



Air Quality Assessment

Chownes Mead, Haywards Heath

March 2026

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Document Control:

Project No.	Project
14510A	Chownes Mead, Haywards Heath

Report No.	Ver/rev	Written By:	Checked By:	Authorised By:	Date
14510A	V0 Draft	B. McAllister	P. Beckett	P. Beckett	25.02.2026
	V1				02.03.2026

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1. Introduction

Background

- 1.1 Phlorum Limited has been commissioned by RCM Partnership LLP to undertake an Air Quality Assessment (AQA) for the proposed conversion of the existing Grade 2 Listed Building, Chownes Mead, to a hotel use with the provision of a new build pool, treatment suites and spa, gym, members' lounge and ancillaries, construction of an entrance from Chownes Mead Lane with localised parking and general landscaping works ("the proposed development"). Chownes Mead is located at Chownes Mead Lane, Haywards Heath, RH16 4BS ("the site"). The National Grid Reference for the centre of the site is 531680, 123740. A site location plan is included in Figure 1.
- 1.2 Land use in the vicinity of the site largely comprises agricultural uses and greenspaces, with some residential use at Chownes Mead Lane.
- 1.3 The main sources of air pollution in the vicinity of the site are vehicles travelling on the local road network, particularly on the A272 Isaac's Lane, located approximately 60m north-east of the site, and on Chownes Mead Lane, directly north-east of the site.
- 1.4 Air quality is managed locally by Mid Sussex District Council (MSDC), who have not declared any Air Quality Management Areas (AQMA) within the district. The closest AQMA to the site is the Horsham Cowfold AQMA, located approximately 10km west of the site. This AQMA was declared in 2011 due to exceedances of the long-term (annual mean) Air Quality Standard (AQS) for NO₂.

Scope of Assessment

- 1.5 The focus of this report is the assessment of the suitability of the site, in air quality terms, for its proposed hotel and country club end use, considering both construction and operational phases and recommending mitigation where necessary. Further assessment of the potential for traffic generated by the proposed development to impact local air quality is also presented.
- 1.6 An Emissions Mitigation Assessment was also undertaken, in line with guidance from the Sussex-Air Partnership, including details of the proposed development's mitigation package to reduce its potential impact on local air quality.

2. Policy Context

The UK Air Quality Strategy

- 2.1 The UK Air Quality Strategy (UKAQS)¹ 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 is reasonably expected to be exposed to a pollutant over its 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	$20 \mu\text{g.m}^{-3}$
		10*	$10 \mu\text{g.m}^{-3}$ not to be exceeded as an annual mean in 2030

Note: (*) denotes an interim target, outlined in Defra's *Environmental Improvement Plan 2025*.

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 as part of the Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020³.
- 2.6 The Department for Environment, Food & Rural Affairs' (Defra) *Environmental Improvement Plan 2025*⁴ outlines a legal target of 10 µg.m⁻³ for annual mean PM_{2.5} concentrations, 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 As stated above, MSDC do not have any active AQMAs declared within the district and, therefore, an AQAP is not required. MSDC has adopted an *Air Quality Strategy 2026 to 2030*⁵, which includes strategies and objectives to improve air quality throughout the district.

National Planning Policy Framework

- 2.9 The National Planning Policy Framework (NPPF)⁶ sets out the Government's planning policy for England. At its heart is an intention to promote more sustainable development. A core principle in the NPPF that relates to air quality effects from development is that planning should "contribute to conserve and enhance the natural and local environment" as demonstrated at paragraph 187:

"Planning policies and decisions should contribute to and enhance the natural and local environment by: [...]"

preventing new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability [...]"

- 2.10 With regard to assessing cumulative effects the NPPF states the following at paragraph 198:

"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative

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. (2025). *Environmental Improvement Plan 2025*.

5 Mid Sussex District Council. (2025). *Air Quality Strategy 2026 to 2030*.

6 Ministry of Housing, Communities & Local Government. (2025). *National Planning Policy Framework*.

effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development."

- 2.11 With regard to compliance with relevant limit values and national objectives for air pollutants, along with assessing cumulative effects the NPPF states the following at paragraph 199:

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

- 2.12 With regard to promoting sustainable transport, paragraph 110 states:

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

- 2.13 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).

- 2.14 The draft NPPF update⁷ intends to further refine the national planning system, with sustainable development at its core. Ultimately, much like the adopted NPPF, the future update does not intend to reshape the methodology of assessing air quality. The draft NPPF update acknowledges the relevant limit values or national objectives and targets for air pollutants, further highlighting PM_{2.5}, due to the approaching adoption of the new AQS for PM_{2.5}. The NPPF update also states that, where a proposed development is to be located within or could affect an AQMA or Clean Air Plan (Including any Clean Air Zone), the proposed development should be compliant with the local objectives and plans.

National Planning Practice Guidance

- 2.15 Reference ID 32 (Air Quality) of the National Planning Practice Guidance (PPG)⁸ provides guiding principles on how planning can take account of the impact of new development on air quality. The PPG summarises the importance of air quality in planning and the key legislation relating to it.
- 2.16 As well as describing the importance of International, National and Local Policies (detailed elsewhere in this report), it summarises the key sources of air quality information. It also explains when air quality is likely to be relevant to a planning decision, stating:

“Considerations that may be relevant to determining a planning application include whether the development would:

-  *Lead to changes (including any potential reductions) in vehicle-related emissions in the immediate vicinity of the proposed development or further afield. This could be through the provision of electric vehicle charging infrastructure; altering the level of traffic congestion; significantly changing traffic volumes, vehicle speeds or both; or significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal involves the development of a bus station, coach or lorry park; could add to turnover in a large car park; or involve construction sites that would generate large Heavy Goods Vehicle flows over a period of a year or more;*
-  *Introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; biomass boilers or biomass-fuelled Combined Heat and Power plant; centralised boilers or plant burning other fuels within or close to an air quality management area or introduce relevant combustion within a Smoke Control Area; or extraction systems (including chimneys) which require approval or permits under pollution control legislation;*

⁷ Ministry of Housing, Communities & Local Government. (2026). National Planning Policy Framework: Plan-making and national decision-making policies.

⁸ Planning Practice Guidance (PPG) 32. (2024). *Air Quality*.

- 🌿 *Expose people to harmful concentrations of air pollutants, including dust. This could be by building new homes, schools, workplaces or other development in places with poor air quality;*
- 🌿 *Give rise to potentially unacceptable impacts (such as dust) during construction for nearby sensitive locations;*
- 🌿 *Have a potential adverse effect on biodiversity, especially where it would affect sites designated for their biodiversity value.”*

2.17 Details are also provided of what should be included within an air quality assessment. Key considerations include:

- 🌿 Baseline local air quality;
- 🌿 Whether the proposed development could significantly affect local air quality during its construction/operation; and
- 🌿 Whether the development is likely to expose more people to poor air quality.

2.18 Examples of potential air quality mitigation measures are also provided in the PPG.

Local Planning Policy

2.19 MSDC's Local Plan, the *Mid Sussex District Plan 2014 – 2031* (2018)⁹, currently acts as the primary document concerning and guiding development within the borough up to 2031. The Local Plan contains one policy with direct relevance to air quality, which states:

DP29: Noise, Air and Light Pollution:

“The environment, including nationally designated environmental sites, nationally protected landscapes, areas of nature conservation or geological interest, wildlife habitats, and the quality of people's life will be protected from unacceptable levels of noise, light and air pollution by only permitting development where: [...]

Air Pollution:

- 🌿 *It does not cause unacceptable levels of air pollution;*
- 🌿 *Development on land adjacent to an existing use which generates air pollution or odour would not cause any adverse effects on the proposed development or can be mitigated to reduce exposure to poor air quality to recognised and acceptable levels;*

⁹ Mid Sussex District Council. (2018). *Mid Sussex District Plan 2014 – 2031*.

 *Development proposals (where appropriate) are consistent with Air Quality Management Plans."*

3. Assessment Methodology

Guidance

- 3.1 Defra's *Local Air Quality Management Technical Guidance* (LAQM(TG22))¹⁰ was followed in carrying out the assessment, in addition to the latest EPUK & IAQM guidance on *Planning for Air Quality*¹¹ which was also referred to throughout the assessment.
- 3.2 Guidance published by the IAQM on the *Assessment of Dust from Demolition and Construction*¹² was also used to assess the risk of dust emissions during the construction phase of the proposed development.
- 3.3 The Greater London Authority (GLA) *Supplementary Planning Guidance*¹³ on the control of dust from construction has also been referred to, which is considered best practice guidance for the UK. It details a number of mitigation measures that should be adopted to minimise adverse impacts from dust and fine particles.
- 3.4 The AEA's *Diffusion Tubes for Ambient NO₂ Monitoring: Practical Guidance*¹⁴ was referred to within this assessment to establish the suitability of the site for its proposed end use.
- 3.5 MSDC 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 for Sussex*¹⁵ (AQEMGFS).

Baseline Conditions

- 3.6 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.

10 Department for Environment, Food & Rural Affairs. (2022). *Part IV of the Environment Act 1995, Environment (Northern Ireland) Order 2002 Part III, Local Air Quality Management, Technical Guidance LAQM(TG22)*.

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

12 Institute of Air Quality Management. (2024). *Guidance on the assessment of dust from demolition and construction*.

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

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

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

- 3.7 Defra provides estimated background concentrations of the UKAQS pollutants at the UK Air Information Resource (UK-AIR) website¹⁶. 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.
- 3.8 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.
- 3.9 MSDC's automatic and non-automatic local pollutant monitoring data are also considered an appropriate source for establishing baseline air quality at the site. The most recent available data from MSDC's *2025 Air Quality Annual Status Report (ASR)*¹⁷ have been included and referenced where relevant. Due to the proximity of the site to Lewes District Council's (LDC) authority boundary, the most recent available data from LDC's *2024 Air Quality Annual Status Report (ASR)*¹⁸ have also been included and referenced where relevant.
- 3.10 In terms of assessing long-term air quality impacts on existing highly sensitive land uses, including residential dwellings, an annual mean AQS for NO₂ and PM₁₀ of 40 µg.m⁻³ is considered the appropriate threshold according to the UK Air Quality Strategy⁵.
- 3.11 When assessing the suitability of the site for its proposed end use as a hotel / country club, with outdoor areas to be occupied by visitors for an hour or more, the short-term AQSs for NO₂ and PM₁₀ will also apply, with reference to Box 1-1 of the LAQM (TG22).
- 3.12 For the hourly (short-term) AQS for NO₂ (200 µg.m⁻³ not to be exceeded more than 18 times a year), LAQM (TG22) states that where an annual mean concentration of NO₂ is below 60 µg.m⁻³, this short-term AQS is unlikely to be exceeded.
- 3.13 The 24-hour (short-term) AQS for PM₁₀ is 50 µg.m⁻³ (not to be exceeded more than 35 times a year). Using annual mean concentrations, the following equation can be used to derive the number of days that the 24-hour AQS is likely to be exceeded:
- $$\text{No. 24 hour exceedances} = -18.5 + 0.00145 \times \text{annual mean}^3 + \left(\frac{206}{\text{annual mean}} \right)$$
- 3.14 Using this equation, an annual mean concentration of approximately 32 µg.m⁻³ or above would likely result in an exceedance of the short-term AQS for PM₁₀.

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

17 Mid Sussex District Council. (2025). *2025 Air Quality Annual Status Report (ASR)*.

18 Lewes District Council & Eastbourne Borough Council. (2024). *2024 Air Quality Annual Status Report (ASR)*.

- 3.15 Therefore, indicative thresholds of $60 \mu\text{g.m}^{-3}$ for NO_2 and $32 \mu\text{g.m}^{-3}$ for PM_{10} are considered to be appropriate benchmarks for this baseline assessment, as annual mean concentrations above these thresholds are an indication of potential exceedances of the short-term AQSs for both pollutants, with reference to LAQM (TG22)¹⁰. As there is currently no short-term AQS for $\text{PM}_{2.5}$, the respective annual mean (long-term) standard for this pollutant of concern is referred to within this report. For conservatism, the annual mean AQSs for NO_2 and PM_{10} have also been reviewed throughout this air quality assessment.

Construction Phase

- 3.16 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. However, they could also include releases of odours and/or more harmful gases and particles.
- 3.17 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 site that could be sensitive to construction dust emissions.
- 3.18 The Multi Agency Geographic Information for the Countryside (MAGIC) website¹⁹, 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

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

¹⁹ Natural England and MAGIC partnership organisations. Multi Agency Geographic Information for the Countryside. <http://www.magic.defra.gov.uk>. [Accessed February 2026].

- 3.20 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.
- 3.21 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.
- 3.22 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."*
- 3.23 Based on these factors, the area is categorised as being of 'Low', 'Medium' or 'High' sensitivity.
- 3.24 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.
- 3.25 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

Road Transport Sources

- 3.26 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.
- 3.27 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.
- 3.28 The latest EPUK & IAQM planning guidance¹¹ provides indicative thresholds for changes in traffic flows which would require a detailed, dispersion modelling, assessment of potential air quality impacts to be undertaken. 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 screening thresholds are unlikely to result in significant local air quality effects.
- 3.29 Full justification behind the screening of air quality related impacts on existing receptor locations in the local area has been provided in paragraph 5.32.

Site Suitability

- 3.30 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 visitor and staff receptors has been undertaken and is presented in Section 6 of this report.

Emission Mitigation Assessment

- 3.31 The Sussex-Air Partnership's AQEMGFS¹⁵ advocates that an Emissions Mitigation Assessment should be undertaken to demonstrate how air quality impacts from development can be minimised.
- 3.32 The purpose of an Emissions Mitigation Assessment is to determine an appropriate level of mitigation required from a proposed development; even those that are predicted to have no significant impact on air quality.

- 3.33 As the proposed development is classified as 'Major' with reference to *The Town and Country Planning (Development Management Procedure) (England) Order 2015*²⁰ (i.e. development carried out on a site having an area of 1 hectare or more), an Emissions Mitigation Assessment with an emissions cost calculation is required. The emissions cost calculation was undertaken following the AQEMGFS guidance¹⁵ and Defra's Damage Cost guidance²¹. The latest Defra air quality Damage Cost Appraisal Toolkit²² was also utilised.

Emissions Cost Calculation

- 3.34 The emissions calculation utilised the latest Defra Emission Factor Toolkit (EFT) (version 13.1)²³ to determine the total transport related emissions (NO_x and PM_{2.5}) that would be generated by the proposed development.
- 3.35 Defra provides 'damage costs'²¹, 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.
- 3.36 Defra's Appraisal Toolkit²², which incorporates the latest damage cost values, was used in the calculation. The principal of the calculation is summarised in the equation below:

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

- 3.37 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.
- 3.38 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 'emissions cost' to be offset.

20 Department for Communities and Local Government. (2015). *The Town and Country Planning (Development Management Procedure) (England) Order 2015*, Article 2. Available at: <https://www.legislation.gov.uk/uksi/2015/595/article/2>

21 Defra. (2025). *Air Quality Appraisal: Damage Cost Guidance*.

22 Defra. (2025). *Air Quality Damage Cost Appraisal Toolkit*.

23 Department for Environment, Food & Rural Affairs. (2025). *Emission Factor Toolkit (version 13.1)*.

4. Baseline Assessment

- 4.1 This chapter is intended to establish prevailing air quality conditions at and near the site.

UK-AIR Background Pollution

- 4.2 Predicted UK-AIR¹⁶ 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 closest to the site (grid reference: 531500, 123500).

Table 4.1: UK-AIR Annual Mean Background Concentrations of Pollutants at the Site from 2021 to 2030

Pollutant	Predicted Background Concentration (µg.m ⁻³)										Air Quality Standard Concentration (µg.m ⁻³)
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
NO ₂	9.1	8.9	8.6	8.3	8.1	7.8	7.5	7.2	6.9	6.6	40
PM ₁₀	10.4	10.4	10.3	10.2	10.1	10.0	10.0	9.9	9.8	9.7	40
PM _{2.5}	6.4	6.4	6.3	6.2	6.1	6.1	6.0	5.9	5.9	5.8	20

- 4.3 The data in Table 4.1 show that annual mean background concentrations of NO₂, PM₁₀ and PM_{2.5} in the vicinity of the site, between 2021 and 2030, are predicted to be well below their respective AQs.
- 4.4 The data show that in 2027, the proposed development's earliest projected opening year, annual mean NO₂, PM₁₀ and PM_{2.5} concentrations are predicted to be below their respective AQs by approximately 81%, 75% and 70%, respectively. In 2030, the annual mean PM_{2.5} concentration is predicted to be below the 10 µg.m⁻³ interim target⁴ by approximately 40%.
- 4.5 In 2027, annual mean NO₂ and PM₁₀ concentrations are predicted to be below their respective thresholds that indicate exceedance of their short-term AQOs by approximately 88% and 69%, respectively.
- 4.6 As such, background pollutant concentrations are predicted to be below their respective AQs and the future legal limit for PM_{2.5}, at the site.
- 4.7 Concentrations of all three 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 local, national and international plans to reduce emissions across all sectors.

Local Sources of Monitoring Data

- 4.8 Air quality monitoring is considered an appropriate source of data for the purposes of describing baseline air quality. At the time of writing, the most recent ASRs^{17,18} released by MSDC and LDC included local pollutant monitoring data from 2024 and 2023, respectively.

Automatic Monitoring

- 4.9 MSDC and LDC undertook automatic monitoring of NO₂, PM₁₀ and / or PM_{2.5} at 2 sites across the two authority boundaries in their latest year of reported monitoring. The most recent available monitoring data from MSDC's and LDC's latest ASRs are included in Table 4.2.

Table 4.2: Monitoring Data from Local Automatic Monitors

Monitor	Type	Distance from the Site (km)	Local Authority	Pollutant	Annual Mean Pollutant Concentration (µg.m ⁻³)				
					2020	2021	2022	2023	2024
MSAQ43	R	16.3	MSDC	NO ₂	-	-	24.3	21.1	18.7
				PM ₁₀	-	-	18.8	17.0	16.3
LS8	R	16.7	LDC	NO ₂	-	-	12.1	13.4	-
				PM ₁₀	-	-	15.6	14.3	-
				PM _{2.5}	-	-	9.8	8.3	-

Note: "R" = Roadside.

- 4.10 The data in Table 4.2 show that annual mean NO₂, PM₁₀ and PM_{2.5} concentrations recorded by MSDC's and LDC's automatic monitors did not exceed their respective AQSs from 2022 to 2024. There is a general decline in annual mean PM₁₀ and PM_{2.5} concentrations recorded over recent years. Automatic monitor MSAQ43 recorded a general decline in annual mean NO₂ concentrations from 2022 to 2024, whilst automatic monitor LS8 recorded a general increase from 2022 to 2023.
- 4.11 Automatic monitor MSAQ43 is the closest automatic monitor to the site and is located in a roadside setting, adjacent to the A22 London Road, 16.3km north-east of the site. This automatic monitor recorded annual mean NO₂ and PM₁₀ concentrations of 18.7 µg.m⁻³ and 16.3 µg.m⁻³ in 2024, respectively; which are 53.3% and 59.3% below their respective long-term AQSs.
- 4.12 In 2024, automatic monitor MSAQ43 recorded no exceedances of the respective short-term AQSs for NO₂ and PM₁₀, thereby meeting the short term AQOs for these pollutants.
- 4.13 Automatic monitor LS8 is located in a roadside setting, adjacent to the A2029 East Street and North Street, 1.7km south-east of the site. This automatic monitor recorded an annual mean NO₂, PM₁₀ and PM_{2.5} concentration of 13.4 µg.m⁻³, 14.3 µg.m⁻³ and 8.3 µg.m⁻³ in 2023, the latest year of monitoring, respectively; which are 66.5%, 64.3% and 58.5% below their respective long-term AQSs.

- 4.14 In 2023, automatic monitor LS8 recorded no exceedances of the respective short-term AQSs for NO₂ and PM₁₀, thereby meeting the short term AQOs for these pollutants.
- 4.15 The annual mean PM_{2.5} concentration recorded at this automatic monitor in 2023 is below the 10.0 µg.m⁻³ future legal limit by 17.0%.

Non-Automatic Monitoring

- 4.16 MSDC operate a non-automatic NO₂ diffusion tube monitoring network comprising 35 sites within their authoritative boundary. The most recent available monitoring data from MSDC's latest ASR for diffusion tubes within 3km of the site are included in Table 4.3.

Table 4.3: Monitoring Data from Local NO₂ Diffusion Tubes

Monitor	Type	Distance from the Site (km)	NO ₂ annual mean concentration (µg.m ⁻³)				
			2020	2021	2022	2023	2024
MSAQ1	R	1.7	12.7	14.8	14.4	12.9	12.3
MSAQ28	S	2.0	22.2	22.4	24.5	21.4	21.0
MSAQ45	R	2.5	-	-	-	35.0	32.6
MSAQ47	R	2.5	-	-	-	-	24.3
MSAQ48	R	2.6	-	-	-	-	13.2

Note: "R" = Roadside; "S" = Suburban.

- 4.17 The data in Table 4.3 show that annual mean NO₂ concentrations were well below the 40 µg.m⁻³ AQS from 2020 to 2024 at all diffusion tubes in the vicinity of the site. There is a general decline in annual mean concentrations of NO₂ recorded from 2020 to 2024, where there is more than one year of monitoring data.
- 4.18 Diffusion tube MSAQ1 is the closest diffusion tube to the site, located in a roadside setting, adjacent to the B2272 South Road, approximately 1.7km east of the site. In 2024, Diffusion tube MSAQ1 recorded an annual mean NO₂ concentration of 12.3 µg.m⁻³; which is 69.3% below the 40 µg.m⁻³ AQS and 79.5% below the 60 µg.m⁻³ threshold that indicates exceedances of the short-term AQO for NO₂.
- 4.19 Diffusion tube MSAQ45 is located in a roadside setting, adjacent to the A272 Cuckfield Road, approximately 2.5km west of the site. Diffusion tube MSAQ45 recorded the highest annual mean NO₂ concentration of 32.6 µg.m⁻³ in 2024; which is 18.5% below the 40 µg.m⁻³ AQS and 45.7% below the 60 µg.m⁻³ threshold that indicates exceedances of the short-term AQO for NO₂.

Summary

- 4.20 UK-AIR modelled predictions and local monitoring data suggest that pollutant concentrations in the vicinity of the site are expected to be well below relevant AQSs, with a general improvement in local air quality observed in recent years.

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 Where the total volume of buildings to be demolished is below $12,000\text{m}^3$, the dust emission magnitude category for demolition can be defined as *Small*, according to the IAQM guidance¹². The volume of buildings to be demolished on site is expected to be approximately $1,160\text{m}^3$, which falls comfortably within the IAQM's *Small* dust emission magnitude category for demolition.
- 5.4 Mobile crushing equipment is not expected to be used on site during demolition, and the tallest structures set to be demolished are expected to be below 6m in height, falling into the IAQM's *Small* dust emission category.
- 5.5 Therefore, the overall dust emission magnitude for the demolition phase is considered to be *Small* with reference to the IAQM guidance.

Earthworks

- 5.6 Where the total area of the site is below $18,000\text{m}^2$, the dust emission magnitude category for earthworks can be defined as *Small*, according to the IAQM guidance. The total site area is $17,094\text{m}^2$, which falls within the IAQM's *Small* dust emission magnitude category for earthworks.
- 5.7 No bunds are expected to be formed on site.
- 5.8 Fewer than five heavy earth moving vehicles are expected to be operating on site at any one-time during the earthworks phase, falling into the IAQM's *Small* dust emission category.
- 5.9 Therefore, the overall dust emission magnitude for the earthworks phase is considered to be *Small* with reference to the IAQM guidance.

Construction

- 5.10 During construction, activities that have the potential to cause emissions of dust may include sandblasting and concrete batching. Localised use of cement powder and general handling of construction materials (such as aggregates for road construction) also have the potential to generate dust emissions, as does the effect of wind-blow from stockpiles of friable materials.
- 5.11 It is understood that concrete batching and sandblasting will not be undertaken on-site during the construction of the proposed development. Construction materials will predominantly include: steel, timber and glulam (glued laminated timber) for the frame elements; cavity masonry; piled foundations; concrete slab, block and beam floors; and a glulam roof structure.
- 5.12 The total volume of structures to be constructed at the site is expected to be below 12,000m³, which falls within the IAQM's *Small* dust emission category.
- 5.13 Considering the above, the overall dust emission magnitude for the construction phase is considered to be *Small* with reference to the IAQM guidance.

Trackout

- 5.14 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.
- 5.15 The site is expected to be accessed via Chownes Mead Lane. On-site, it is unknown whether there will be unpaved road surfaces but it is considered likely that existing roads on-site will be utilised.
- 5.16 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.
- 5.17 Therefore, the dust emission magnitude for the trackout phase is considered to be *Small* with reference to the IAQM guidance.

Emission Magnitude Summary

- 5.18 A summary of the dust emission magnitude as a result of the activities of Demolition, Earthworks, Construction, and Trackout, as specified in the IAQM guidance, and as discussed above, is provided in Table 5.1 below.

Table 5.1: Overall Dust Emission Magnitude for Each Phase

Activity	Dust Emission Magnitude
Demolition	Small
Earthworks	Small
Construction	Small

Activity	Dust Emission Magnitude
Trackout	Small

Sensitivity of the Area

- 5.19 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.
- 5.20 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.
- 5.21 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.
- 5.22 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.
- 5.23 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: Approximate Number of High Sensitivity Receptors Within 250m of the Site

Distance to site (m)	Number of High Sensitivity Receptors	Receptor Details
<20	3	Residencies at Chownes Mead Lane
<50	3	Residencies at Chownes Mead Lane
<100	11	Residencies at Chownes Mead Lane
<250	33	Residencies in the wider area

- 5.24 Figure 3 shows that the predominant wind direction at Charlwood (2024), the closest relevant meteorological station to the site, is from the south-west with occasional winds from the north-east. As shown in Table 5.2 (above), there are less than 10 high sensitivity residential receptors within 20m of the site. As such, the sensitivity of the area to dust soiling impacts is defined as *Medium*, with reference to the IAQM guidance¹².
- 5.25 Local monitoring data and UK-AIR predicted annual mean concentrations of PM₁₀ are below 24 µg.m⁻³ at the site²⁴. This provides a good indication that PM₁₀ concentrations for both annual mean and daily mean metrics are likely to be below the respective AQSs at the site and adjacent uses. Therefore, the sensitivity of the area to human health impacts is defined as *Low*, according to the IAQM guidance¹².
- 5.26 Review of the MAGIC website¹⁹, which incorporates Natural England's interactive maps, has identified a region of ancient woodland, located directly east of the site. As the ancient woodland is populated with particularly important plant species, where its dust sensitivity is uncertain or unknown, the ancient woodland can be identified as a medium sensitivity receptor, with reference to the IAQM guidance¹². Therefore, based on the distance from the site and the sensitivity of the ancient woodland, the construction of the proposed development can be considered to have a *Medium* impact on local ecological sites.

Risk of Impacts

- 5.27 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
Demolition	<i>Low Risk</i>	<i>Negligible Risk</i>	<i>Low Risk</i>
Earthworks	<i>Low Risk</i>	<i>Negligible Risk</i>	<i>Low Risk</i>
Construction	<i>Low Risk</i>	<i>Negligible Risk</i>	<i>Low Risk</i>
Trackout	<i>Low Risk</i>	<i>Negligible Risk</i>	<i>Low Risk</i>

²⁴ The 24.0µg.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 24.0µg.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.

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

Site Specific Mitigation

- 5.29 The GLA guidance¹³ 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.
- 5.30 In addition, the IAQM¹² lists recommended mitigation measures for low, medium and high dust impact risk sites. The highly recommended mitigation measures for *Low Risk* sites are included in Appendix A of this report.

- 5.31 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

- 5.32 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*, thus complying with the requirements of the National Planning Policy Framework⁶ by directly and appropriately mitigating the “*potentially unacceptable impacts (such as dust) during construction for nearby sensitive locations*”.

6. Operational Phase Impact

Impacts on Local Air Quality

- 6.1 The EPUK & IAQM planning guidance¹¹ provides indicative threshold for changes in traffic flows, which would require a detailed pollutant dispersion modelling assessment to be undertaken, where a site is located outside of an Air Quality Management Area (AQMA). These are a change in Annual Average Daily Traffic (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.
- 6.2 Information provided by the project's transport consultants, Motion Consultants Limited, indicates that the proposed development is anticipated to generate 150 AADT trips. It is understood that most of the generated trips will be LDVs, with little to no increase in HDVs beyond the site's extant use.
- 6.3 Therefore, scheme-generated traffic flows are not anticipated to exceed the EPUK and IAQM indicative traffic change thresholds described above, and a detailed pollutant dispersion modelling assessment is not considered necessary to assess the potential impacts on local air quality.

Site Suitability

- 6.4 The AEA *Diffusion Tubes for Ambient NO₂ Monitoring: Practical Guidance*¹⁴ 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.
- 6.5 The primary sources of air pollution within the vicinity of the site are vehicles travelling on the local road network, particularly on the A272 Isaac's Lane, located approximately 60m north-east of the site, and Chownes Mead Lane, directly north-east of the site.

- 6.6 Based on distance alone, sensitivity uses at the site can be anticipated to be located in an urban background setting with respect to the A272, with reference to the AEA guidance¹⁴. Sensitivity uses at the site are located 2m from Chownes Mead Lane at the closest point and, therefore, some receptors at the site can be anticipated to be located in a roadside setting, with reference to the AEA guidance.
- 6.7 Following LAQM(TG22) guidance¹⁰, it is expected that pollutant concentrations across the site are likely to be similar to those identified at roadside locations within the local area.
- 6.8 MSDC and LDC undertook roadside monitoring of NO₂, PM₁₀ and PM_{2.5} in their latest years of monitoring, with all recorded concentrations being below their respective annual mean AQSs and the future legal target for PM_{2.5}, from 2020 to 2024.
- 6.9 Automatic monitors MSAQ43 and LS8 did not record any exceedances of the 200 µg.m⁻³ 1-hour mean and the 50 µg.m⁻³ 24-hour mean short-term AQOs for NO₂ and PM₁₀, respectively, in their latest year of available monitoring data. MSDC's roadside diffusion tubes within the vicinity of the site all recorded annual mean NO₂ concentrations that were below the 60 µg.m⁻³ threshold that indicates an exceedance of the 200 µg.m⁻³ 1-hour mean AQS for NO₂.
- 6.10 Local monitoring data predominantly shows a decline in annual mean NO₂, PM₁₀ and PM_{2.5} concentrations over recent years.
- 6.11 UK-AIR predicted background concentrations of NO₂, PM₁₀ and PM_{2.5} anticipate annual mean concentrations to be consistently below: their respective AQSs; the thresholds that indicate an exceedance of the short-term AQOs for NO₂ and PM₁₀; and the 10 µg.m⁻³ future legal limit for PM_{2.5} from 2021 to 2030.
- 6.12 Considering the above, it is reasonable to assume that air quality across the site is likely to achieve the key AQSs for NO₂, PM₁₀ and PM_{2.5}. As such, the site is expected to be suitable for the proposed development, in air quality terms.

Planning Policies

- 6.13 Considering the above, the proposed development is not anticipated to result in a significant impact on local air quality or to introduce receptors to an area of poor air quality, thereby complying with The Air Quality (England) (Amendment) Regulations 2002², The Environment (Miscellaneous Amendment) (EU Exit) Regulations 2020³, the NPPF⁶ and the national PPG⁸. It is also anticipated that future legal limit for PM_{2.5}, outlined by Defra's *Environmental Improvement Plan 2025*⁴, will likely be achieved by 2030.

- 6.14 It is expected that the Proposed Development will comply with MSDC's local planning policy where air quality, in terms of site suitability, is directly referenced. Local Policy *DP29: Noise, Air and Light Pollution* requires that developments do not cause unacceptable levels of air pollution and local air quality / land uses are not likely to cause adverse air quality impacts to receptors at the proposed development. As determined above, the proposed development is not anticipated to result in a significant impact on local air quality or to introduce sensitive receptors to an area of poor air quality, therefore complying with MSDC's Local Policy *DP29*.
- 6.15 Considering the above, the proposed development is anticipated to be compliant with relevant national and local policies, where directly applicable to this Air Quality Assessment, with regards to site suitability and its impact on local air quality.

7. Emissions Mitigation Assessment

Emissions Cost Calculation

- 7.1 Following the December 2025 update to Defra's Emissions Cost Calculation guidance²¹, the emissions cost calculation below has been carried out to estimate the monetary value of the impact of NO_x and PM_{2.5} emitted by the proposed development's operational traffic.
- 7.2 To evaluate the scale of a proposed development's total emissions, Defra recommends an emissions 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 Emissions Factor Toolkit²³ 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 below. The anticipated opening year of the proposed development is 2028, so the five-year period used in the calculation runs from 2027 to 2031, inclusive.

Table 7.1: Calculation Inputs

Input	Value	Unit	Source/Guidance
Trip Length	10	km	AQEMGFS
Development Traffic Flow	150 (~1% HDVs)	AADT	Paul Basham Associates
EFT Road Type	Urban (not London)	-	EFT
EFT Year	2027 – 2031	-	In line with EFT estimates
Average Speed	50	km.hr ⁻¹	AQEMGFS
Appraisal period	5	years	AQEMGFS

- 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 guidance²¹. Central estimate damage costs for 'Road Transport Urban Medium' were based on Defra 2026 prices.

Table 7.2: Emission Cost Calculation for NO_x

	2027	2028	2029	2030	2031
NO _x increase (tonnes)	0.0826	0.0718	0.0617	0.0526	0.0447
Central Damage cost (NO _x)	£11,824	£11,824	£11,824	£11,824	£11,824
Adjusted Damage cost (NO _x)	£976	£836	£708	£595	£498
Total	£3,613				

Table 7.3: Emission Cost Calculation for PM_{2.5}

	2027	2028	2029	2030	2031
PM _{2.5} increase (tonnes)	0.0098	0.0096	0.0095	0.0093	0.0092
Central Damage cost (PM _{2.5})	£101,304	£101,304	£101,304	£101,304	£101,304
Adjusted Damage cost (PM _{2.5})	£990	£959	£931	£905	£882
Total	£4,667				

7.6 The total emissions costs are summarised as follows:

NO_x emission 'damage' (cost, £) = £3,613 +

PM_{2.5} emission 'damage' (cost, £) = £4,667

TOTAL (cost, £) = £8,280

Mitigation

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

7.8 As the development is considered to be 'Major' in accordance with The Town and Country Planning guidance²⁰ and the Sussex-Air guidance¹⁵, the proposed development should meet the electric vehicle charging point (EVCP) guidance set out in West Sussex County Council's (WSCC) *Guidance on Parking at New Developments*²⁵ and the latest Part S Building Regulations.

7.9 EVCP is currently anticipated to be provided for 20% of the proposed development's parking spaces, which is currently estimated to be 79 spaces.

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

- 7.10 In addition to the provision of EVCP, the developer is committed to providing the following mitigation:
-  Provision of secure cycle storage, equating to 20 cycle parking spaces;
 -  A Travel Plan that encourages a shift to low- or no-emissions transport modes;
 -  Designated parking spaces for low emission vehicles;
 -  Public transport subsidy for employees;
 -  Minibus pick up / drop off for employees; and
 -  Incentives for the take-up of low emission technologies and fuels.
- 7.11 It is anticipated that the mitigation package proposed would likely offset the proposed development's calculated 'emission cost' and therefore minimise potential incremental air quality impacts arising from the proposed development's operation.
- 7.12 It is understood that the developer is committed to fully offsetting the above calculated 'emissions cost'.

Policy Context

- 7.13 Considering the above, the proposed development is anticipated to meet the requirements of the AQEMGFS guidance¹⁵, with regards to air quality pollution mitigation, so long as the mitigation package fully off-sets the 'emissions cost', calculated above.
- 7.14 Whilst not directly required by MSDC's Local Policy *DP29*, by providing the above mitigation package, with the aim of reducing the proposed development's impact on local air quality, the proposed development intends to mitigate contributions towards levels of air pollution, as defined by Sussex-based policy. Therefore, the above mitigation package is anticipated to support the proposed development's compliance with Local Policy *DP29*.
- 7.15 Therefore, assuming that the developer provides a mitigation package that off-sets the 'emissions cost', the proposed development is anticipated to comply with local and Sussex-based policy and guidance, where relevant to Emissions Mitigation Assessments and associated mitigation measures.

8. Summary & Conclusions

- 8.1 Predicted UK Air Information Resource background concentrations and local air quality monitoring results from the wider area suggest that air pollution concentrations within the vicinity of the site are likely to be below the relevant UK Air Quality Strategy concentrations.
- 8.2 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.
- 8.3 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 local air quality, thus complying with local and national policy.
- 8.4 To mitigate future operational development emissions, the proposed development includes mitigation measures as listed in Section 7 of this report. The list of mitigation measures is anticipated to include a reasonable level of air quality mitigation to offset the proposed development's calculated 'emissions cost', to comply with local and Sussex-based policy.
- 8.5 Therefore, providing that the value of the proposed development's mitigation package equates to the calculated 'emissions cost', 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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Figure 2: Construction Phase Receptors

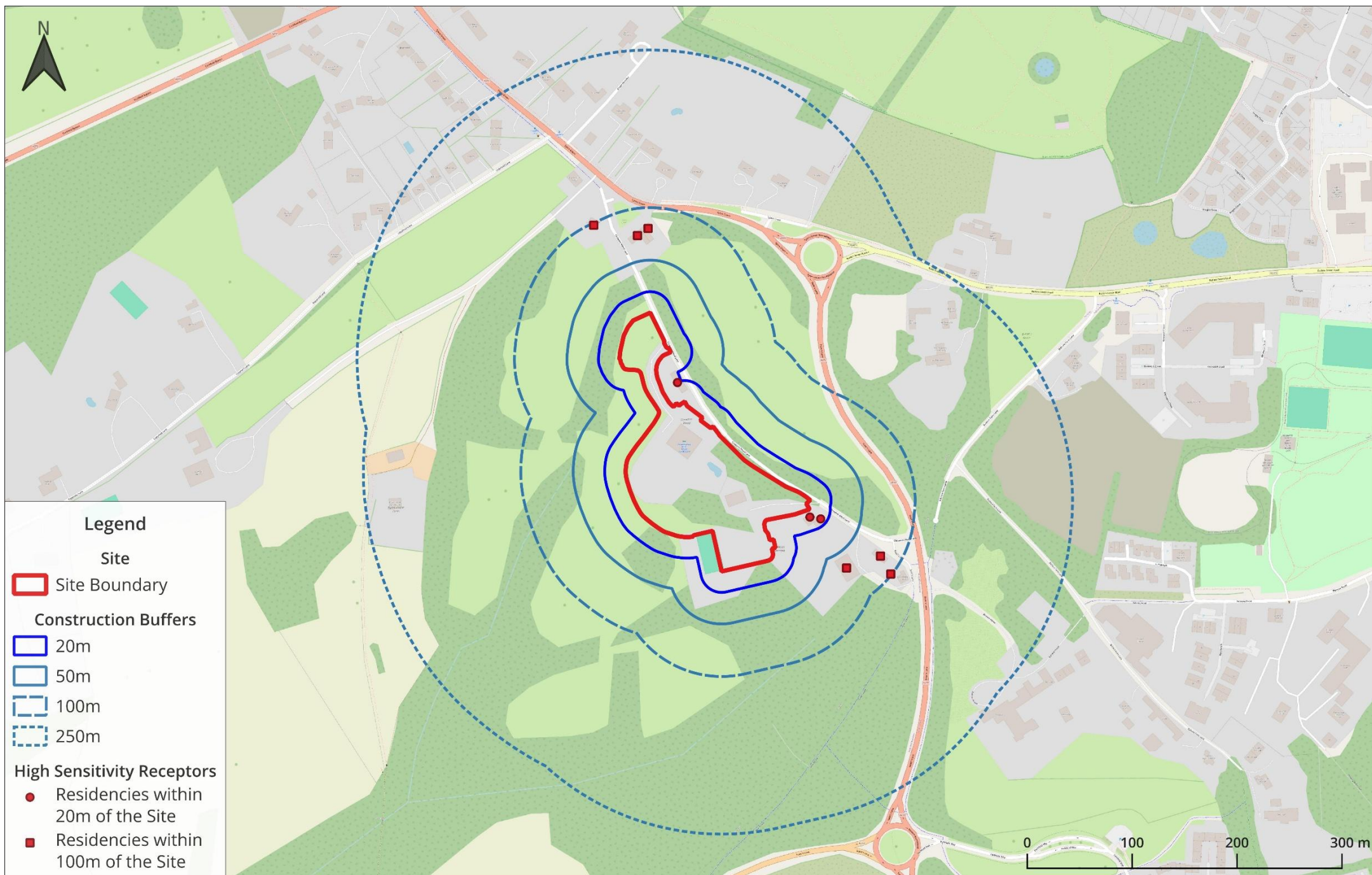


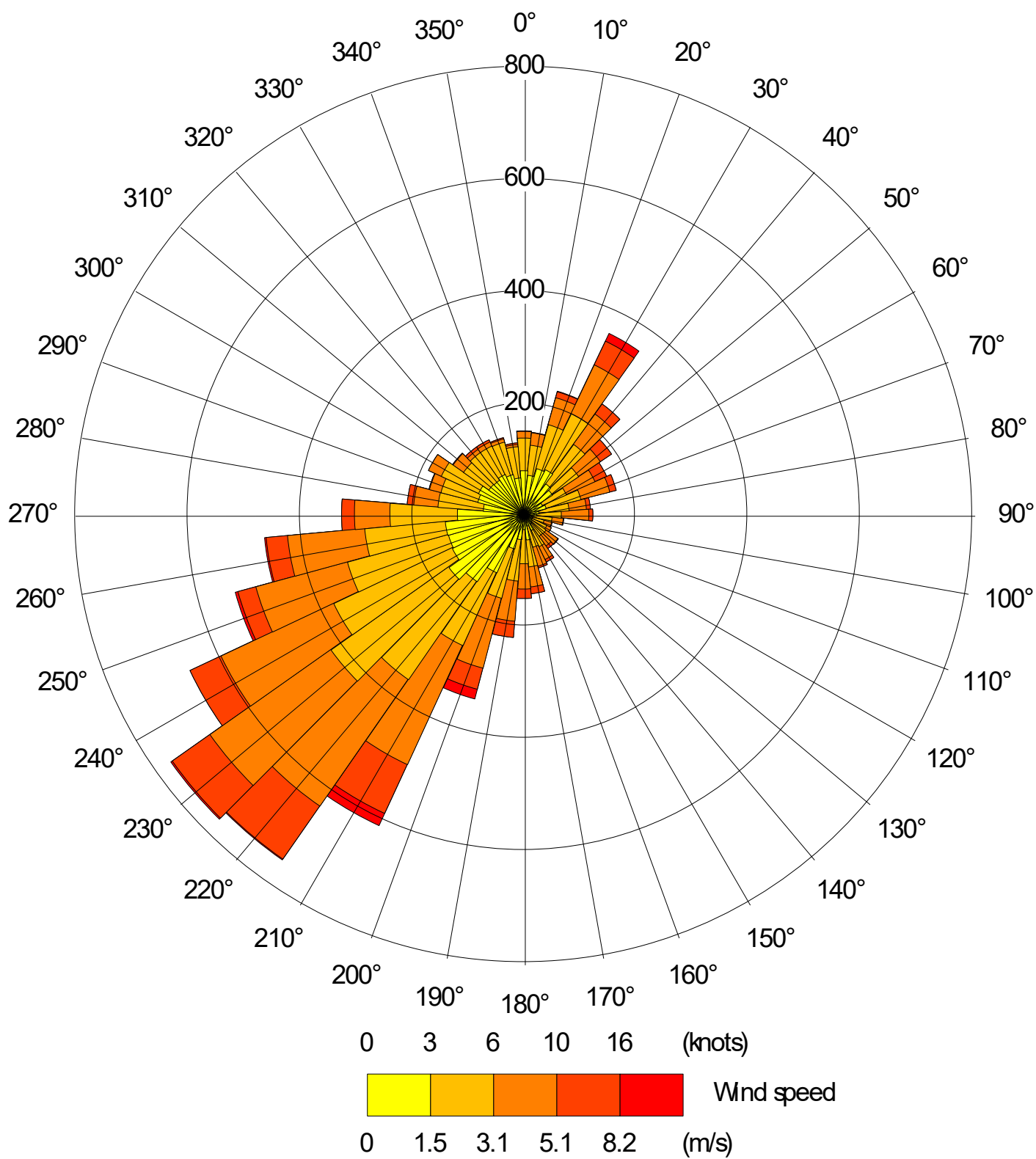
Figure 2: Construction Phase

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Figure 3: Wind Rose for Charlwood (2024)



Appendix A: IAQM Recommended Mitigation Measures

Appendix A: IAQM Highly Recommended Mitigation Measures for sites with a Low Risk of Dust Impacts

Please refer to the IAQM's *Guidance on the assessment of dust from demolition and construction*¹² and *Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites* (2018)²⁶ for further, "desirable", mitigation measures.

Communications

- ➊ 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.
- ➋ Display the head or regional office contact information.

Site Management

- ➌ 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.
- ➍ Make the complaints log available to the local authority when asked.
- ➎ 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

- ➏ 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.
- ➐ 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.
- ➑ 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 construction¹².

Preparing and Maintaining the Site

- ➒ Plan site layout so that machinery and dust causing activities are located away from receptors, as far as possible.
- ➓ Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- ➔ Avoid site runoff of water or mud.

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

26 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

- 🌱 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.

Waste Management

- 🌱 Avoid bonfires and burning of waste materials.

Demolition

- 🌱 Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.
- 🌱 Avoid explosive blasting, using appropriate manual or mechanical alternatives.
- 🌱 Bag and remove any biological debris or damp down such material before demolition.



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