

Land North of Sanderling Way, Iwade

Emissions Mitigation Assessment



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1 INTRODUCTION

1.1 Entran Limited has been commissioned to undertake an Emissions Mitigation Assessment associated with a proposed residential development (hereafter referred to as 'the Proposed Development') in Iwade, Kent. This report is produced in support of the planning application. The location of the Site is shown in Figure 1.1.

1.2 The Site is approximately 4.4ha in size and is currently agricultural land to the north of Iwade. It is not located within or near to any Air Quality Management Areas (AQMA).

1.3 The proposals comprise:

'Outline application with all matters reserved apart from the means of access for residential development of up to 60 dwellings (with an illustrative layout to demonstrate adequacy of emergency and service access together with parking and indicative mix of house types, principles of landscaping ecological enhancement and surface water management) at land north of Sanderling Way, Iwade, Kent.'

1.4 The proposed layout for the Site is provided in Figure 1.2.

1.5 This report presents the findings of an Emissions Mitigation Assessment for the Proposed Development.



2 RELEVANT POLICY AND GUIDANCE

National Planning Policy Framework

2.1 The National Planning Policy Framework (NPPF)¹ sets out the Government's planning policies for England and how these are expected to be applied. At the heart of the NPPF is a presumption in favour of sustainable development. It requires Local Plans to be consistent with the principles and policies set out in the NPPF with the objective of contributing to the achievement of sustainable development.

2.2 The NPPF states that the planning system has three overarching objectives in achieving sustainable development including a requirement to *'to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.'*

2.3 Under Section 15: Conserving and Enhancing the Natural Environment, the NPPF (paragraph 180) requires that *'planning policies and decisions should contribute to 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.'*

2.4 In dealing specifically with air quality the NPPF (paragraph 192) states that *'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'.*

2.5 Paragraph 194 states that *'the focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes*

¹ Department for Levelling Up, Housing & Communities (Dec 23). National Planning Policy Framework.



or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively.”

Swale Borough Council Local Plan 2017: Bearing Fruits 2031

2.6 The Swale Borough Council Local Plan² was adopted in July 2017, it sets out the vision and development strategy for the area for the period from 2014 to 2031. The Local Plan does not include any policies relevant to air quality.

The Swale Borough Council Local Plan Review 2021. Pre-Submission Document (Regulation 19)

2.7 Swale Borough Council is currently reviewing the current Swale Local Plan. The Local Plan Review will set out the planning framework for the borough for the period to 2038 and will set out the policies by which planning applications will be determined. The Pre-Submission Document includes the following draft policy on air quality.

2.8 Policy DM33: Air Quality, states:

‘Poor air quality has a detrimental effect on both human health and the environment. Air quality should be considered in the early stages of a development in consultation with the Borough’s Environmental Protection Team and with reference to Swale’s Air Quality and Planning -Technical Guidance 2019 and updates, the Parking Standards Supplementary Planning Document and any forthcoming relevant Supplementary Planning Documents. The following criteria should be applied:

- 1. Proposals should demonstrate that they include measures to improve air quality through location, linkage, layout, land-use, landscaping and building design with passive solutions prioritised over active measures;*
- 2. All proposals (excluding householder applications) should demonstrate their impact on local air quality in the form of an Air Quality Statement as set out in the borough’s Air Quality and Planning -Technical Guidance;*
- 3. All proposals should provide standard mitigation as set out in the borough’s Air Quality and Planning – Technical Guidance;*
- 4. Proposals either within, close to, or accessed via one of the Borough’s Air Quality Management Areas (AQMAs) should demonstrate no adverse effect on air quality in an AQMA that is likely to lead, in itself or in combination with other schemes, to an exceedance of air quality objectives;*

² Swale Borough Local Plan(2017): Bearing Fruits 2031.



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5. *Proposals which would introduce or intensify sensitive receptors' exposure to poor air quality within or close to AQMAs, or potential AQMAs, should clearly demonstrate measures that mitigate air quality impacts;*
 6. *Proposals will need to demonstrate that, in itself or in combination with other schemes, the proposed development will not cause an air quality impact by leading to the likelihood of air quality objective exceedances or the declaration of a new AQMA;*
 7. *Air quality assessments should be carried out as required by the criteria set out in the borough's Air Quality and Planning – Technical Guidance and to the satisfaction of Swale's Environmental Protection Team;*
 8. *Air quality assessments should reference the most relevant and accurate data and consider the cumulative effects on air quality by including an assessment of relevant built and committed developments both inside and outside the borough;*
 9. *Mitigation measures for developments which have required an Air Quality Assessment need to be site specific and be prepared with reference to the borough's Air Quality and Planning – Technical Guidance and in consultation with the borough's Environmental Protection Team;*
 10. *Developments that would increase air pollution, either alone or in combination with other relevant developments already existing or permitted, will not be permitted unless detrimental effects are:*
 - i) *Mitigated, to the satisfaction of the borough's Environmental Protection team and / or if necessary,*
 - ii) *Offset, by proportionally contributing to air quality improvements elsewhere to the satisfaction of the borough's Environmental Protection Team and in accordance with Defra's Emission Factor Toolkit, using the Council's Offsetting or Pooled Contributions Scheme.*

Offsetting measures should be linked to objectives in the borough's Air Quality Action Plan, the Swale Green and Blue Infrastructure Strategy, Swale's Parking Standards Supplementary Planning Document (SPD), the Swale Transport Strategy and updates, the borough's Climate and Ecological Emergency Action Plan and the forthcoming Sustainable Design and Construction SPD and are likely to be secured via planning obligations.'



Swale Borough Council Air Quality Technical Planning Guidance³

2.9 Swale Borough Council have prepared a guidance note to provide advice on whether a development requires an air quality assessment, to provide criteria for determining the significance of any impacts and provide advice on mitigation.

2.10 This guidance has been used within this assessment.

EPUK & IAQM Land Use Planning and Development Control

2.11 Environmental Protection UK (EPUK) & Institute of Air Quality Management (IAQM) published the Land Use Planning and Development Control Air Quality guidance in January 2017⁴ to provide guidance on the assessment of air quality in relation to planning proposals and ensure that air quality is adequately considered within the planning control process.

2.12 The main focus of the guidance is to ensure all developments apply good practice principles to ensure emissions and exposure are kept to a minimum. It also sets out criteria for identifying when a more detailed assessment of operational impacts is required, guidance on undertaking detailed assessments and criteria for assigning the significance of any identified impacts.

2.13 This guidance has been used within this assessment.

³ Swale Borough Council. Air Quality Technical Planning Guidance (2024)

⁴ EPUK & IAQM. Land-use Planning and Development Control: Planning for Air Quality v1.2, January 2017

3 SCOPE OF ASSESSMENT

3.1 Guidance provided by the Swale Borough Council Air Quality and Planning Technical Guidance Note recommends that the Stage 1 and Stage 2 Criteria outlined in the EPUK & IAQM Planning Guidance are used to determine whether an air quality assessment is likely to be required. These are as outlined in Tables 3.1 and 3.2 below:

Table 3.1: Stage 1 Criteria

Criteria to Proceed to Stage 2
A. If any of the following apply: • 10 or more residential units or a site area of more than 0.5ha • More than 1000m³ of floor space for all other uses or a site area greater than 1ha
B. Coupled with any of the following: • The development has more than 10 parking spaces • The development will have a centralised energy facility or other centralised combustion process
Note: Consideration should still be given to the potential impacts of neighbouring sources on the site, even if an assessment of impacts of the development on the surrounding area is screened out.

Table 3.2: Stage 2 Criteria

The development will:	Indicative Criteria to Proceed to an Air Quality Assessment
1. Cause a significant change in Light Duty Vehicle (LDV) traffic flows on local roads with relevant receptors (LDV = cars and small vans <3.5t gross vehicle weight)	A change of LDV flows of: • More than 100 AADT within or adjacent to an AQMA • More than 500 AADT elsewhere
2. Cause a significant change in Heavy Duty Vehicle (HDV) flows on local roads with relevant receptors (HDV = goods vehicles + buses <3.5t gross vehicle weight)	A change of HDV flows of: • More than 25 AADT within or adjacent to an AQMA • More than 100 AADT elsewhere
3. Realign roads i.e. changing the proximity of receptors to traffic lanes	Where the change is 5m or more and the road is within an AQMA
4. Introduce a new junction or remove an existing junction near to relevant receptors	Applies to junctions that cause traffic to significantly change vehicle accelerate / decelerate e.g. traffic lights or roundabouts
5. Introduce or change a bus station	Where bus flows will change by: • More than 25 AADT within or adjacent to an AQMA



	• More than 100 AADT elsewhere
6. Have an underground car park with extraction system	The ventilation extract for the car park will be within 20m of a relevant receptor. Coupled with the car park having more than 100 movements per day (total in and out)
7. Have one or more substantial combustion processes where there is a risk of impacts at relevant receptors. NB. This includes combustion plant associated with standby emergency generators (typically associated with centralised energy centres) and shipping.	Typically, any combustion plant where the single or combined NO _x emission rate is less than 5mg/s ^(a) is unlikely to give rise to impacts provided that the emissions are released from a vent a stack in a location and at a height that provides adequate dispersion. In situations where the emissions are released close to buildings with relevant receptors or where the dispersion of the plume may be adversely affected by the size and/or height of the adjacent buildings (including situations where the stack height is lower than the receptor) then consideration will need to be given to potential impacts at much lower emission rates. Conversely, where existing nitrogen dioxide concentrations are low, and where the dispersion conditions are favourable a much higher emission rate may be acceptable.
(a) As a guide, the 5mg/s criterion equates to a 450kW ultra low NO _x gas boiler or a 30kW CHP unit operating at <95mg/Nm ³ . Users of this guidance should quantify the NO _x mass emission rate from the proposed plant, based on manufacturers' specifications and operational conditions.	

3.2 The Proposed Development comprises more than 10 residential dwellings and more than 10 parking spaces, therefore the Stage 2 criteria are considered. Information regarding trip generation provided by the Transport Consultants indicated that the Proposed Development is likely to generate a total of 306 LDV vehicle movements per day. This is below the relevant criteria for an area outside an AQMA. Therefore, in accordance with the guidance the Proposed Development is considered unlikely to lead to significant effects on the local air quality and therefore further assessment is not required.

3.3 Pre-application discussions with the Air Quality Officer at Swale Borough Council (SBC) has confirmed that an air quality assessment is not required; only an Emissions Mitigation Assessment is needed.

3.4 An Emissions Mitigation Assessment has therefore been undertaken following the methodology outlined in the Swale Borough Council Air Quality and Planning Technical Guidance.



4 EMISSIONS MITIGATION CALCULATION

4.1 The Proposed Development comprises the construction of 60 residential dwellings and associated parking including 142 parking spaces for residents and 12 parking spaces for visitors.

4.2 Whilst an assessment of the emissions from traffic generated by the Proposed Development is not required as the traffic generated is below the relevant thresholds outlined within the EPUK & IAQM guidance, an Emissions Mitigation Assessment has been requested by SBC in accordance with the Swale Borough Council Air Quality Planning Guidance.

4.3 The emissions mitigation assessment assesses the local emissions from a development to determine the appropriate level of mitigation required to reduce the potential effect on health and / or the environment. Information on the trip generation provided by the Transport Consultant indicated that the number of daily trips generated by the operation of the Proposed Development would be 306.

4.4 Using the Eft spreadsheet, the total annual NO_x and PM_{2.5} have been calculated as set out in Table 4.1 below. The assessment has assumed an average speed of 48kph and an average distance travelled of 10km per vehicle.

Table 4.1: Predicted Annual Emissions arising from road traffic generated by the Proposed Development

Pollutant	Annual Emissions (tonnes/yr)
NO _x	0.176
PM _{2.5}	0.020

4.5 The latest damage costs have been obtained from the Defra Air Quality Appraisal Damage Cost Guidance. The damage cost for Road Transport Urban Small has been used.

4.6 Using the Defra Damage Cost calculation tool, the total damage cost for the scheme over the first 5 years is calculated as £6,446 for NO_x and £5,060 for PM_{2.5} giving a total damage cost of £11,506. This is the total cost which should be spent on mitigation measures aimed at reducing emissions to air from the operational development.



5 MITIGATION MEASURES

5.1 The Swale Borough Council Air Quality Planning Guidance includes standard mitigation measures for all developments. For residential developments, this includes the provision of electric vehicle charging points in accordance with the 'Infrastructure for charging of electric vehicles' 2021 edition which is now part of The Building Regulations 2010.

5.2 In accordance with the Swale Borough Council Air Quality Planning Guidance, an Emissions Mitigation Assessment has been undertaken. A damage cost of £11,506 has been calculated (refer to paragraph 5.6 above), which provides an indication of the appropriate cost to be spent on air quality mitigation. The following mitigation measures are proposed:

- A Travel Plan will be produced for the Proposed Development prior to the occupation, it will include measures which will discourage the use of private car by encouraging the use of sustainable travel choices;
- A Welcome Pack will be provided to all residents, which will include the provision of bus timetables, maps of local facilities, travel vouchers and information on car sharing initiatives;
- Provision of cycle storage facilities;
- Provision of green infrastructure / planting, which would include particular species to help with filtering traffic pollution.

5.3 Indicative costs for the above measures are provided in Table 5.1 below:

Table 5.1: Indicative Costs for Mitigation Measures

Pollutant	Annual Emissions (tonnes/yr)
Preparation of Travel Plan including Welcome Pack	£6,000
Ongoing costs of implementing Travel Plan	£3,500 per year (£17,500 for 5 year period)
Provision of Cycle Storage Facilities	£100 per dwelling (£6,000 total)
Total Cost (for 5 year period)	£29,500

5.4 It is not currently possible to estimate the cost of the green infrastructure however the cost of the other above proposed measures will exceed the calculated damage cost of £11,506, therefore it is considered that no further contribution should be required.

