Table 5.1: Overall Dust Emission Magnitude for Each Phase

Activity	Dust Emission Magnitude
Earthworks	Medium
Construction	Large
Trackout	Small

Sensitivity of the Area

- 5.15 Having established the emission magnitudes for each phase, the sensitivity of the area must be considered to establish the significance of effects. The effect of dust emissions depends on the sensitivity of each receptor.
- 5.16 High sensitivity human receptors include residential dwellings, schools and hospitals, but can include locations such as car showrooms when considering the impacts of dust soiling.

- 5.17 The impacts of dust emissions from the sources discussed above have the potential to cause an annoyance to human receptors living in the local area. Within distances of 20m of the site boundary there is a high risk of dust impacts, regardless of the prevailing wind direction. Up to 100m from the construction site, there may still be a high risk, particularly if the receptor is downwind of the dust source.
- 5.18 With the exponential decline in dust levels with distance from dust generating activities, it is considered that for receptors more than 250m from the site boundary, the risk is negligible. Furthermore, the risks at over 100m only have the potential to be significant in certain weather conditions, e.g. downwind of the source during dry periods.
- 5.19 The approximate number of high sensitivity human receptors in the vicinity of the site are detailed in Table 5.2 below with key sensitive receptors shown in Figure 2.

Table 5.2: Number of High Sensitivity Receptors Within 250m of the Site

Distance to Site (m)	Number of High Sensitivity Receptors	Receptor Details
<20	7	Residences at Kingston Lane and Somerset Road
<50	36	Residences at Kingston Lane and Somerset Road
<100	100	Residences in the local area
<250	150	Residences in the surrounding area

- 5.20 As shown in Table 5.2, there are fewer than 10 *High Sensitivity* receptors within 20m of the site. Therefore, the sensitivity of the area to dust soiling impacts is defined as *Medium*, with reference to the IAQM guidance⁹.
- 5.21 As presented in Table 4.1, UK-AIR projections indicate that annual mean concentrations of PM₁₀ are likely to be below 24 µg.m⁻³ within the vicinity of the site. This represents the IAQM's threshold for an area to be considered *Low Sensitivity* for PM₁₀ related human health effects¹⁹. Therefore, the sensitivity of the area to human health impacts is defined as *Low* with reference to the IAQM guidance⁹.

¹⁹ The 24.0 µg.m⁻³ 'threshold' is taken from Table 3 of the IAQM's construction dust guidance. This threshold, along with the number of receptors, their sensitivity, and their distance from source (construction site), helps establish the sensitivity of an area in terms of potential human health impacts from exposure to PM₁₀. According to the guidance, baseline annual mean PM₁₀ concentrations below 24.0 µg.m⁻³ indicate that the sensitivity of the area in terms of human health impacts is *Low* in all cases except when there are a large number (>100) of highly sensitive receptors within 20m of the construction site.

- 5.22 Review of the MAGIC website¹⁵, which incorporates Natural England's interactive maps, has identified no statutory ecological receptors within 50m of the site, or 50m of roads to be used by construction traffic, up to 250m from the site entrance. The closest statutory ecological site is the Climping Beach Site of Special Scientific Interest (SSSI), located approximately 5.1km to the south-west of the application site. Therefore, based on distance alone, the construction of the proposed development can be considered to have a *Negligible* impact on local ecological sites.

Risk of Impacts

- 5.23 Having established the potential dust emission magnitudes and sensitivity of the area, the risk of impacts can be determined in accordance with the IAQM guidance. These are summarised in Table 5.3.

Table 5.3: Summary of Impact Risk by Construction Stage Based on the IAQM's Dust Guidance

Stage	Impact Risk		
	Nuisance Dust	PM ₁₀ Health Effects	Ecology
Earthworks	Medium Risk	Low Risk	Negligible
Construction	Medium Risk	Low Risk	Negligible
Trackout	Low Risk	Negligible	Negligible

- 5.24 Overall, the proposed development is considered to be of *Medium Risk* for nuisance dust soiling effects, *Low Risk* for PM₁₀ health effects and *Negligible Risk* for impacts on nearby ecological receptors, in the absence of mitigation.

Site Specific Mitigation

- 5.25 The GLA guidance¹⁰ suggests a number of mitigation measures that should be adopted in order to minimise impacts from dusts and fine particles. Appropriate measures that could be included during construction of the proposed development include:
- 🌱 ideally cutting, grinding and sawing should not be conducted on-site and pre-fabricated material and modules should be brought in where possible;
 - 🌱 where such work must take place, water suppression should be used to reduce the amount of dust generated;
 - 🌱 skips, chutes and conveyors should be completely covered and, if necessary, enclosed to ensure that dust does not escape;

- 🌱 no burning of any materials should be permitted on site;
- 🌱 any excess material should be reused or recycled on-site in accordance with appropriate legislation;
- 🌱 developers should produce a waste or recycling plan;
- 🌱 following earthworks, exposed areas and soil stockpiles should be re-vegetated to stabilise surfaces, or otherwise covered with hessian or mulches;
- 🌱 stockpiles should be stored in enclosed or bunded containers or silos and kept damp where necessary;
- 🌱 hard surfaces should be used for haul routes where possible;
- 🌱 haul routes should be swept/washed regularly;
- 🌱 vehicle wheels should be washed on leaving the site;
- 🌱 all vehicles carrying dusty materials should be securely covered; and
- 🌱 delivery areas, stockpiles and particularly dusty items of construction plant should be kept as far away from neighbouring properties as possible.

- 5.26 In addition, the IAQM⁹ lists recommended mitigation measures for low, medium and high dust impact risk sites. The highly recommended mitigation measures for *Medium Risk* sites are included in Appendix A of this report.
- 5.27 Where dust generation cannot be avoided in areas close to neighbouring properties, additional mitigation measures should be put in place, such as windbreaks, sprinklers, and/or time/weather condition limits on the operation of some items of plant or the carrying out of activities that are likely to generate a particularly significant amount of dust.

Residual Effects

- 5.28 After the implementation of the mitigation measures listed above and in Appendix A, the significance of each phase of the construction programme will be reduced and the residual significance of impact for the construction phase is expected to be *Negligible*.

6. Operational Phase Impact

Impacts on Local Air Quality

- 6.1 The EPUK & IAQM planning guidance⁸ provides indicative threshold for changes in traffic flows, which would require a detailed pollutant dispersion modelling assessment to be undertaken.
- 6.2 Within or adjacent to an AQMA, these are a change in AADT flows of more than 100 LDVs and / or 25 HDVs. Elsewhere, these are a change in AADT flows of more than 500 LDVs and/or 100 HDVs. Changes below these thresholds can be reasonably considered to have an insignificant impact on local air quality.
- 6.3 The application site is not located within, or adjacent to, an AQMA with the closest AQMA being the Worthing / Grove Lodge AQMA, located approximately 6km to the north-east of the site at its closest point.
- 6.4 The Project Transport Consultant, i-Transport, has confirmed that the proposed development is expected to generate 294 LDVs (AADT) and 3 HDVs (AADT). Of this, fewer than 88 LDVs (AADT) are expected to travel through the Worthing / Grove Lodge AQMA.
- 6.5 Therefore, the proposed development is not expected to increase AADT flows on any roads above the EPUK & IAQM traffic change thresholds, and accordingly it can be reasonably assumed that the operation of the proposed development would have an insignificant impact on local air quality.

Site Suitability

- 6.6 LAQM.TG(22)⁷ (Tables 7-7 and 7-8) sets out the classification of monitoring locations and where these are in relation to sources of pollution. The guidance states that an *urban background* location is, as follows:

"An urban location distanced from sources and therefore broadly representative of city-wide background conditions, e.g. urban residential areas."

- 6.7 The AEA *Diffusion Tubes for Ambient NO₂ Monitoring: Practical Guidance*¹¹ provides further detailed definitions which help to classify urban background sites. Specifically, Section 3.2.2 states that, where a site meets the following criteria, it can be reasonably defined as being set in an urban background location, away from adverse impacts associated with emissions from road sources:
 -  >50m from any major source of NO₂ (e.g., multi-storey car parks)
 -  >30m from any very busy road (>30,000 vehicles per day);
 -  >20m from any busy road (10,000 – 30,000 vehicles per day);

-  >10m from any main road; and
 -  >5m from locations where vehicles may stop with their engines idling.
- 6.8 The primary sources of air pollution within the vicinity of the site are vehicles travelling on the nearby local road network, including Kingston Lane, which bounds the site at its south-west boundary, and North Lane, to the west.
- 6.9 The Department for Transport (DfT) does not currently provide manual traffic counts for Kingston Lane or North Lane. However, both Kingston Lane and North Lane are unclassified residential streets within a residential area, where traffic flows are expected to be low. Both roads do, however, represent locations where vehicles may stop with their engines idling.
- 6.10 It is understood that all proposed highly sensitive receptors at the application site (i.e. residential dwellings) will be distanced further than 5m from Kingston Lane and the entire site is distanced over 80m from North Lane. Therefore, the proposed sensitive uses at the site can reasonably be considered to be set in an urban background location with reference to the AEA guidance. Following LAQM.TG(22) guidance⁷, it is expected that pollutant concentrations across the site are likely to be similar to those identified at urban background locations within the local area.
- 6.11 ADC did not undertake any urban background monitoring of NO₂, PM₁₀ or PM_{2.5} within their administrative boundary in the last 5 years. However, UK-AIR background pollutant concentrations in the vicinity of the site indicate that background NO₂, PM₁₀ and PM_{2.5} concentrations are well below their respective annual mean AQSS.
- 6.12 Furthermore, local pollutant monitoring data from ADC's local air quality monitoring network indicate that concentrations of NO₂ are generally well below the annual mean AQS, even at roadside locations adjacent to major roads in the surrounding area.
- 6.13 Considering the above, the site is anticipated to be suitable, in air quality terms, for the introduction of new, sensitive residential receptors, and no further assessment of site suitability is considered necessary.

7. Emissions Mitigation Assessment

Damage Cost Calculation

- 7.1 Following the latest update to Defra's Damage Cost guidance¹⁶, the damage cost calculation below has been carried out to estimate the value of the impact of NO_x and PM_{2.5} emitted as a result of traffic generated by the proposed development.
- 7.2 To evaluate the scale of a proposed development's total emissions, Defra recommends a damage cost calculation using the following formula:

$$\text{Road Transport Emission Increase (Cost, £)} =$$

$$\text{Estimated trip rate for 5 years} \times \text{Emission Rate/10km/vehicle type} \times \text{Damage Costs}$$

- 7.3 The latest Defra EFT (v14.2)¹⁸ was used to determine the total transport related emissions that would be generated by the proposed development. The inputs used in the calculation are shown in Table 7.1.

Table 7.1: Calculation Inputs

Input	Value	Unit	Source/Guidance
Trip Length	10	km	Sussex Air Guidance
Net Traffic Flow	297 AADT (1% HDV)	AADT	Transport Consultant
EFT Road Type	Urban (not London)	-	Defra's EFT
EFT Year	2027 – 2031	-	Opening year + 4 years
Average Speed	50	km.hr ⁻¹	Sussex Air Guidance
Appraisal period	5	years	Sussex Air Guidance

- 7.4 Total emission 'damage' costs were calculated using Defra's appraisal toolkit and are presented in Tables 7.2 and 7.3.
- 7.5 The calculation accounts for an 'uplift factor' of 2% cumulatively per annum and a 'discount rate', in line with the latest 2026 guidance¹⁶. Central estimate damage costs for 'Road Transport Urban Medium' were based on Defra 2026 prices.

Table 7.2: Damage Cost Calculation for NO_x

	2027	2028	2029	2030	2031
NO _x increase (tonnes)	0.158	0.138	0.117	0.098	0.082
Central Damage cost (NO _x)	£11,824	£11,824	£11,824	£11,824	£11,824
Adjusted Damage cost (NO _x)	£1,868	£1,596	£1,344	£1,110	£914
Total	£6,832				

Table 7.3: Damage Cost Calculation for PM_{2.5}

	2027	2028	2029	2030	2031
PM _{2.5} increase (tonnes)	0.020	0.020	0.019	0.019	0.018
Central Damage cost (PM _{2.5})	£101,304	£101,304	£101,304	£101,304	£101,304
Adjusted Damage cost (PM _{2.5})	£2,022	£1,950	£1,880	£1,810	£1,749
Total	£9,411				

7.6 The total damage costs are summarised as follows:

NO_x emission 'damage' (cost, £) = £6,832 +

PM_{2.5} emission 'damage' (cost, £) = £9,411

TOTAL ('damage cost', £) = £16,243

Mitigation

7.7 The resulting value of the 'damage cost', as calculated above, is indicative of the monetary value of an appropriate package of mitigation to offset any potential impacts from the proposed development. The mitigation package should at least equate to this 'damage cost'.

7.8 For all residential developments considered as *major* under the Sussex-Air Guidance, the following mitigation measures should be included in the scheme, as a minimum:

- 🌱 All gas-fired boilers are to meet a minimum emission standard of <40mgNO_x/kWh, with consideration given to renewable energy sources; and
- 🌱 Meet any applicable electric vehicle (EV) charging point standards set out in West Sussex County Council's (WSCC) *Guidance on Parking at New Developments*²⁰.

²⁰ West Sussex County Council. (2020). *Guidance on Parking at New Developments* (September 2020).

- 7.9 No gas-fired boilers or other combustion-based energy, heating or hot water related emission sources are proposed within the scheme. Instead, the proposed development is to utilise a zero-emission energy, heating and hot water strategy, comprising of Air Source Heat Pumps (ASHPs).
- 7.10 The proposed development will also provide an EV charging point for each proposed residential dwelling, thereby complying with the Part S of The Building Regulations²¹ and exceeding the minimum standards required by WSCC's standards.
- 7.11 The proposed development will also provide secure cycle storage for each proposed dwelling to encourage the use of active modes of travel in place of single-occupancy vehicle (SOV) trips.
- 7.12 Additionally, the occupants of each dwelling will be provided with a travel voucher worth £150, to be used for active and sustainable means of travel, including:
- 🟢 Season tickets for local bus services;
 - 🟢 Rail season tickets or network cards;
 - 🟢 Contributions towards the purchase of a new bicycle and / or equipment;
 - 🟢 Bikeability training for up to 4 members of a household; or
 - 🟢 12 months free membership to any local Car Club.
- 7.13 A Travel Plan²² has been prepared for the proposed development, which aims to reduce SOV trips and promotes modal shift towards sustainable and active means of travel.
- 7.14 Costs associated with the mitigation measures outlined above are detailed in Table 7.4, below.

Table 7.4: Proposed Mitigation Measures and Associated Costs

Mitigation Measure	Quantity	Cost per Unit	Total Cost
EV Charging	47	£750	£35,250
ASHPs	47	£5,000	£235,000
Cycle Storage Facilities	47	£750	£35,250
Travel Vouchers	47	£150	£7,050
Total Mitigation Cost			£312,550

- 7.15 As demonstrated in Table 7.4, that the total value of the proposed development's mitigation package is expected to far exceed the calculated 'damage cost' of £16,243.

21 HM Government (2021). *The Building Regulations 2010 – Part S: Infrastructure for the charging of electric vehicles*.
22 i-Transport (2023). *Travel Plan Statement for Kingston Lane, East Preston*.

8. Discussion

Construction Phase Impacts

- 8.1 The construction phase of the proposed development could potentially give rise to emissions which could cause dust soiling effects on adjacent uses. Following IAQM guidance, the construction phase of the proposed development can be considered to be *Medium Risk* for nuisance dust soiling effects, *Low Risk* for PM₁₀ health effects and *Negligible* for ecological impacts.
- 8.2 Following the implementation of the mitigation measures provided in Appendix A and listed in Section 5.25, emissions from the construction programme will be reduced and the residual significance of impact for the construction phase is expected to be *Negligible*, thus complying with the requirements of the NPPF.

Operational Phase Impacts

- 8.3 The proposed development is not expected to generate volumes of traffic in exceedance of the indicative thresholds prescribed by the EPUK & IAQM planning guidance. Therefore, the need to undertake a detailed dispersion modelling assessment of the proposed development's impact on local air quality has been screened out with reference to the EPUK & IAQM guidance. Therefore, it can be reasonably assumed that the operation of the proposed development would have an insignificant impact on local air quality.
- 8.4 The need for a detailed pollutant dispersion modelling assessment of the proposed development's sensitivity to local air quality has been screened out using Defra and AEA guidance, along with a review of local pollutant monitoring data. This was primarily due to proposed sensitive receptors (i.e. residential dwellings) at the site being sufficiently distanced from local roads and background pollutant concentrations being anticipated to be well below relevant AQs. Therefore, the site is considered to be suitable, in air quality terms, for the introduction of new, sensitive receptors, and no further assessment of site suitability is considered necessary.

Emissions Mitigation Assessment

- 8.5 The Sussex-Air emissions mitigation guidance requires an Emissions Mitigation Assessment for all *Major* classified developments, to help minimise the potential for incremental impacts on local air quality.

- 8.6 Following the latest Defra Damage Cost guidance and guidance from Sussex-Air, a 'damage cost' of £16,243 was calculated as a result of emissions of NO_x and PM_{2.5} expected to be generated by traffic associated with the scheme in its first five operational years.
- 8.7 The proposed development's mitigation package includes a zero-emission heating and hot-water strategy, EV charging, secure cycle storage, a travel plan and travel vouchers for all new occupants. The total monetary value of this mitigation package far exceeds the calculated 'damage cost' of £16,243 and therefore it is expected that any incremental air quality impacts associated with the operation of the proposed development would be minimised.

9. Conclusions

- 9.1 Phlorum Limited was commissioned by Seaward Properties Limited to undertake an Air Quality Assessment for the proposed erection of 47 residential dwellings located at the Land at Kingston Lane, East Preston.
- 9.2 UK Air Information Resource predicted background concentrations and local air quality monitoring results from the wider area suggest that air pollution concentrations within the vicinity of the application site are likely to be below the relevant UK Air Quality Strategy concentrations.
- 9.3 The construction phase of the proposed development could give rise to emissions which could cause dust soiling effects on adjacent uses. However, by adopting appropriate mitigation measures to reduce emissions and their potential impact, there should be no significant residual effects, thus complying with the requirements of the National Planning Policy Framework.
- 9.4 The operation of the proposed development is not expected to introduce new, sensitive receptors into an area of existing poor air quality, nor is it anticipated to significantly impact on local air quality.
- 9.5 To mitigate for future operational development emissions, the proposed development will incorporate a package of mitigation measures, as detailed in Section 7 of this report.
- 9.6 Therefore, the proposed development is expected to comply with all relevant air quality policy. Air quality should not, therefore, pose any significant obstacles to the planning process.

Figures and Appendices

Figure 1: Site Location Plan



Figure 1: Site Location Plan

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 Date: 10/09/2026
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Figure 2: Construction Phase Receptors



Construction Phase Receptors

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Appendix A: Recommended Construction Phase Mitigation Measures

Recommended Construction Phase Mitigation Measures

The construction phase mitigation measures outlined within this appendix are based on the IAQM's⁹ recommendations for *Medium Dust Impact Risk* sites, to reflect the findings of the construction dust risk assessment undertaken in Chapter 5.

Please refer to the IAQM's *Guidance on the Assessment of Dust from Demolition and Construction* and *Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites* (2018)²³ for further, "desirable", mitigation measures.

Communications

- ➊ Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
- ➋ 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.
- ➌ Display the head or regional office contact information.
- ➍ 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, real-time PM₁₀ continuous monitoring and/or visual inspections.

Site Management

- ➊ 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.
- ➋ Make the complaints log available to the local authority when asked.
- ➌ Record any exception 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.

Monitoring

- ➊ Carry out regular site inspections to monitor compliance with the Dust Management Plan, record inspection results, and make an inspection log available to the local authority when asked.
- ➋ Increase the frequency of 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.

²³ Institute of Air Quality Management. (2018). *Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites*. https://iaqm.co.uk/text/guidance/guidance_monitoring_dust_2018.pdf

- Agree dust deposition, dust flux, or real-time PM₁₀ continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it is a large site, before work on a phase commences. Further guidance is provided by the IAQM on monitoring during demolition, earthworks and construction⁹.

Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as 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.
- 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.

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 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

- Avoid bonfires and burning of waste materials.

Construction

- 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.

Trackout

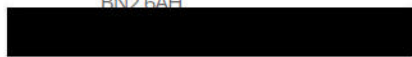
- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- 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 bowzers 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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