



PLANNING STAGE AIR QUALITY ASSESSMENT

LAND AT NORTHLANDS

FAIRFAX PROPERTIES

NOVEMBER 2025

PLANNING STAGE AIR QUALITY ASSESSMENT LAND AT NORTHLANDS

Our Ref: 8605_001R_2-0_HF



Client: Fairfax Properties

Report by: Anderson Acoustics Limited
Tempus Wharf
33A Bermondsey Wall West
London
SE16 4ST

www.andersonacoustics.co.uk

T: 07377 720937

Date: 18 November 2025

Project No: 8605

Status: Second Issue

Author	Harry Foster Air Quality Consultant
---------------	---

18 November 2025

Reviewed	Adam Glass Principal Environmental Consultant
-----------------	---

18 November 2025

Approved	Adam Glass Principal Environmental Consultant
-----------------	---

18 November 2025

This document has been prepared using all reasonable skill and care. Anderson Acoustics Ltd accepts no responsibility or liability for any third-party data presented in this report or used to draw any conclusions. This document is confidential to the named client above, and Anderson Acoustics Ltd accepts no responsibility or liability resulting from third-party use of this document or for a purpose other than for which it was commissioned.

REVISION HISTORY

Version	Comments	Changes made by	Approved by
1.0	First issued version	HF	AG
2.0	Minor updates	HF	AG

CONTENTS

1	INTRODUCTION	5
2	AIR QUALITY PLANNING POLICY	5
3	AIR QUALITY – POLLUTANTS FOR CONSIDERATION	7
4	SITE SETTING & PROPOSED DEVELOPMENT	9
5	BASELINE CONDITIONS	11
6	AIR QUALITY ASSESSMENT	13
7	CONSTRUCTION DUST RISK ASSESSMENT	15
8	CONSTRUCTION MITIGATION MEASURES	21
9	EMISSIONS MITIGATION ASSESSMENT	24
10	CONCLUSIONS	25

1 INTRODUCTION

This report has been prepared in support of the outline planning application submitted by Fairfax Properties to Horsham District Council (HDC). The application seeks outline planning permission for the construction of 56 residential units, providing a mix of one, two, three and four bedroom dwellings with associated public open space, car parking and landscaping.

The proposed development will not include any combustion plant (or will use ultra-low NOx boilers) to meet the energy demand for hot water and space heating. It is however expected that the development will result in a net increase of daily vehicle movements. The air quality effects of these additional vehicle movements are addressed later within this document.

Air quality planning policy relevant to the assessment is presented and briefly discussed in Section 2 of this report. The pollutants for consideration, along with air quality standards, are presented in Section 3. The site settings and proposed development are described in Section 4, and baseline air quality concentrations are reviewed in Section 5. The air quality assessment and site suitability are presented in Section 6. The dust risk assessment and management plan are presented in Section 7 along with construction and operational mitigation measures in Section 8. The emissions mitigation assessment is presented in Section 9 and the conclusions are presented in Section 10.

2 AIR QUALITY PLANNING POLICY

2.1 National and Regional Planning Policy and Guidance

2.1.1 National Planning Policy Framework (NPPF)

The NPPF¹ presents the Government's planning policies for England and how these are expected to be applied, with the development of local and neighbourhood plans under the framework. Paragraph 187 e of the NPPF identifies that the planning system should aim to conserve and enhance the natural and local environment by *"preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans;..."*

Paragraph 199 states *"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."*

2.1.2 Planning Practice Guidance (PPG)

PPG² for air quality has been produced that gives an indication of details the local authority may want to consider when there are concerns about air quality, special requirements such as the height of chimneys and securing mitigation measures through planning conditions and obligations. The PPG considers that dust can also be a planning concern for effects on local amenity. The guidance considers that assessments should be proportional to the nature and scale of development proposed and the level of concern about air quality. The mitigation of air quality impacts and effects is to depend on the proposed development and should be proportionate to the likely impact.

¹ Ministry of Housing, Communities & Local Government. National Planning Policy Framework. 2024.

² Department for Communities and Local Government. 2019. Planning Practice Guidance – Air Quality. Revision date November 2019.

2.1.3 The IAQM's The Control of Dust and Emissions During Construction and Demolition

The IAQM's Guidance on the assessment of dust from Demolition and Construction³ seeks to reduce emissions of dust, PM₁₀ and PM_{2.5} from construction and demolition activities. The guidance considers that during the pre-application phase, local authorities should provide and advise on controlling dust and emissions and should set out their requirements for the planning application.

During the detailed application phase, the developer should submit an Air Quality and Dust Risk Assessment (AQDRA), which should confirm that an Air Quality and Dust Management Plan (AQDMP), following the guidance in the SPG, will be submitted to the local authority prior to works commencing on-site.

The AQDRA provides a summary of the risk to soiling (dirt deposited on surrounding structures), health and the natural environment, and recommends emission control measures to be implemented as part of the scheme.

This document considers that the activities on construction sites can be divided into four types to reflect their different impact:

- i. demolition;
- ii. earthworks;
- iii. construction; and
- iv. trackout.

These activities can lead to three separate dust impacts:

- i. the risk of health effects due to an increase in exposure to PM₁₀;
- ii. annoyance due to dust soiling; and
- iii. harm to ecological receptors.

2.2 Local Air Quality Policy, Guidance and Local Air Quality Management

2.2.1 Air Quality and Emissions Mitigation Guidance for Sussex (2021)

Sussex' Air Quality and Emissions Mitigation Guidance⁴ is used as a reference guide to improve air quality across Sussex.

Guidance is given for air quality assessments, which tends to be aligned with the guidance provided by the IAQM. It also states that emission mitigation assessments are required for developments that are:

- Classed as a major development, as defined by the Town and Country Planning Order;
- Within an Air Quality Management Area (AQMA);
- In relevant proximity to an AQMA;
- In an area close to exceeding the Air Quality Objectives (AQO); or/and,
- B8 storage and distribution use class with a floorspace of 500 m² or more.

If the development does not match any of the above conditions, no mitigation damage cost assessment will be required. If the development does match any of the above conditions, a damage cost calculation should be undertaken to determine an appropriate sum to be spent on mitigating the impact on air quality over a 5-year period.

2.2.2 Horsham District Planning Framework (Local Plan) 2015

HDC adopted the planning framework⁵ in November 2015 and remains as the "current" local plan. The document includes policies covering housing, infrastructure, environmental protection, and community needs,

³ Institute of Air Quality Management. Guidance on the assessment of dust from Demolition and Construction. V2.2. 2024.

⁴ Sussex Air. Air Quality and Emissions Mitigation Guidance. 2021.

⁵ Horsham District Council. Horsham District Planning Framework. 2015.

and serves as the primary framework for planning decisions. Specific mention of air quality is included in Policy 24: Strategic Policy: Environmental Protection, which states:

“[...] Taking into account any relevant Planning Guidance Documents, developments will be expected to minimise exposure to and the emission of pollutants including noise, odour, air and light pollution and ensure that they:

1. *Address land contamination by promoting the appropriate re-use of sites and requiring the delivery of appropriate remediation;*
2. *Are appropriate to their location, taking account of ground conditions and land instability;*
3. *Maintain or improve the environmental quality of any watercourses, groundwater and drinking water supplies, and prevents contaminated run-off to surface water sewers;*
4. *Minimise the air pollution and greenhouse gas emissions in order to protect human health and the environment;*
5. *Contribute to the implementation of local Air Quality Action Plans and do not conflict with its objectives;*
6. *Maintain or reduce the number of people exposed to poor air quality including odour. Consideration should be given to development that will result in new public exposure, particularly where vulnerable people (e.g. the elderly, care homes or schools) would be exposed to the areas of poor air quality; and*
7. *Ensure that the cumulative impact of all relevant committed developments is appropriately assessed.”*

2.2.3 Storrington Air Quality Action Plan

HDC developed the Storrington Air Quality Action Plan (AQAP) following the declaration in December 2010 of an Air Quality Management Area (AQMA) covering parts of Storrington due to exceedances of the annual mean objective for nitrogen dioxide. The plan, most recently updated in 2020, sets out a range of measures to reduce pollutant concentrations throughout the town. The plan has developed actions that can be considered under the following broad topics:

- Alternative to private vehicle use;
- Environmental permits;
- Freight and delivery management;
- Policy guidance and development control;
- Promoting travel alternatives;
- Public information;
- Transport and planning infrastructure;
- Traffic management; and
- Vehicle fleet efficiency.

3 AIR QUALITY – POLLUTANTS FOR CONSIDERATION

3.1 Introduction

The pollutants for consideration within HDC are nitrogen dioxide (NO₂) and particulate matter (PM).

Oxides of nitrogen include nitric oxide (NO) and nitrogen dioxide (NO₂). NO₂ can cause inflammation of the lungs, lead to shortness of breath and coughing, and can reduce immunity to lung infections such as bronchitis. PM₁₀ is the fraction of PM that is 10 µm or less in size, and PM_{2.5} is the fraction of PM that is 2.5 µm or less in size. Both can be drawn into the lungs and can cause respiratory illness, cardiovascular illness and mortality.

3.2 Air Quality Standards

3.2.1 European and National Air Quality Standards

Air Quality Directive 2008/50/EC⁶ introduced legally binding “limit value” targets for the member governments to reduce air pollution to concentrations at which minimal effects on health are likely to occur. The directive was transposed into law through the Air Quality (England) Standards Regulations⁷ with air quality objectives and dates by which they were to be achieved. The sensitive locations at which the standards and objectives apply are places where the population is expected to be exposed to the various pollutants over the averaging period in question. For objectives to which an annual mean standard applies, the most common sensitive receptor locations used to measure concentrations are areas of residential housing, since it is reasonable to expect that people living in their homes could be exposed to pollutants over such a period of time. 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. The annual mean objectives are not relevant for the building façades of offices or other places of work where members of the public do not have regular access, kerbsides or gardens.

The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023⁸ defines that “*The annual mean concentration target is that by the end of 31st December 2040 the annual mean level of PM_{2.5} in ambient air must be equal to or less than 10 µg/m³ (“the target level”)*”. The Air Quality Strategy⁹ introduces interim targets to be achieved by January 2028. A summary of the objectives and targets is shown in Table 3.1, as amended by the Brexit regulations.

Table 3.1: Air Quality Objectives for NO₂, PM₁₀ and PM_{2.5}

Pollutant	Air Quality Objectives for Particulates and NO ₂		Date to be Achieved By
	Concentration	Measured as	
NO ₂	40 µg/m ³	Annual mean	31 December 2005
	200 µg/m ³ not to be exceeded more than 18 hours in a year	Hourly mean	31 December 2005
PM ₁₀	50 µg/m ³ not to be exceeded more than 35 times a year	24-hour mean	31 December 2004
	40 µg/m ³	Annual mean	31 December 2004
PM _{2.5}	10 µg/m ³	Annual mean	2040
	12 µg/m ³	Annual mean	January 2028
	20 µg/m ³	Annual mean	January 2020
	35% reduction in average population exposure relative to 2018	Annual mean	2040

⁶ Council Directive 2008/50/EC of 21 May 2008 on ambient air quality and cleaner air for Europe.

⁷ The Air Quality Standards Regulations 2010, SI 2010/1001

⁸ Statutory instrument. The Environmental Targets (Fine Particulate Matter) (England) Regulations. 2023.

⁹ Defra. Air Quality Strategy. Framework for local authority delivery. 2023.

	22 % reduction in average population exposure relative to 2018	Annual mean	2028
--	--	-------------	------

The Environment Act 1995¹⁰ introduced the requirement for local authority management of air quality. Part IV of this Act details the duties of local authorities in carrying out their local air quality management (LAQM) to tackle poor air quality. Part of the requirement is for the Review and Assessment of air quality and production of Updating and Screening Assessments (USA) and Status Reports. Where exceedance of these objectives is shown or anticipated, the local authority is required to produce an Air Quality Action Plan to reduce emissions and pollutant concentrations.

4 SITE SETTING & PROPOSED DEVELOPMENT

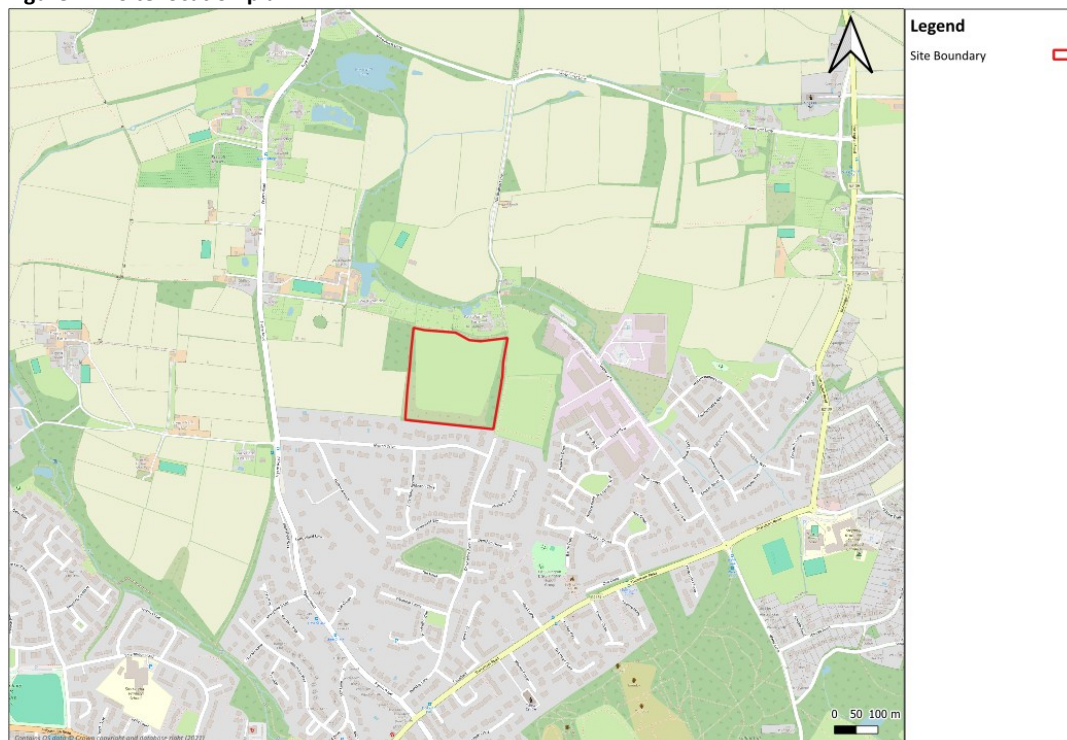
4.1 Site Setting

The site is approximately 4.36 hectares in size and is located in a rural background area, approximately 1 km north of Storrington Town centre, at national grid reference (NGR) ⁵09199, ¹15298 as shown in Figure 4.1. The site previously had agricultural land use and was most recently used for dog walking. The nearest major road, Thakeham Road (the B2139), is located approximately 450 m to the southeast of the site and therefore, it is expected that the site will experience concentrations of NO₂, PM₁₀ and PM_{2.5} similar to 'rural background' monitors and predictions.

The site is bounded:

- To the north by East Wantley Farm
- To the east by the consented development known as Land at Downsview Avenue (planning ref: DC/19/2015)
- To the south by residential properties along Melton drive with Storrington Town beyond
- To the west by agricultural land

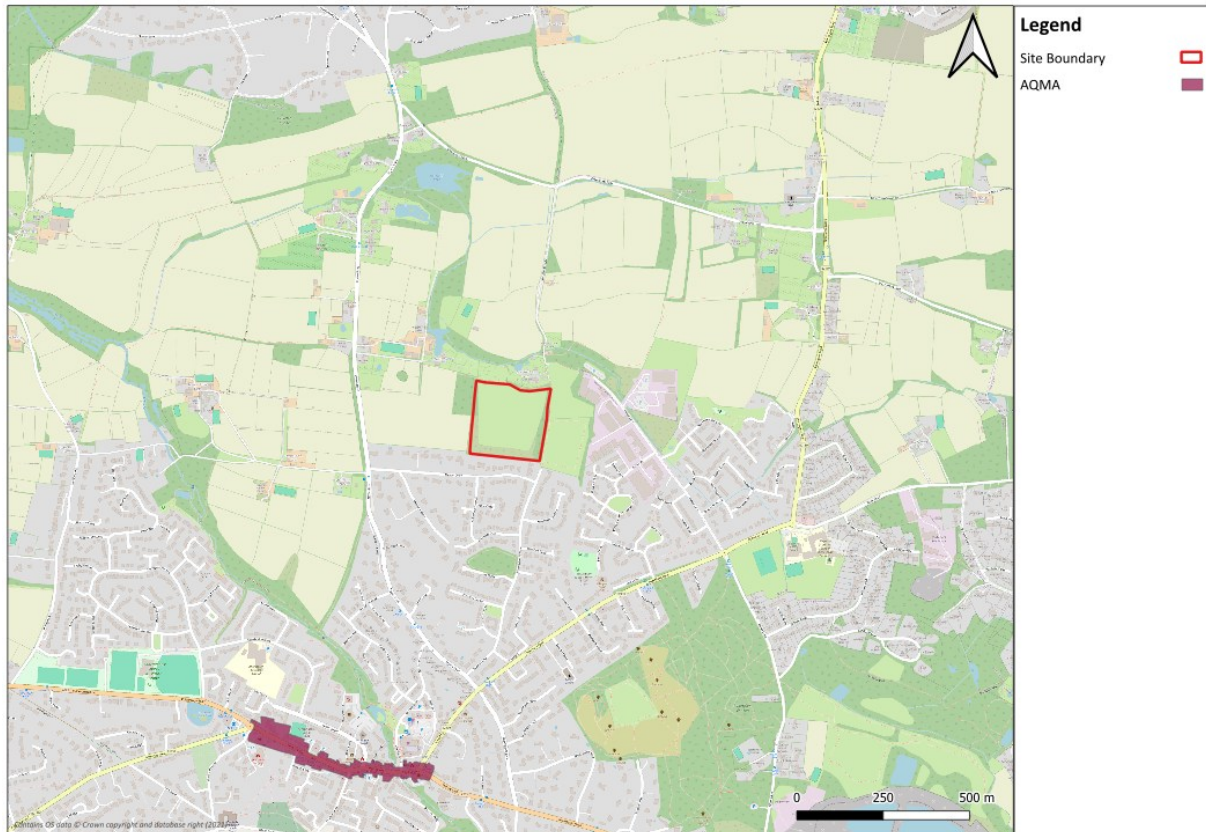
Figure 4.1: Site location plan



¹⁰ Office of the Deputy Prime Minister. The Environment Act. 1995.

The site is not situated within an Air Quality Management Area (AQMA), however, the Storrington AQMA is located approximately 900 m to the southwest of the site, as shown on Figure 4.2. The AQMA was declared by HDC in 2010 due to exceedances of annual mean NO₂ concentrations along West Street, High Street, Church Street and Marley's Hill. The proposed development will not result in a significant change in traffic along the local road network, and will not exceed the IAQM criteria for further assessment.

Figure 4.2: AQMA in proximity of the proposed development site.



4.2 Proposed Development

The proposed development of Land at Northlands to construct 56 residential dwellings with associated open space, landscaping and car parking. The Local Plan outlines *Strategic Policy HA18: Storrington Housing Allocations*, which identifies that the proposed site forms the eastern end of the housing allocation *STO1: Land to the north of Melton Drive and Land south of Northlands Lane*. As part of the development, vehicular access to the site will be via the continuation of the main access road through the adjacent consented Wates site to the east of the proposed development site.

With reference to the Transport Statement produced by i-Transport, the proposed development will incorporate associated parking and despite the exact numbers not being provided, the parking has been designed in line with local parking standards as set out in the West Sussex County Council's guidance on parking. The transport consultant provided details of the annual average daily traffic (AADT) generated by the proposed development, stating that the development will result in a maximum increase of 238 AADT on a road link (Fryern Road, south of the site). Section 6.4 shows the trip generation in more detail. The development will result in a total increase of 303 AADT.

As the planning application is an outline application, no proposed layout has been finalised as of yet.

5 BASELINE CONDITIONS

5.1 Local Authority Monitoring Data

Reference has been made to the following information sources:

- i. HDC 2025 Air Quality Annual Status Report (ASR) (published July 2025);
- ii. Defra UK-Air¹¹
- iii. Air Quality England¹².

5.1.1 Automatic Monitoring

The closest continuous monitoring station (CMS) is the roadside AURN monitor located at Manley's Hill in Storrington, known as HO4. It is located approximately 1 km to the south of the proposed site, which monitors concentrations of NO₂, PM₁₀, and PM_{2.5}. The next nearest CMS is located 14 km to the northeast of the site in Cowfold. This has not been included within this assessment as it is not seen as representative of conditions at the site. Table 5.1 shows the summary of the

Table 5.1. Summary of CMS annual mean concentrations in proximity of the development site.

Name (Site ID)	Distance to site (direction)	Type	Pollutant	Annual mean concentrations (µg/m ³)					AQO
				2020	2021	2022	2023	2024	
Storrington AURN (HO4)	1.00 km S	Roadside	NO ₂	17.4	20.1	17.6	17.4	16.6	40
			PM ₁₀	-	-	14.0	13.7	12.6	40
			PM _{2.5}	-	-	7.3	7.7	7.7	20

Table 5.1 shows that annual mean concentrations of NO₂, PM₁₀ and PM_{2.5} have remained below the respective AQO since at least 2020 at the CMS in Storrington. It is also important to note that pollutant concentrations at the proposed development site are expected to be substantially lower than those recorded at monitoring site HO4, as the site is not situated in close proximity to a major road.

The latest ASR shows that the hourly mean concentrations of NO₂ have not exceeded 200 µg/m³ on greater than the allowable 18 occasions permitted by the AQO at HO4 CMS in recent years.

5.1.2 Diffusion Tube Monitoring

HDC operates a diffusion tube network across the district to measure concentrations of NO₂. Several diffusion tubes in the vicinity of the proposed development are shown in Figure 5.1 and summarised in Table 5.2. Within the HDC ASR, the diffusion tubes are prefixed with "Storrington". This has been abbreviated to "STO" within this document.

¹¹ Defra UK Air Website (accessed 07/08/25 via <https://uk-air.defra.gov.uk>)

¹² Air Quality in England Website (accessed on 07/08/25 via <https://airqualityengland.co.uk/>)

Figure 5.1: Diffusion tubes in proximity of the development site

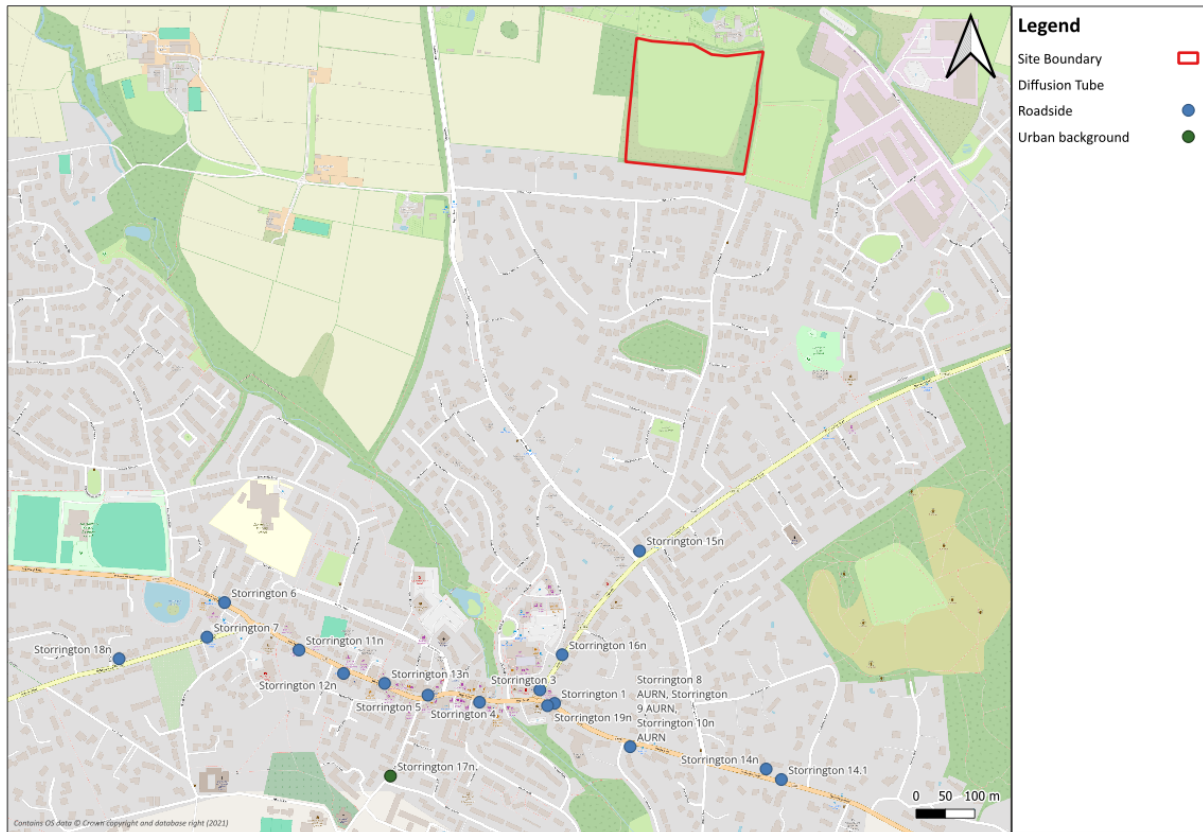


Table 5.2: Annual mean NO₂ concentrations from HDC diffusion tube monitoring

Site Name (ID)	Distance and direction from site (km)	Type	Annual mean NO ₂ concentrations (µg/m ³)					AQO
			2020	2021	2022	2023	2024	
STO15	0.63 S	Roadside	14.9	15.4	14.6	14.7	-	40
STO16	0.84 S	Roadside	18.9	19.2	18.4	17.5	15.1	
STO3	0.91 S	Roadside	23.3	24.8	23.7	21.8	19.3	
STO1	0.93 S	Roadside	31.6	24.3	32.9	32.9	28.6	
STO19	0.94 S	Roadside	38.4	39.6	38.1	37	32.7	
STO4	0.99 S	Roadside	25.5	25.9	26.7	24.5	23.3	
STO AURN*	0.99 S	Roadside	20.5	21.7	21.7	19.8	17.3	
STO17	1.12 SW	Urban background	9.8	10.0	9.6	8.2	7.6	

Exceedances of the annual mean AQO are shown in **bold**.

*Triplicate diffusion tube co-located with CMS HO4.

Table 5.1 shows that all diffusion tubes in the vicinity of the site stayed within the AQO in recent years, despite five of the eight sites being located within the Storrington AQMA. The nearest diffusion tube (STO15) is located adjacent to School Hill (B2139), where relatively high traffic volumes are expected; however, monitored concentrations remain below the AQO. As noted previously, the nearest major road to the development site is Thakeham Road, located approximately 450 metres to the southeast. Given this separation distance, pollutant concentrations at the development site are anticipated to be lower than those measured at the roadside diffusion tubes presented in Table 5.2, and more comparable to, but still lower than, concentrations recorded at the urban background site STO17.

5.2 DEFRA Background Maps

The UK-AIR background air pollutant concentration maps have also been considered. The background maps are presented in 1 km x 1 km grid squares across England, Wales, Scotland and Northern Ireland. The current version of the background maps (reference year 2021) contains estimates of NO_x, NO₂, PM₁₀ and PM_{2.5} for the period 2021 through to 2040.

The 2021 reference year background maps are based on monitoring and meteorological data for 2021. Predicted background concentrations for the reference year (2021) and current year (2025) are summarised in Table 5.3.

Table 5.3: Predicted annual mean background map concentrations for grid square centred at 520500, 151500.

Pollutant	Annual Mean Concentration (µg/m ³)		
	2021	2025	AQO
NO ₂	8.08	7.23	40
PM ₁₀	10.64	10.28	40
PM _{2.5}	6.33	6.01	20

All predicted background concentrations in Table 5.3 indicate that the pollutant concentrations at the proposed development site are well within the respective AQO and have decreased from 2021 to 2025.

5.3 Summary

The proposed development is located at a rural background location away from major roads, and therefore, it is not anticipated to be influenced significantly by road traffic emissions. Following a review of published information sources, baseline concentrations of NO₂, PM₁₀ and PM_{2.5} are all assumed to be below their respective long and short-term AQOs at the proposed development site, even at roadside locations.

6 AIR QUALITY ASSESSMENT

6.1 Introduction

Developments can introduce new receptors into areas with poor air quality. They can also increase emissions of air pollutants during their construction and operational phases, and so these matters are assessed.

6.2 Site Suitability

The site is not situated within an AQMA and is located over 450 m from the nearest significant source of pollution, Thakeham Road.

The proposed development comprises the construction of 56 residential units with associated car parking, landscaping, and open space.

The Local Air Quality Management (LAQM) technical guidance (TG22) states that likely exceedances of the AQO should be assessed in relation to 'the quality of the air at locations which are situated outside of buildings or other natural or man-made structures, above or below ground, and where members of the public are regularly present.'

The focus is therefore on those locations where members of the public are likely to be regularly present and are likely to be exposed for a significant amount of time appropriate to the averaging period of the objective.

Research carried out on behalf of DEFRA¹³ concluded that exceedances of the 1-hour mean for NO₂ are unlikely to occur where the annual mean is below 60 µg m⁻³. As annual mean concentrations are expected to be below

¹³ AEA Energy and Environment (2008). 'Analysis of the relationship between annual mean nitrogen dioxide concentration and exceedances of the 1-hour mean AQO Objective'

60 $\mu\text{g m}^{-3}$ in the vicinity and within the site, it can therefore be assumed that the short-term (1-hour) mean AQO is not at risk of being exceeded.

From the review of published information sources presented in Section 5, baseline concentrations of NO_2 , PM_{10} and $\text{PM}_{2.5}$ are anticipated to be well within the respective annual mean and short-term AQOs at the proposed development site.

The site is therefore considered to be suitable for the proposed development from an air quality perspective. Detailed Assessment with dispersion modelling to inform site suitability is not considered to be required, as concentrations are not indicated to be over 90% of the AQO and trip generation of the development does not exceed the IAQM guidance.

6.3 Construction Phase

The Proposed Development has the potential to result in emissions of dust and PM_{10} during the construction phase, prior to mitigation. The risk of impacts is assessed in Section 7, with recommended mitigation measures outlined in Section 8.

6.4 Operational Phase

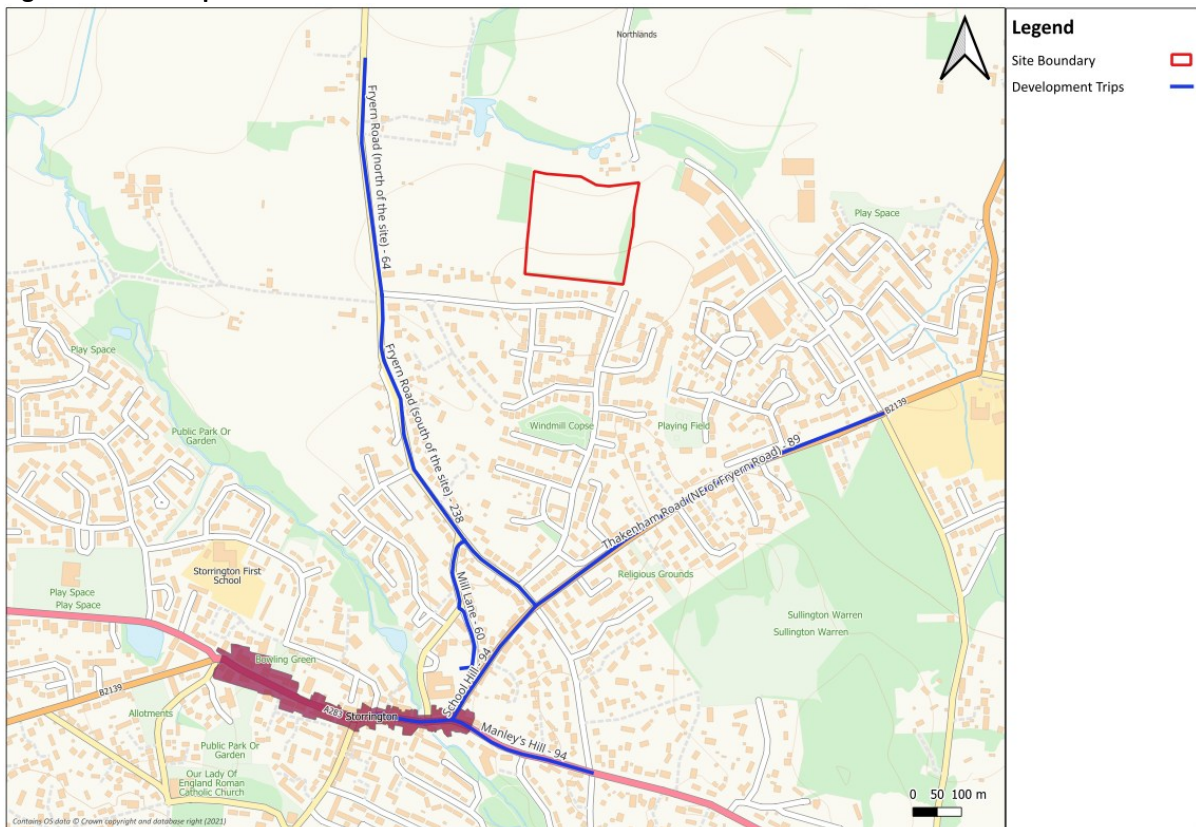
6.4.1 Traffic Emissions

The Transport Statement by i-Transport shows the proposed development is anticipated to result in an increase of 303 daily vehicle movements (238 on a singular road link), and therefore, a detailed assessment including dispersion modelling is not required for areas outside of an AQMA. The flows within the AQMA are under 100 AADT and so dispersion modelling of the flows within the AQMA is not required either. Table 6.1 and Figure 6.1 show the net increase of daily traffic associated with the proposed development. The development will introduce a new junction to create access to the development; however, this is not anticipated to significantly impact traffic flow and queuing is not expected to occur. Consequently, there will be no significant impact on local air quality.

Table 6.1: two-way AADT development flows on local road network

Road Link	Two-Way Development Flows			
	AM	PM	AM + PM	AADT
Fryern Road (north of the site)	7	6	13	64
Fryern Road (south of the site)	24	24	48	238
Fryern Road (north of the Mill Lane)	24	24	48	238
Fryern Road (south of Mill Lane)	18	18	36	179
Thakenham Road (northeast of Fryern Road)	10	8	18	89
School Hill	9	10	19	94
A283 Manley's Hill	9	10	19	94
Mill Lane	6	6	12	60
High Street (west of Mill Lane)	5	5	10	50

Figure 6.1: Development traffic AADT on the local road network



6.4.2 Building Emissions

The heating and hot water demand is intended to be met by ultra-low NO_x boilers or a non-combustion system. Consequently, the proposed development will not introduce any plant that emits significant NO_x or PM₁₀ concentrations.

6.5 Significance of Effects

The proposed development is in an area of suitable air quality, and there are no significant additional transport or building emissions to consider. Potential construction effects are mitigated through the dust management plan. The air quality effect of the proposed development is therefore considered as **“Not Significant”**.

7 CONSTRUCTION DUST RISK ASSESSMENT

7.1 Introduction

The purpose of this assessment is to identify the category of risk from dust emission associated with the demolition, earthworks, construction and track-out phases, and to put in place a suitable management and mitigation strategy, to ensure negative impacts and adverse effects are controlled and reduced.

The first step of the assessment is to conduct screening to establish if there is a need to proceed to detailed assessment. A dust risk assessment typically proceeds if there is a human receptor within 250 m of the boundary of the site or 50 m of the routes used by construction vehicles on the public highway, up to 250 m from the site entrances.

The IAQM guidance indicates that construction impacts on local air quality can be divided into four key areas;

- i. Demolition;
- ii. Earthworks;
- iii. Construction; and

iv. Trackout.

7.2 Dust Emission Magnitude

The dust emission magnitude has been assessed for each of the four key areas above in relation to the Proposed Development. The dust emission magnitude is based on the scale of the anticipated works and is classified as small, medium, or large and is considered prior to mitigation. The following tables have been formatted to demonstrate the criteria that the development is within for the specific measure/detail.

7.2.1 Demolition

The proposed development does not comprise any demolition works and therefore, there is no dust risk associated with demolition.

7.2.2 Earthworks

Table 7.1 shows the IAQM criteria for assessing the dust emission magnitude for earthworks.

Table 7.1: Summary of IAQM criteria and development details for earthworks

IAQM Criteria				Development Details
Measure	Large	Medium	Small	
Total site area	> 110,000 m ²	18,000 m ² - 110,000 m ²	< 18,000 m ²	Approx. 43,500 m ²
Soil type	Potentially dusty soil type (e.g. clay)	Moderately dusty soil type (e.g. silt)	Large grain soil type (e.g. sand)	Bedrock: Hythe Formation – Sandstone. High to low potential for dust when dry Superficial deposits: Head – Clay, silt, sand and gravel. High to low dust potential.
Heavy earth moving vehicles active at once	> 10	5-10	< 5	5 – 10
Height of bunds	> 6 m	3- 6 m	< 3 m	No bunds

The site is approximately 43,500 m² and it is understood that the development will introduce paved haul roads. Due to the size and nature of the development, it is estimated that between five and ten heavy earth-moving vehicles will be active on the site at any given time, and it is not expected that any bunds will be positioned on site.

The British Geological Society (BGS) Open Geology of Britain Viewer indicates that the bedrock geology beneath the site is Hythe Formation (sandstone) which has a high to low dust potential when high. BGS also records that the superficial deposits at the site is Head (clay, silt, sand and gravel) which has a moderate to low potential for dust generation when dry.

The potential earthworks dust emission magnitude is considered to be '**Medium**'.

7.2.3 Construction

Table 7.2 shows the IAQM criteria for assessing the dust emission magnitude for construction.

Table 7.2: Summary of IAQM criteria and development details for construction

IAQM Criteria				Development Details
Measure	Large	Medium	Small	
Total building volume	> 75,000 m ³	12,000 m ³ – 75,000 m ³	< 12,000 m ³	Approximately 20,000 m ³
Construction material	High dust potential and on-site concrete batching or sandblasting	Potentially dusty construction material such as concrete	Construction material with low dust potential (e.g. metal cladding or timber)	Brick and tile, concrete batching on site.

The proposed development comprises the construction of 56 residential dwellings which will result in a total building volume of 12,000 m³ – 75,000 m³ (estimated to be approximately 20,000 m³). It is expected that the dwellings will be two storeys in height and constructed of traditional brick and tile. New access roads will also be constructed.

The potential construction dust emission magnitude is considered to be **‘Medium’**.

7.2.4 Trackout

Table 7.3 shows the IAQM criteria for assessing the dust emission magnitude for trackout.

Table 7.3: Summary of IAQM criteria and development details for trackout

IAQM Criteria				Development Details
Measure	Large	Medium	Small	
HDV movements	> 50 HDV outward movements in any one day	20 – 50 HDV outward movements in any one day	< 20 HDV outward movements in any one day	<20 HDV outward movements
Surface material	Potentially dusty surface material (e.g. high clay content)	Moderately dusty surface material (e.g. high clay content)	Surface material with low dust potential	Clay, silt and gravel. High to low dust potential
Unpaved road length	> 100 m	50 – 100 m	< 50 m	Haulage roads anticipated to be put in place during early stages of construction.

Trackout dust impacts are associated with HDVs leaving the site after moving over unpaved ground where they will accumulate mud and dirt that can then be tracked out onto the public roads. Trackout impacts are linked to the number of outward HDV movements in a day.

Due to the size of the site and the nature of the development, it is expected that haulage roads will be constructed during early stages of construction. This will allow deliveries and site traffic to use the hardstanding surfaces where available. Consequently, there will be a limited potential for dust from bare ground and a minimal impact as the haulage roads will be used where possible.

The potential dust emission magnitude in the absence of mitigation is considered to be **‘Small’**.

7.2.5 Summary

A summary of the assessed dust emission magnitude, for individual construction activities is displayed in Table 7.4.

Table 7.4: Summary of the potential Dust Emission Magnitude

Phase	Dust Emission Magnitude
Demolition	N/A
Earthworks	Medium
Construction	Medium
Trackout	Small

7.3 Sensitivity of the Area

7.3.1 Introduction

The overall sensitivity of the area (as determined by the number and sensitivity of receptors within a given distance) is summarised in the following sections. Figures 7.1 and 7.2 below show the 20 m, 50 m and 100 m buffers from the site boundary and 20 m and 50 m buffers from the anticipated trackout route. Professional judgement has been applied, and therefore, for trackout impacts, the trackout route for potential dust effects has been considered to be up to 100 m from the site exit, and receptors within 50 m of the anticipated routes for HDVs have been considered. It is anticipated that the existing site entrance will be used for the site access and exit during construction. Receptors within the adjacent Wates construction site have been included within this assessment, assuming that they will be occupied during the construction of this development.

Figure 7.1: Distance buffers from the development site.

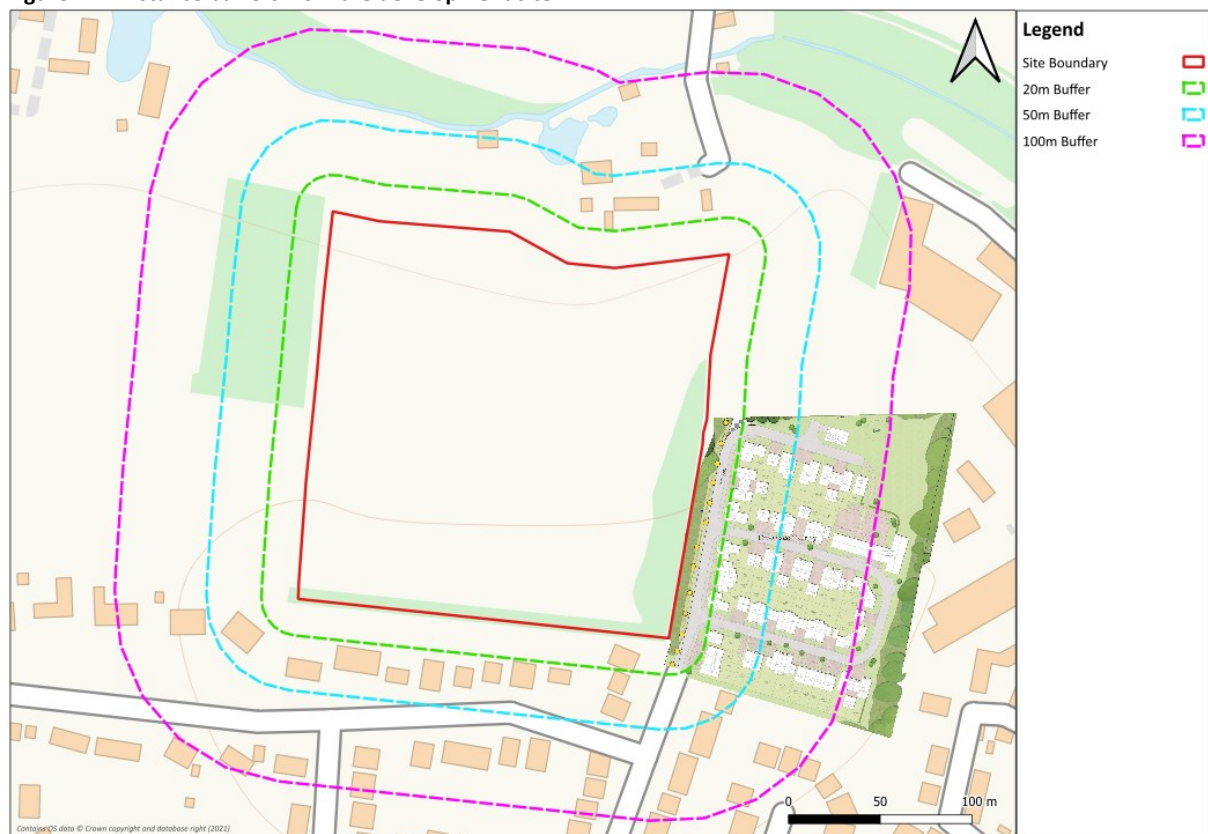


Figure 7.2: buffers from the anticipated trackout route



7.3.2 Dust Soiling Effects

The sensitivity of receptors to dust soiling effects is dependent upon the duration and frequency that people would expect to be exposed to the effects. Residential receptors can be expected to enjoy a high level of amenity and background levels of dust soiling are expected to be low. It can be expected that dust soiling would diminish the aesthetics of their property, and such receptors are therefore assessed as being of high sensitivity. Residential properties, schools, nurseries and care homes are considered to be of high sensitivity for the purpose of this assessment.

Medium sensitivity receptors are those where users would expect to enjoy a reasonable level of amenity but would not reasonably expect to enjoy the same level of amenity as in their home or people or property would not reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land. Places of work and community uses are considered to be of medium sensitivity for the purpose of this assessment.

Low sensitivity receptors are those where the enjoyment of amenity would not reasonably be expected, or property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling. Exposure is of a transient nature and people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land.

The buildings closest to the site are residential properties, which are considered to be of high sensitivity with respect to dust soiling. Figure 7.1 and 7.2, shows there are between 10-100 high-sensitivity receptors located within 50 m of the site boundary and the anticipated trackout route.

The sensitivity of the surrounding area with regards to dust soiling effects is therefore considered to be **'Medium'** with respect to activities undertaken on site and along the trackout route.

7.3.3 Human Health

For health effects of PM₁₀, sensitivities are based on whether or not the receptor is likely to be exposed to elevated concentrations over a 24-hour period.

High-sensitivity receptors are those locations where members of the public are exposed over a time period relevant to the air quality objective for PM₁₀ (eight hours or more in a 24-hour period). Indicative examples include residential properties, hospitals, schools, nurseries and residential care homes.

Workers are considered to be of medium sensitivity for the purpose of this assessment and low sensitivity receptors are those locations where human exposure is transient e.g. public footpaths, playing fields, parks and shopping streets.

With reference to monitoring data presented in Section 5, annual mean concentrations of PM₁₀ are predicted to be below 24 µg/m³ in the vicinity of the site and it is predicted that 10-100 high-sensitivity will be present within 50 m of the site and the anticipated trackout route.

Taking into account the number and sensitivity of receptors identified in the dust-soiling section above and assumed baseline concentrations of PM₁₀, the sensitivity of the surrounding area with regards to human health impacts is considered to be '**Low**'.

7.3.4 Ecological Effects

With reference to the Multi Agency Geographic Information for the Countryside (MAGIC) website¹⁴ there are no sensitive ecological sites within 50 m of the site or trackout route. Therefore, the ecological impact of the proposed development has not been considered further.

7.3.5 Summary

The sensitivity of the area surrounding the site is summarised in Table 7.5. For trackout impacts, receptors have been included up to 100 m from the site entrance and within 50 m of the anticipated routes for HDVs.

Table 7.5: Sensitivity of the Area

Receptor Sensitivity	Sensitivity of the Surrounding Area		
	Earthworks	Construction	Trackout
Dust soiling	Medium	Medium	Medium
Human health	Low	Low	Low
Ecological	N/A	N/A	N/A

7.4 Risk of Impacts

When the dust emission magnitude is combined with the sensitivity of the area, the risk of impacts with no mitigation applied can be determined. This determines the level of mitigation to be applied. The summary of the dust risk assessment is presented in Table 7.6.

Table 7.6: Summary of Dust Risk Impacts

Summary	Earthworks	Construction	Trackout
Dust soiling	Medium	Medium	Low
Human health	Low	Low	Negligible

¹⁴ www.magic.gov.uk (accessed 11/11/2025)

In summary, the site is considered as a **‘Medium Risk’** during earthworks and construction and a **‘Low Risk’** during trackout for dust soiling effects. There is a **‘Low Risk’** during earthworks and construction, and the risk is **‘negligible’** during trackout for human health effects. The dust risk is used to define the amount of site-specific mitigation that is required. The mitigation measures are described in Section 8.

8 CONSTRUCTION MITIGATION MEASURES

8.1 Construction Phase

With reference to the IAQM guidance, the following measures in Table 8.1 form the dust management plan and are the IAQM recommended measures based on the risk assessment presented in section 7:

Table 8.1 Dust Management Plan

Reference	Mitigation Measure	Notes
Communications		
CM1	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.	
CM2	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.	
CM3	Display the head or regional office contact information.	
CM4	Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The DMP may include monitoring of dust deposition, dust flux, real time PM ₁₀ continuous monitoring and/or visual inspections.	2 no. MCERTS dust monitors on site transects.
Site Management		
SM1	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.	
SM2	Make the complaints log available to the local authority when asked.	
SM3	Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the logbook.	
Monitoring		
MT1	Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100 m of site boundary, with cleaning to be provided if necessary.	
MT2	Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.	
MT3	Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.	

- MT4 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 a large site, before work on a phase commences.

Preparing and maintaining the site

PM1	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
PM2	Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
PM3	Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
PM4	Avoid site runoff of water or mud.
PM5	Keep site fencing, barriers and scaffolding clean using wet methods.
PM6	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.
PM7	Cover, seed or fence stockpiles to prevent wind whipping.

Operating vehicle/machinery and sustainable travel

OV1	Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards.	Best practice but not required as not in the ULEZ
OV2	Ensure all vehicles switch off engines when stationary - no idling vehicles.	
OV3	Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.	
OV4	Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).	
OV5	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).	

Operations

OP1	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.
OP2	Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
OP3	Use enclosed chutes and conveyors and covered skips.
OP4	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
OP5	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	
WM1	Avoid bonfires and burning of waste materials.
Earthworks	
EW1	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
EW2	Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
EW3	Only remove the cover in small areas during work and not all at once.
Construction	
CS1	Avoid scabbling (roughening of concrete surfaces) if possible.
CS2	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.
CS3	Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
Trackout	
TO1	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.
TO2	Avoid dry sweeping of large areas.
TO3	Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
TO4	Record all inspections of haul routes and any subsequent action in a site logbook.
TO5	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

8.2 Operational Phase

8.2.1 Introduction

Guidance on mitigating air quality impacts is provided in a document produced by the IAQM. The guidance emphasises that all developments should adopt good design principles to reduce emissions and minimise cumulative impacts regardless of the outcome of individual air quality assessments.

8.2.2 Proposed Operational Mitigation Measures

The site is located in an area where concentrations of all pollutants are expected to be well within the relevant AQOs. The site is considered to be suitable for development without the requirement for mitigation measures to reduce exposure.

The proposed development is not anticipated to generate a significant increase of AADT. Consequently, the development will not contribute any significant additional emissions to the local road network. It should also be noted that electric vehicle charging will be provided in line with Policy 25 of the Emerging Local Plan.

The heating and hot water demand for the scheme is anticipated to be met ultra-low NO_x boilers or a non-combustion system (e.g. air source heat pumps). This approach ensures good air quality design is applied as minimal localised emissions of NO_x or PM will be introduced, if any.

8.3 Summary

The overall effect on local air quality from the construction and operation of the proposed development is considered to be 'not significant' provided the construction mitigation measures in the dust management plan are in place.

9 EMISSIONS MITIGATION ASSESSMENT

In accordance with the published *Air Quality and Emission Mitigation Guidance for Sussex*, an emissions mitigation assessment has been carried out.

The emissions mitigation assessment provides a basis for quantifying the financial commitment required for offsetting potential development-generated emissions. The assessment calculates a damage cost by utilising the current DEFRA Emission Factor Toolkit (EFT) version 13.1¹⁵ to estimate the annual link emissions associated with the additional development generated traffic over a 5-year period.

The calculation attributes a monetary value to those emissions using the figures per tonne outlined by Defra air quality damage cost guidance¹⁶.

The total trip generation in a 24-hour period is 303 vehicles, with 0% HGVs. The guidance follows the standard procedure of assuming an average trip distance of 10 km/trip and the average speed as 50 kph. The calculation was undertaken for both NO_x and PM emissions for the base year of 2027 (estimated opening year). The road type 'urban (not London)' has been used within the EFT. The EFT input and output factors have been shown in Table 9.1.

Table 9.1: EFT input and output

Factor	Value
% HDV	0
AADT	303
Speed assumed (km/h)	50
Distance travelled	10 km
Year	2027 (estimated opening year)
Road type	Urban not London
EFT NO _x Kg/Year	161.00874
EFT PM _{2.5} Kg/Year	19.14820

As the NO₂ and PM_{2.5} concentrations at the proposed development site and surrounding area are well below the AQO, the low damage costs have been used. Table 9.2 shows the damage cost per tonne (using 2022 damage costs) and calculates the yearly damage cost and the total damage cost of the development over a 5-year period. Table 9.3 shows the calculations using the central damage costs.

Table 9.2 Operational Emission damage costs for NO₂ and PM_{2.5} based on low damage cost

Kg/annum (2027)	Damage cost per tonne (2022 costs)	Damage cost 1 year £ (without mitigation)	Damage Cost 5 year £ (without mitigation)
NO _x 161.00874	£1,945 per tonne (road transport low)	£ 313.16	£ 1,565.81
PM _{2.5} 19.14820	£33,533 per tonne (road transport low)	£642.10	£ 3,210.48
5 Year Total (NO _x +PM _{2.5})	£ 4,776.29		

¹⁵ DEFRA Emissions Factor Toolkit version 13.2, 2025. Accessed: <https://laqm.defra.gov.uk/air-quality/air-quality-assessment/emissions-factors-toolkit/>

¹⁶ DEFRA air quality appraisal: damage cost guidance, 2023. Accessed: <https://www.gov.uk/government/publications/assess-the-impact-of-air-quality/air-quality-appraisal-damage-cost-guidance>

Table 9.3 Operational Emission damage costs for NO₂ and PM_{2.5} based on central damage cost

Kg/annum (2027)	Damage cost per tonne (2022 costs)	Damage cost 1 year £ (without mitigation)	Damage Cost 5 year £ (without mitigation)
NO _x 161.00874	£11,682 per tonne (road transport central)	£ 1,880.90	£ 9,404.52
PM _{2.5} 19.14820	£84,548 per tonne (road transport central)	£ 1,618.94	£ 8,094.71
5 Year Total (NO _x +PM _{2.5})	£ 17,499.23		

The Air Quality and Emission Mitigation Guidance for Sussex provide standard mitigation measures that applies to all major developments:

- All gas-fired boilers to meet < 40 mg NO_x/kWh
- Provide one electric vehicle (EV) charging point per dwelling with dedicated parking or 1 charging point per 10 spaces (unallocated parking)

10 CONCLUSIONS

Anderson Acoustics Ltd was commissioned by the Fairfax Properties to undertake an Air Quality Assessment for the proposed development at Land at Northlands, Storrington. The proposed development comprises the construction of 56 residential dwellings.

The site is not situated within an AQMA, and baseline concentrations of monitored air pollutants are well below the annual and short-term AQOs based on a review of published data sources. No specific mitigation measures are considered necessary to reduce future occupants' exposure to air pollution, and the site is considered to be suitable for the proposed use.

There is a 'medium risk' of dust soiling during earthworks and construction and a 'low risk' during trackout for dust soiling. There is a 'low risk' for human health impacts during earthworks and construction and a negligible risk during trackout, prior to the consideration of mitigation. Recommended mitigation measures are outlined in Table 8.1. Provided mitigation is employed for the duration of the construction works, the overall effect on local air quality is judged to be 'not significant'.

As the proposed development is expected to generate a net increase of 303 daily trips, emissions damage costs have been calculated to be £4,776.29 for low damage costs for NO_x and PM_{2.5} over a 5-year period. The proposed development heating is expected to be through an ultra-low gas boiler or a non-combustion system (which will not result in emissions of NO_x or PM on site), the overall effect of the operational scheme on local air quality is judged to be 'not significant'.

Accordingly, the proposed development is considered a suitable use of the site and compliant with relevant air quality policy and guidance.