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## **STREETLY HALL FARM, WEST WICKHAM - ODOUR TECHNICAL NOTE**

### **Background**

Redmore Environmental Ltd was commissioned by Streetly Hall Estates Partnership to undertake an Odour Assessment<sup>1</sup> in support of a proposed Anaerobic Digestion (AD) plant at Streetly Hall Farm, West Wickham (reference: CCC/23/110/FUL). Following submission of the planning application to Cambridgeshire County Council (CCC), concerns relating to odour were raised by several stakeholders. These have been addressed in the following Odour Technical Note.

### **Statutory Consultees**

#### **Bartlow Parish Council**

The response from Bartlow Parish Council is as follows:

#### "POLLUTION AND ISSUES WITH WATER COURSES

As the crow flies, the anaerobic digester plant will be very close to Bartlow. Some of the mitigations to prevent the problems listed below are given in the planning documents. It is a question of how much faith our residents have in the plant owners, the company that runs it and the Environment Agency to ensure that they are avoided. Many of us have doubts.

a) There are concerns about the risk of light pollution, noise pollution and, in particular odour pollution, which anaerobic digesters have a reputation for.

[...]."

Prior to operation of the facility there will be a requirement to obtain an Environmental Permit in order to authorise operations. This process will require detailed consideration of potential odour emissions and associated impacts at sensitive locations in the vicinity of the facility. In accordance the provisions of the Environmental Permitting (England and Wales) Regulations (2016) and subsequent amendments, any Environmental Permit which is subsequently issued for the facility will include appropriate conditions to restrict environmental impacts beyond the boundary of the site. These will help to limit the potential for any effects as a result of odour emissions from the development.

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<sup>1</sup> 5949r2 - Odour Assessment - Streetly Hall Farm, West Wickham, Redmore Environmental Ltd, 2023.

If the Environment Agency (EA) identifies that activities are giving rise to pollution during operation, which is defined as any emission which may be harmful to human health or the quality of the environment, cause offence to a human sense or impair or interfere with amenities or other legitimate uses of the environment, then there will be a requirement for the operator to implement appropriate measures to abate emissions. Should serious pollution remain, then operations may be suspended by the EA and the permit revoked in full or in part. As such, it would not be beneficial for the Operator to participate in practices that may cause loss of amenity as a result of odours from the facility.

The National Planning Policy Framework (NPPF)<sup>2</sup> states the following in relation to pollution control:

"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 or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities."

The above indicates that in accordance with the requirements of the NPPF, the planning regime must work on the basis that the Environmental Permitting process will be effective in controlling impacts. As such, any forthcoming consent should not be constrained on these grounds.

### **West Wickham Parish Council**

The response from West Wickham Parish Council is as follows:

"West Wickham Parish council objects to the application by Mr C. Covey of Streetly Hall Farm to construct and operate an anaerobic digestion renewable energy facility at Streetly Hall Farm, Webb's Road, Streetly End.

If the officer is minded to recommend approval of the application the Parish Council requests the application be referred to the Planning Committee for determination.

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<sup>2</sup> NPPF, Ministry of Housing, Communities and Local Government, 2021.

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The Parish Council objects on the following grounds:

[...]

2) Contrary to Local Plan Policy CC/2 this development has unacceptable adverse impacts on the amenity of residents in West Wickham and other local villages.

This is due to:

[...]

**B. Risk of odour and air pollution.** The Parish Council and many local residents have concerns that the Odour Assessment supplied by the applicant is inaccurate and optimistic. There is an obvious conflict of interest in that the Odour Assessment is commissioned by the applicant and thus will inevitably support the application. When air quality consultants are commissioned by others they sometimes come to very different conclusions to the applicant commissioned reports. Consider the Spring Grove Farm AD application being determined by Suffolk CC:

a. Applicant's report by SLR Consulting<sup>3</sup>: "assessment has concluded that the Proposed Development would result in a 'not significant' effect at human receptor locations with regard to odour"

b. Report by Michael Bull and Associates Ltd<sup>4</sup>: "it is concluded that there is a risk of significant adverse odour impacts"

It is understandable that residents are concerned that using the applicant supplied data in isolation presents a risk. Our initial assessment of the Odour Assessment raised the following concerns and inconsistencies:

a. The applicant's odour assessment has selected an odour benchmark level of 3.0ou<sub>E</sub>/m<sup>3</sup> (paragraphs 2.4.3 & 4.1.2) as the threshold for significance of impact. This is justified as the nature of the odours from the facility are "likely to be similar to green waste composting and agricultural emissions" and classified as 'moderately offensive'. However, AD facilities also assessed by Redmore Environmental (Blaise Anaerobic Digestion Plant, Client: H&C Consultancy Ltd Reference: 2753-5r1, 9th August 2019<sup>5</sup>) have used 1.5 ou<sub>E</sub>/m<sup>3</sup> as 'a worst case assessment'. The widely cited D-NOSEs review of odour measurement techniques

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<sup>3</sup> Proposed Anaerobic Digestion Facility at Spring Grover Farm, Withersfield, Northwest of Haverhill, CB9 7SW, SLR, 2023.

<sup>4</sup> Review of Odour Assessment, Michael Bull & Associates, 2023.

<sup>5</sup> 2753-5r1 - Odour Assessment - Blaise Anaerobic Digestion Plant, Redmore Environmental, 2019.

describes  $3.0\text{ouE}/\text{m}^3$  as 'distinct' so well above the threshold for significant impact and we consider that the models should be recalibrated using a  $1.5\text{ouE}/\text{m}^3$  (very weak to weak) threshold. [...]."

Policy CC/2: Renewable and Low Carbon Energy Generation of the South Cambridgeshire Local Plan<sup>6</sup> states the following in relation to amenity:

"Planning permission or proposals to generate energy from renewable and low carbon sources, with the exception of proposals for wind turbines, will be permitted provided that:

a. The development, and any associated infrastructure, either individually or cumulatively with other developments, does not have unacceptable adverse impacts on heritage assets (including their settings), natural assets, high quality agricultural land, the landscape, or the amenity of nearby residents (visual impact, noise, shadow flicker, odour, fumes, traffic); [...]."

The methodology outlined within the Institute of Air Quality Management (IAQM) document 'Guidance on the Assessment of Odour for Planning V1.1'<sup>7</sup>, which was utilised throughout the Odour Assessment<sup>8</sup>, has been specifically designed to facilitate appraisal of potential odour effects on amenity. Impacts as a result of emissions from the proposed development were predicted to be **slight** at two positions and **negligible** at six locations. These are classified as **not significant**, in accordance with the IAQM guidance<sup>9</sup>. As such, unacceptable adverse impacts on the amenity of nearby residents are not predicted. The proposals therefore comply with policy CC/2 of the South Cambridgeshire Local Plan.

In accordance with EA guidance<sup>10</sup>, the  $1.5\text{ouE}/\text{m}^3$  odour benchmark level applies to processes with 'most offensive odours' such as those involving 'decaying animal or fish remains', 'septic effluent or sludge' and 'biological landfill odours'. It is confirmed the facility will not process any of the relevant materials and the proposals do not comprise landfill activities. Adoption of the  $1.5\text{ouE}/\text{m}^3$  benchmark level for the Streetly Hall Farm site is therefore not appropriate with reference to EA guidance<sup>11</sup>.

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<sup>6</sup> South Cambridgeshire Local Plan, South Cambridgeshire District Council, 2018.

<sup>7</sup> Guidance on the Assessment of Odour for Planning V1.1, IAQM, 2018.

<sup>8</sup> 5949r2 - Odour Assessment - Streetly Hall Farm, West Wickham, Redmore Environmental Ltd, 2023.

<sup>9</sup> Guidance on the Assessment of Odour for Planning V1.1, IAQM, 2018.

<sup>10</sup> H4: Odour Management, EA, 2011.

<sup>11</sup> H4: Odour Management, EA, 2011.

The Blaise AD Plant referred to in the response processes the following materials, as detailed in the Environmental Permit (reference: EPR/ZP3409PQ) for the facility:

- Animal tissue waste;
- Plant tissue waste; and,
- Sludges from on-site effluent treatment.

As shown above, the Blaise AD Plant is authorised to handle effluent feedstocks and materials with potentially decaying animal remains. The  $1.5\text{ou}_E/\text{m}^3$  odour benchmark level was therefore an appropriate criterion for this facility. Additionally, operations at the Blaise AD Plant will be different to the proposed development, as shown in their respective Odour Assessments. The associated methodologies for each site should therefore not be compared.

"b. Section 3.2.3 states that the design specification of the odour abatement system for the intake and process building has not been finalised. Given that this building will be handling the most odorous feedstocks (poultry litter with an emission rate of  $75\text{ou}_E/\text{m}^3/\text{s}$  according to the sources referenced in the Odour Assessment) this seems to be a major oversight. In addition, the Process Conditions (Table 5 Source 5) gives no justification for the odour emission rate of  $1,000\text{ou}_E/\text{m}^3$  other than stating it will be at the upper rate of the 'Best Available Technique Associated Emission Level' (BAT AEL). Other odour assessments also by Redmore Environmental claim that a UV and activated carbon system 'are consistent with technical parameters specified in the stated EA and EC guidance documents' but 'which will ensure that a treated air odour concentration of less than  $2,000\text{ou}_E/\text{m}^3$  is achieved at all times'. This represents a 100% increase in output odour concentration compared to the calculations used in the application's assessment for an appropriate installation that could be selected by the applicant [...]."

The Environment Permit for the AD facility will include a condition which will limit the odour concentration from the abatement system to  $1,000\text{ou}_E/\text{m}^3$ . This is a standard regulatory requirement for any channelled emissions to air from an AD site. Details regarding the final odour abatement system design and maximum permissible odour level could also be secured via planning condition, if required by CCC.

"c. Much of the source data used in the odour assessment is not from high quality peer reviewed sources and references the Odour Impact Assessment for the Biomass AD Facility near Kenninghall, Norfolk which itself references an OdourNet source that does not

appear to be in the public domain. It is not clear why this source is considered definitive or correct.

[...]."

The emission rates were derived from monitoring of odour sources at other AD facilities and it is confirmed that all reports have historically been in the public domain and are held in the company document library. As such, they are considered to be representative of potential releases from the proposed development in the absence of site specific data.

It should be noted that the reference for the manure emission rate as detailed below Table 3 in the Odour Assessment<sup>12</sup> should have read 'Odour impact assessment for a proposed Crop CHP Plant at Stoke Bardolph'<sup>13</sup>.

### **Horseheath Parish Council**

The response from Horseheath Parish Council is as follows:

"Environmental concerns -

[...]

The odour survey indicates that odour will be negligible once sites are operational however this view is at variance with research that highlights ongoing disputes between locals, councils and the Environment Agency regarding 'unbearable smells' emanating from such AD Plants, spanning from 2019 to current disputes relating to recently installed plant.

[...]."

Odour issues associated with the operation of other AD facilities are not considered relevant to the planning application for the proposed development.

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<sup>12</sup> 5949r2 - Odour Assessment - Streetly Hall Farm, West Wickham, Redmore Environmental Ltd, 2023.

<sup>13</sup> Odour impact assessment for a proposed Crop CHP Plant at Stoke Bardolph, Odournet, 2008.

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## Haverhill Town Council

The response from Haverhill Town Council is as follows:

"Environmental Impact

[...]

Smells arising from fruit and sugar beet pulp which will affect nearby residents.

[...]."

Emissions associated with sugar beet pulp were represented within the model as two open faces in Clamp 3, where whole crops are potentially exposed during operation of the AD plant. Releases were assumed to be constant, 24-hours per day, 365-days per year. This provides a worst-case assessment scenario as periods of reduced operating capacity were not reflected in the modelled emissions. Additionally, the material will be covered outside of loading periods, resulting in contained emissions which were not represented in the analysis. Impacts were predicted to be **slight** at two receptors and **negligible** at six locations. This is classified as **not significant**, in accordance with the IAQM guidance<sup>14</sup>. As such, emissions from feedstocks are not predicted to affect nearby residents.

### **Non-Statutory Consultees**

The Principal Planning Officer at CCC requested review of two responses received from non-statutory consultees. These are summarised in the following Sections.

#### **Response 1**

"I note your recent memorandum re the above application. I would like to point out that the Odour Assessment that forms part of the application uses meteorological data from a site that is 25km from the proposed site (section 3.9 page 16) which does not share the same prevailing wind pattern or topography of the site. The prevailing west/south westerly wind pattern will take any odour directly from the site to Streetly End, West Wickham and West Wrattling. This will be pronounced for Streetly End due to the valley topography that carries air currents from the site to the village (hence why there is a historic windmill on the

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<sup>14</sup> Guidance on the Assessment of Odour for Planning V1.1, IAQM, 2018.

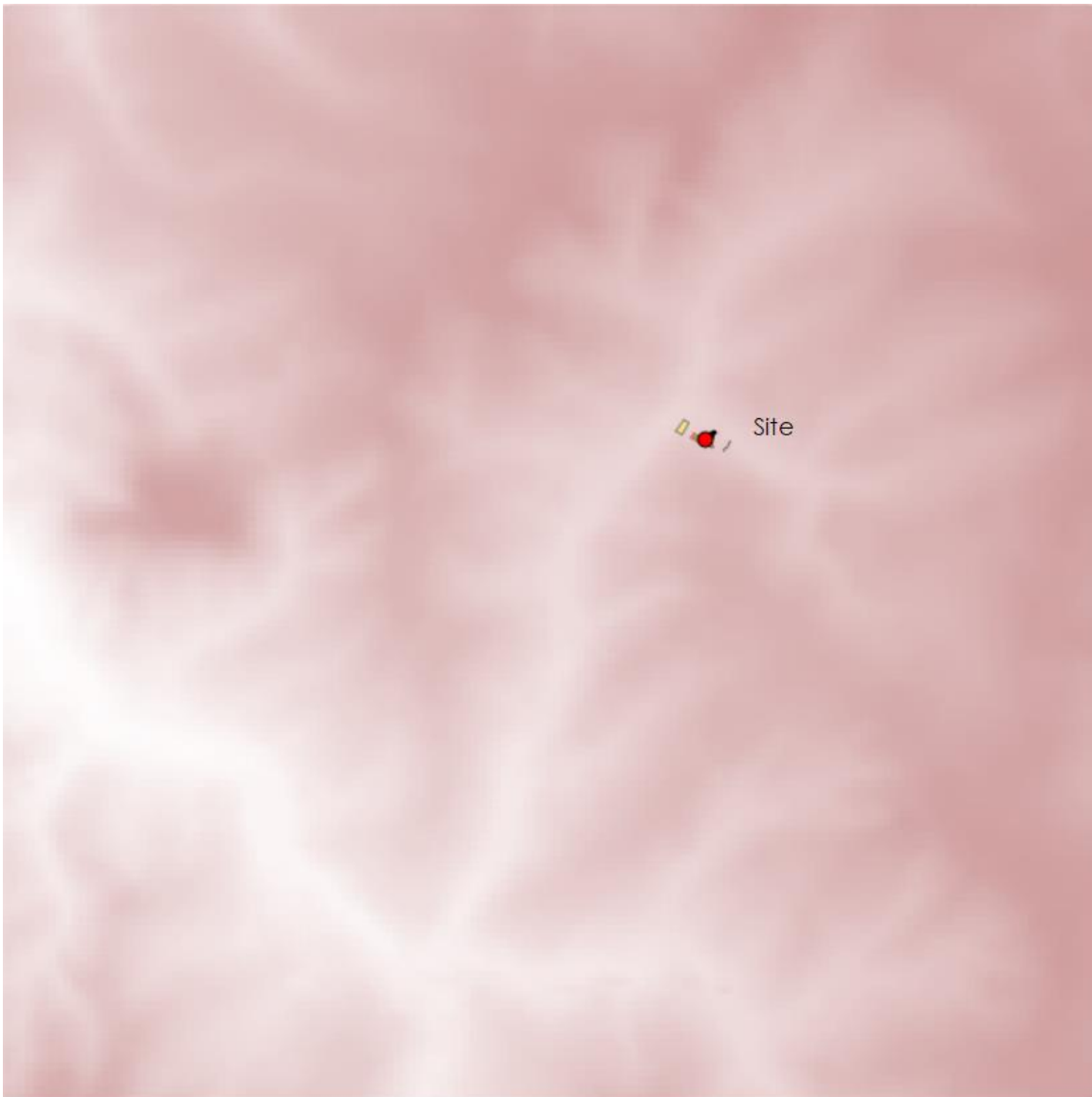
western edge of Streetly End). In Spring prevailing wind patterns alter with north easterly winds particularly in May, this will take the odour to Linton and Bartlow (pronounced for the latter due to the valley topography). See map below showing topography. Besides this obvious failing in the Odour Assessment the data has been analysed by a biochemist (PhD biochemistry) who found 'the dispersion modelling uses input odour emission rates that are at least one order of magnitude lower than those reported by peer reviewed scientific literature and used in other planning applications for similar AD sites in the UK.' There are also unaccounted odour emission sources that are typically used by other planning application for AD sites in the UK. I would therefore ask that you review the documents further before being able to confirm that this application is acceptable by the Public Health Department."

The response from the Environmental Health Officer at CCC in relation to the above is as follows:

"I believe both methodologies are valid (localised weather conditions vs. modelled meteorological conditions) and it would be difficult for us to verify in this instance which method would be best to utilise. Really, the applicant's consultant may be best to respond to the query raised and I'm happy to assist with any comments which they may provide."

Ordnance Survey OS Terrain 50 data was included in the dispersion model for the site and surrounding area in order to take account of the effect of the local topography on the wind flow field and associated odour dispersion throughout the assessment extents. The terrain model input data is shown visually in the figure below.





The above is comparable to the image provided by the Objector, as shown in Appendix 1, and indicates that the specific 'valley' features of the site were included in the model results.

No data has been provided in order to substantiate concerns regarding omission of odour sources and emission rates. However, it is confirmed that the same or similar values have been utilised for Odour Assessments of AD plants undertaken by both Redmore Environmental and other Air Quality Consultants throughout the UK.

It should be noted that a detailed review of the site layout and proposed operations was undertaken in order to identify all potential odour sources on the proposed AD site for inclusion in the dispersion model. Associated emission rates were derived from monitoring undertaken at similar facilities. As such, these are considered to representative of potential releases during

operation. Resultant odour impacts were predicted to be **slight** at two receptors and **negligible** at six locations, which are classified as **not significant**, in accordance with the IAQM guidance<sup>15</sup>.

## Response 2

"[...]

Smell - the storage of the feedstock will create odour. Although this may be covered, it will need to be uncovered frequently for feeding the plant.

[...]."

Emissions from uncovered feedstocks were assumed to be constant, 24-hours per day, 365-days per year. As outlined previously, this provides a worst-case assessment scenario as periods of reduced operating capacity were not reflected in the modelled emissions. Additionally, the material will be covered outside of loading periods, resulting in contained emissions which were not represented in the analysis. Resultant impacts were predicted to be **slight** at two receptors and **negligible** at six locations, which are classified as **not significant**, in accordance with the IAQM guidance<sup>16</sup>. As such, the storage or feedstock is not predicted to cause significant odour impacts in the vicinity of the site.

## Summary

The odour considerations for the proposed development can be summarised as follows:

- The Odour Assessment<sup>17</sup> was completed in accordance with the methodology outlined in the IAQM 'Guidance on the Assessment of Odour for Planning V1.1'<sup>18</sup>, which has been specifically designed to facilitate assessment of potential odour effects on amenity;
- Predicted odour concentrations were below the relevant odour benchmark level at all receptor locations for all modelling years;
- Odour impacts were predicted to be **slight** at two receptors and **negligible** at six locations. These are classified as **not significant** in accordance with the IAQM guidance<sup>19</sup>;

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<sup>15</sup> Guidance on the Assessment of Odour for Planning V1.1, IAQM, 2018.

<sup>16</sup> Guidance on the Assessment of Odour for Planning V1.1, IAQM, 2018.

<sup>17</sup> 5949r2 - Odour Assessment - Streetly Hall Farm, West Wickham, Redmore Environmental Ltd, 2023.

<sup>18</sup> Guidance on the Assessment of Odour for Planning V1.1, IAQM, 2018.

<sup>19</sup> Guidance on the Assessment of Odour for Planning V1.1, IAQM, 2018.

- Emissions from the facility will be controlled by an Environmental Permit issued by the EA. This will limit odours from the abatement system, as well as restrict impacts beyond the facility boundary;
- Inclusion of terrain within the dispersion model accounted for effects of local topography on the local wind flow field and odour dispersion from the site; and,
- Emission rates utilised in the dispersion model are considered to be representative of potential releases during operation and a number of worst case assumptions were adopted in order to facilitate a robust appraisal of potential impacts.

As shown throughout the Odour Assessment<sup>20</sup> and further within this Odour Technical Note, odour impacts associated with the proposed development were predicted to be **not significant** in accordance with IAQM guidance<sup>21</sup>. No evidence has been provided by any consultee to disprove these results and the Public Health Department at CCC has not raised any concerns regarding the Odour Assessment methodology or conclusions. As such, impacts of the development are considered acceptable and fully in accordance with current legislative and planning policy requirements.

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Odour Technical Note produced by Pearl Hutchinson, Associate Director, Redmore Environmental, on 29<sup>th</sup> February 2024.

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<sup>20</sup> 5949r2 - Odour Assessment - Streetly Hall Farm, West Wickham, Redmore Environmental Ltd, 2023.

<sup>21</sup> Guidance on the Assessment of Odour for Planning V1.1, IAQM, 2018.

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**Appendix 1**

