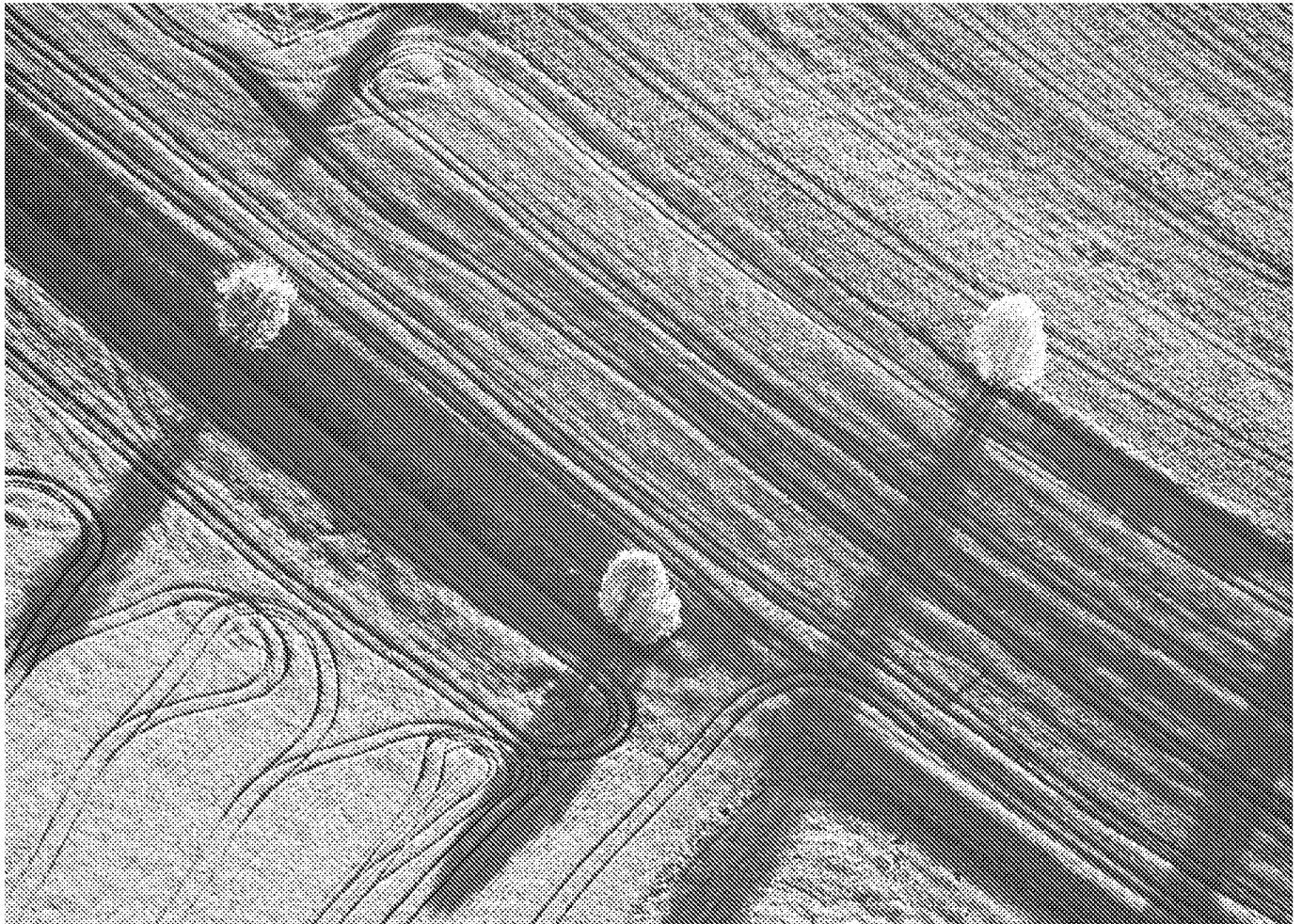




Barratt David Wilson Homes

Residential Development at Rustington Golf Centre

Emissions Mitigation Statement

Report No.: 444287-AQ02 (01)

FEBRUARY 2022



RSK GENERAL NOTES

Report No.: 444287-AQ02 (01)

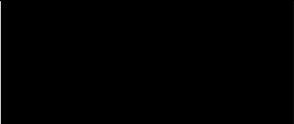
Title: Residential Development at Rustington Golf Centre – Emissions Mitigation Statement

Client: Barratt David Wilson Homes

Date: 4th February 2022

Status: Final

Author Phoebe Chan
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Signature 

Date: 28th January 2022

**Technical
reviewer**

William Franklin
Associate Director

Signature



Date:

4th February 2022

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK Group Limited.

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1 INTRODUCTION

RSK Environment Limited (RSK) was commissioned to prepare an Emissions Mitigation Statement for the proposed residential development of circa. 167 dwellings at Rustington Golf Centre. The site is within the jurisdiction of Arun District Council (ADC) and the approximate grid reference of the centre of the site is 505470, 103435 (British National Grid). The application site location is shown in Figure 1.1.

ADC is a participating member of the Sussex-air partnership. As part of the Sussex-air partnership, Sussex local authorities have developed the guidance '*Air quality and emissions mitigation guidance for Sussex (2020)*'. The guidance is designed to help developers to:

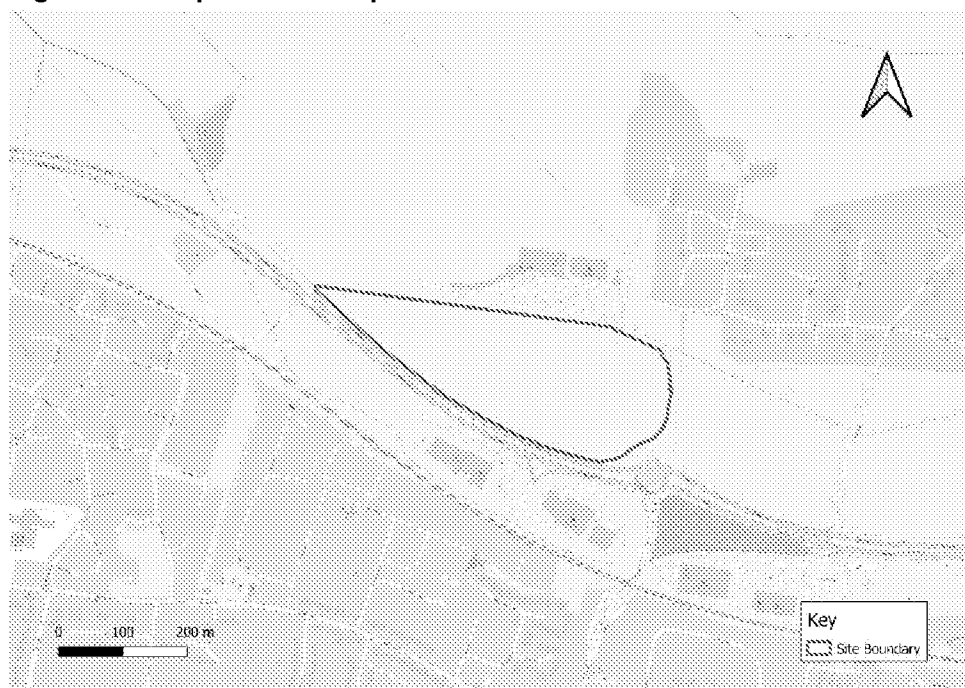
- *"Assess the potential for air quality impacts from development and transport-related emissions*
- *Provide a consistent approach to mitigating those impacts."*

In line with the guidance, an air quality assessment report was prepared for the proposed development by RSK (January 2022, ref: 444287-AQ01 (02)). Due to the size of the proposed development, an Emissions Mitigation Statement was requested during consultation with the Environmental Health Officer (EHO) at ADC.

This Emissions Mitigation Statement has been prepared using the principles of the Sussex-air 2020 guidance.

This statement deals with operational phase mitigation only. Mitigation measures for construction phase dust and emissions have previously been determined and outlined in the Air Quality Assessment report (January 2022).

Figure 1.1: Proposed Development Site Plan



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2 CALCULATED DAMAGE COSTS

This section follows the Sussex-air 2020 guidance to complete a damage cost calculation using the following tools:

- Defra 'Emission Factors Toolkit v11.0' (available online at: <https://lagm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html>); and
- Defra 'Air quality appraisal: damage cost toolkit' (available online at: <https://www.gov.uk/government/publications/assess-the-impact-of-air-quality>).

Step 1: Quantify change in emissions for NO_x and PM_{2.5}

The Emission Factor Toolkit v11.0. was used with the following inputs:

- **Pollutants: NO_x and PM_{2.5}** – road traffic is expected to be the main source of air pollutants once the development is operational. The principal pollutants relevant to this assessment are therefore considered to be nitrogen oxides (NO_x) and particulate matter (PM), which are generally regarded as the most significant air pollutants released by vehicular combustion processes. PM_{2.5} has been used for PM in line with the Defra Air Quality Appraisal guidance.
- **Urban (not London)**
- **1012 daily car trips** (both directions Golfers Lane) – data provided by project Transport Consultants, Abley Letchford Partnership Limited. The number of trips are based on 196 dwellings which is considered to be conservative as the proposed development is anticipated to have 167 dwellings.
- **Cars only** (0% HGV)
- **Average speed: 50 kph**
- **Trip length used: 10km**
- **Years: 2026-2030:** 2026 is the anticipated opening year of the development and 5 years of emissions, inline with the Sussex-air guidance, have then been used up to 2030.

Table 2.1 presents the EFT output with the emissions converted from kg/yr to tonnes/yr.

Table 2.1: Converted EFT output

	Emissions (tonnes/yr)				
	2026	2027	2028	2029	2030
NO _x	0.561	0.503	0.451	0.406	0.369
PM _{2.5}	0.064	0.064	0.064	0.064	0.063

Step 2: Calculate damage costs for NO_x and PM_{2.5}

The Defra Damage Cost Appraisal Toolkit (updated March 2021) was used with the following input:

- Start year: 2026
- End year: 2030
- Price Base Year: 2022
- Number of Pollutants: 2 (NO_x and PM_{2.5})
- Source: Road transport

Table 2.2 presents the damage cost calculation outputs. The damage cost calculation is considered to provide a basis for quantifying the financial commitment required for offsetting potential development-generated emissions. The calculated central damage cost value over a five-year period is **£59,805**. Air quality mitigation funded by the developers should therefore be equal to (or greater) than this value. The following section outlines the mitigation proposed in relation to the proposed development.

Table 2.2: Damage Cost Appraisal Toolkit Output

	Output from Damage Cost Appraisal Toolkit					
	2026	2027	2028	2029	2030	Total
Central Value NO _x	£6,694	£5,910	£5,221	£4,637	£4,147	£26,608
Central Value PM _{2.5}	£6,878	£6,752	£6,634	£6,521	£6,412	£33,197
Total Central Value Costs						£59,805

3 OPERATIONAL PHASE MITIGATION MEASURES

The Air Quality Assessment (January 2022, ref: 444287-AQ01 (02)) undertaken for the proposed development concluded that the impact from the operational phase emissions would be negligible and future residents would not be exposed to poor air quality (i.e. the UK Air Quality Strategy objectives are anticipated to be met at locations of relevant exposure across the application site). However, in line with the Sussex-air 2020 guidance requirements, and with a focus on helping promote a modal shift away from conventionally fuelled car travel, mitigation measures are proposed to be incorporated into the proposed development.

Table 3.1 presents the mitigation measures for the proposed development that are expected to either help to mitigate or offset transport emissions related to the operational phase of the proposed development. The Sussex-air 2020 guidance requires the *'itemised costing for each proposed mitigation option and total value of proposed emissions' mitigation* in order to demonstrate that the value of mitigation meets or exceeds the damage cost calculation. It is, however, not possible to accurately quantify all costs at this stage while details remain unfixed. Where possible, estimated costs have been provided but should not be viewed as fixed costs but used as indicative costs to demonstrate that the damage cost calculated for the proposed development (£59,805) will easily be exceeded with the measures proposed in Table 3.1.



Table 3.1: Mitigation Measures for Proposed Development for minimising or offsetting operational phase traffic emissions

Mitigation Measure	Details	Estimated Costs*
Travel Plan and Welcome Pack	A Residential Travel Plan will be prepared for the site. Details of the 'Welcome Pack', each new dwelling will receive, will be included within the Travel Plan. As per Sussex-air guidance, the costs for the Travel Plan are to be considered in addition to those for the air quality mitigation and therefore no costs are included within this table.	N/A
Electric vehicle (EV) charging provisions	In accordance with Arun DC Parking Standards, Active EV Charging Points will be provided for all dwellings with on plot (driveway) parking. A further 30% of all other spaces will be fitted with EV Active Charging Points and all other spots will be fitted with passive charging infrastructure. As per Sussex-air guidance, the costs for EV charging costs that are within the local authority parking standards are to be considered in addition to those for the air quality mitigation and therefore no costs are included within this table.	N/A
Provision of vouchers for alternatives to private car use	£150 towards cycling equipment <i>or</i> £150 reimbursement for public transport costs (details to be provided within welcome pack)	Up to £28,500
Improvements to cycle paths to link to the existing local cycle network	Primary access to be provided with a 3m shared footway / cycle path linking to Mill Road roundabout - allowing access to existing cycle paths on Mill Road and southern side westbound A259.	£36,000
	Secondary access to be provided with a 3m wide shared footway / cycle path in south-eastern corner of site - also leading to Mill Lane Roundabout.	£30,000
	Off-site improvements to be made to footway / cycle path - provision of a 3m wide footway / cycleway along northern edge of A259 (west arm of Mill Lane roundabout) for c.50m where a new signalised Toucan crossing will be provided to safely access the existing footway and cycle network along the southern edge of the A259.	£160,000

Mitigation Measure	Details	Estimated Costs*
	Off-site improvements to be made to footway / cycle path – provision of a new 3m wide shared footway and cycle path proposed along northern edge of A259 (eastern arm of Mill Lane roundabout) between Golfers Lane and existing signalised crossing and footway / cycleway link at South Drive.	£100,000
Provision of secure cycle storage	Safe and secure cycle parking is being provided for residents in line with Arun District Council Parking standards. - Cycle storage will be provided in the form of a garage for houses. - Where a house does not have a garage, secure cycle stores will be provided. - A covered and secure cycle store will be provided close to the main entrance of each apartment block.	Costs not available at the time of writing
Invest in additional green infrastructure to reduce particulates and other pollutants	The project Landscape Architects have advised that the scheme will include planting of vegetation which may be beneficial to help reduce pollution levels on the site. At the time of writing a landscape scheme was not fixed but the following were noted for the site: - Planting will consider species that may catch particulates and reduce pollutants including evergreen hedges, shrub buffers and trees. - Species that have been found to be more effective at trapping particulates will be included within the scheme. Consideration will be given to, but not limited to, coniferous species, Silver Birch, London Plan, Gleditsia and Catalpa; site suitability, local character, foundation depths and underground and overground utilities and services will need to be considered when choosing the placement of any of these species. - The existing tree buffer located along some stretches of the southern boundary will be largely retained and strengthened by additional planting. The mix will be customised for site suitability and with reducing pollutants taken into account to include a large proportion of native evergreen species likely to include Pines, Yew and Holly as well as semi-native and ornamental species suitable in this location. - Plot boundaries are also likely to include evergreen hedges.	The landscape scheme is not fixed and costs cannot be estimated at the time of writing

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Mitigation Measure	Details	Estimated Costs*
* Any costs provided should not be considered fixed as they are estimates only at this stage.		

4 CONCLUSION

The Air Quality Assessment previously undertaken for the proposed development concluded that the impact from the operational phase emissions would be negligible and future residents would not be exposed to poor air quality. However, as required by the Sussex-air guidance this Emissions Mitigation Statement has been prepared to help promote a model shift away from conventionally fuelled cars to more sustainable modes of transport.

This Emissions Mitigation Statement sets out a commitment to the measures that will be implemented during the operational phase to minimise and offset emissions associated with traffic related to the proposed development. Whilst it is not possible to fully quantify the costs of these mitigation measures at this stage, estimated costs have been made where feasible, which indicate the damage cost calculated for the proposed development (£59,805) would easily be exceeded.