

Odour Assessment
Trubs Farm, Rochdale

Client: MCI Developments Limited

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Executive Summary

Redmore Environmental Ltd was commissioned by MCI Developments Limited to undertake an Odour Assessment in support of a residential development on land at Trubs Farm, Rochdale.

The site is located in the vicinity of Castleton Wastewater Treatment Works which is operated by United Utilities. Odour emissions from the facility have the potential to cause loss of amenity for future residents of the development. An Odour Assessment was therefore undertaken to quantify effects across the site and consider its suitability for the proposed end-use.

Emissions from relevant sources at the Wastewater Treatment Works were defined based on information provided by United Utilities. Impacts at sensitive receptors were quantified using dispersion modelling, the results compared with the relevant odour benchmark level and the significance assessed in accordance with the appropriate guidance criteria.

Predicted odour concentrations were below the relevant benchmark level across the proposed development for all modelling years. Resultant impacts at proposed residential locations were classified as not significant in accordance with the relevant guidance criteria. As such, potential odour emissions from the Wastewater Treatment Works are not considered to represent a constraint to the proposed development.

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6.0 ABBREVIATIONS

1.0 INTRODUCTION

1.1 Background

1.1.1 Redmore Environmental Ltd was commissioned by MCI Developments Limited to undertake an Odour Assessment in support of a planning application for a residential development on land at Trubs Farm, Rochdale.

1.1.2 The site is located in the vicinity of Castleton Wastewater Treatment Works (WwTWs) which is operated by United Utilities (UU). Odour emissions from the facility have the potential to cause loss of amenity for future residents of the development. An Odour Assessment was therefore undertaken to quantify effects across the site and consider its suitability for the proposed end-use.

1.2 Site Location and Context

1.2.1 The proposed development is located on land at Trubs Farm, Rochdale, at approximate National Grid Reference (NGR): 388217, 410004. Reference should be made to Figure 1 for a map of the site and surrounding area and Figure 2 for a proposed development layout plan.

1.2.2 The site is located within the vicinity of Castleton WwTWs. Odour emissions from the facility have the potential to cause loss of amenity for future residents of the development. As such, an Odour Assessment has been undertaken to evaluate baseline conditions and consider the suitability of the site for the proposed end-use. The findings are detailed in the following report.

2.0 ODOUR BACKGROUND

2.1 Odour Definition

2.1.1 The Institute of Air Quality Management (IAQM) guidance¹ defines odour as:

"[...] the human olfactory response (perception followed by psychological appraisal) to one, or more often a complex mixture of, chemical species in the air."

2.1.2 The stated definition is considered to be relevant in the context of this assessment.

2.2 Odour Impacts

2.2.1 The magnitude of odour impact depends on a number of factors and the potential for complaints varies due to the subjective nature of odour perception. The **FIDOL** acronym (also stated as **FIDOR** in Environment Agency (EA) guidance²) is a useful reminder of the factors that will determine the degree of odour pollution. These are described by the IAQM³ as follows:

- **F**requency - how often an individual is exposed to odour;
- **I**ntensity - the individual's perception of the strength of the odour;
- **D**uration - The overall duration that individuals are exposed to an odour over time;
- **O** odour unpleasantness - Odour unpleasantness describes the character of an odour as it relates to the 'hedonic tone' (which may be pleasant, neutral or unpleasant) at a given odour concentration/ intensity. This can be measured in the laboratory as the hedonic tone, and when measured by the standard method and expressed on a standard nine-point scale it is termed the hedonic score; and,
- **L**ocation - The type of land use and nature of human activities in the vicinity of an odour source. Tolerance and expectation of the receptor. The 'Location' factor can be considered to encompass the receptor characteristics, receptor sensitivity, and socio-economic factors.

¹ Guidance on the Assessment of Odour for Planning v1.1, IAQM, 2018.

² H4: Odour Management, EA, 2011.

³ Guidance on the Assessment of Odour for Planning v1.1, IAQM, 2018.

2.2.2 It is important to note that even infrequent emissions may cause loss of amenity if odours are perceived to be particularly intense or offensive.

2.2.3 The **FIDOL** factors can be further considered to provide the following issues in regards to the potential for an odour emission to cause an impact:

- The rate of emission of the compound(s);
- The duration and frequency of emissions;
- The time of the day that this emission occurs;
- The prevailing meteorology;
- The sensitivity of receptors to the emission i.e. whether the odorous compound is more likely to cause an impact, such as the sick or elderly, who may be more sensitive;
- The odour detection capacity of individuals to the various compound(s); and,
- The individual perception of the odour (i.e. whether the odour is regarded as unpleasant). This is greatly subjective, and may vary significantly from individual to individual. For example, some individuals may consider some odours as pleasant, such as petrol, paint and creosote.

2.3 Odour Legislative Control

2.3.1 The main requirement with respect to odour control from premises not authorised under the Environmental Permitting (England and Wales) Regulations (2016) and subsequent amendments, such as WWTWs, is that provided in Section 79 of Part III of the Environmental Protection Act (1990) The Act defines nuisance as:

"Any dust, steam, smell or other effluvia arising on industrial, trade or business premise and being prejudicial to health or a nuisance."

2.3.2 Enforcement of the Act, in regard to nuisance, is currently under the jurisdiction of the local Environmental Health Department, whose officers are deemed to provide an independent evaluation of nuisance. If the Local Authority is satisfied that a statutory nuisance exists, or is likely to occur or happen again, it must serve an Abatement Notice under Part III of the Environmental Protection Act (1990). The only defence is to show that the process to which the nuisance has been attributed and its operations are being controlled according to best practicable means (BPM). The term BPM is defined as:

- "Practicable" means reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to the financial implications;
- The "means" to be employed include the design, installation, maintenance and manner and periods of operation of plant and machinery, and the design, construction and maintenance of buildings and structures;
- The test is to apply only so far as compatible with any duty imposed by law; and,
- The test is to apply only so far as compatible with safety and safe working conditions, and with the exigencies of any emergency or unforeseeable circumstances.

2.3.3 The stated legislative controls have been considered as appropriate throughout the assessment.

2.4 Odour Benchmark Levels

2.4.1 There is no statutory limit in the UK for ambient odour concentrations, whether set for individual chemical species or for mixtures. However, a number of indicative criteria have been utilised for the assessment of potential impacts. These are discussed in the following Sections.

Environment Agency Criteria

2.4.2 The EA has issued guidance on odour⁴ which contains indicative benchmark levels for use in the assessment of potential impacts from facilities regulated under the Environmental Permitting (England and Wales) Regulations (2016) and subsequent amendments.

2.4.3 Benchmark levels are stated as the 98th percentile (%ile) of hourly mean concentrations in European odour units (ouE) over a year for odours of different offensiveness. In practice this means that for 2% of the year, or 175-hours, concentrations will be higher than this value, whilst for 98% of the year, or 8,585-hours, they will be lower. This parameter reflects the previously described **FIDOL** factors, where an odour is likely to be noted on several occasions above a particular threshold concentration before an annoyance occurs. EA odour benchmark levels are summarised in Table 1.

⁴ H4: Odour Management, EA, 2011.

Table 1 Odour Benchmark Levels

Relative Offensiveness of Odour	Benchmark Level as 98 th %ile of 1-hour Means (ou _E /m ³)
Most offensive odours: - Processes involving decaying animal or fish - Processes involving septic effluent or sludge - Biological landfill odours	1.5
Moderately offensive odours: - Intensive livestock rearing - Fat frying (food processing) - Sugar beet processing - Well aerated green waste composting	3.0
Less offensive odours: - Brewery - Confectionery - Coffee roasting - Bakery	6.0

Wastewater Industry Research

2.4.4 In addition to the levels shown in Table 1, the wastewater industry has published an in-depth study through the United Kingdom Waste Industry Research (UKWIR) into the correlation between modelled odour impacts and human response (dose-effect). This was based on a review of the relationship between reported odour complaints and modelled odour impacts at nine WwTWs in the UK with ongoing odour complaints. The findings of this research (and subsequent UKWIR research) indicated the following:

- At modelled exposures of below 5ou_E/m³ as 98th %ile of 1-hour means, complaints are relatively rare, at only 3% of the total registered;
- At modelled exposures between 5ou_E/m³ and 10ou_E/m³ as a 98th %ile of 1-hour means, a significant proportion of total registered complaints occur, 38% of the total; and,
- The majority of complaints occur in areas of modelled exposure greater than 10ou_E/m³ as a 98th %ile of 1-hour means, 59% of the total.

Chartered Institute of Water and Environmental Management

2.4.5 The Chartered Institute of Water and Environmental Management (CIWEM) has released a Position Statement on the Control of Odour which provides guidance on likely responses to odour concentrations. These are summarised in Table 2.

Table 2 CIWEM Odour Guidance

Odour Concentration as 98 th %ile of 1-hour Means (ou _E /m ³)	Response
Less than 3	Complaints are unlikely to occur and exposure below this level are unlikely to constitute significant pollution or significant detriment to amenity unless the locality is highly sensitive or the odour highly unpleasant in nature
5 - 10	Complaints may occur and depending on the sensitivity of the locality and nature of the odour this level may constitute a nuisance
Greater than 10	Complaints are highly likely and odour exposure at these levels represents an actionable nuisance

Planning Case Law

2.4.6 A 5ou_E/m³ impact criterion has accepted as being appropriate for avoidance of significant risk of annoyance and a low risk of nuisance in a number of planning applications involving WwTWs (e.g. Newbiggin, JS Bloor Ltd, Leighton Linsalde, etc).

2.4.7 In addition, the following precedents from previous planning appeals support the use of the 3.0ou_E/m³ benchmark level:

- Low Road, Cockermouth (APP/G0908/A11/2151737) - The inspector concluded that "Should odours fall within medium offensiveness, rather than low, the C98,1hour 3ou_E/m³ level modelled by the appellant indicates that it would not impinge on the appeal dwellings" (i.e. 3ou_E/m³ represented acceptable odour conditions);
- Land between Upthorpe Road and Hepworth Road, Stanton (APP/E3525/A/11/2162837) - The Inspector concluded "I consider that a more appropriate threshold in this case is 3 - 5 ou_E/m³ [...]"; and,
- Land South of Le Neubourg Way, Gillingham, Dorset (APP/N1215/W/15/3005513) - The Inspector wrote: "[...] I conclude that the appropriate parameter to apply in this case is the 3ou_E/m³ contour line; a more restrictive approach would preclude from

development areas which are comparable in odour terms with extensive areas of existing housing in Gillingham."

Department for Environment, Food and Rural Affairs

2.4.8 In order to provide some context to the odour benchmark values, the Department for Environment, Food and Rural Affairs (DEFRA) have provided the following descriptors⁵:

- 1ou_E/m³ is the point of detection;
- 5ou_E/m³ is a faint odour; and,
- 10ou_E/m³ is a distinct odour.

2.4.9 An odour at a strength of 1ou_E/m³ is in reality so weak that it would not normally be detected outside the controlled environment of an odour laboratory by the majority of people (that is individuals with odour sensitivity in the "normal" range - approximately 96% of the population⁶). It is important to note that these values are based on laboratory measurements and in the general environment other factors affect our sense of odour perception. These include:

- The population is continuously exposed to a wide range of background odours at a range of different concentrations, and usually people are unaware of there being any background odours at all due to normal habituation. Individuals can also develop a tolerance to background and other specific odours. In an odour laboratory the determination of detection threshold is undertaken by comparison with non-odorous air, and in carefully controlled, odour-free, conditions. Normal background odours such as those from traffic, vegetation, grass mowing etc, can provide background odour concentrations from 5 to 60ou_E/m³ or more⁷;
- The recognition threshold may be about 3ou_E/m³ ⁸, although it might be less for offensive substances or higher if the receptor is less familiar with the odour or distracted by other stimuli; and,

⁵ Odour Guidance for Local Authorities, DEFRA, 2010.

⁶ Odour Guidance for Local Authorities, DEFRA, 2010.

⁷ Odour Guidance for Local Authorities, DEFRA, 2010.

⁸ Odour Guidance for Local Authorities, DEFRA, 2010.

- An odour which fluctuates rapidly in concentration is often more noticeable than a steady odour at a low concentration.

2.5 National Planning Policy

2.5.1 The revised National Planning Policy Framework⁹ (NPPF) was published in December 2024 and updated in February 2025. The document sets out the Government's planning policies for England and how these are expected to be applied.

2.5.1 The purpose of the planning system is to contribute to the achievement of sustainable development. In order to ensure this, the NPPF recognises three overarching objectives, including the following of relevance to odour:

"c) An environmental objective - 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."

2.5.2 Chapter 12 of the NPPF details objectives in relation to achieving well-designed place. It states that:

"Planning policies and decisions should ensure that developments:

[...]

f) create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users; and where crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesions and resilience."

2.5.3 The implications of the NPPF have been considered throughout this assessment.

⁹ NPPF, Ministry of Housing, Communities and Local Government, 2025.

2.6 Local Planning Policy

2.6.1 The Rochdale Core Strategy¹⁰ was formally adopted by Rochdale Borough Council (RBC) in October 2016. Review of the document indicated the following policies of relevance to this assessment:

"G9 - Reducing the impact of pollution, contamination and land instability

We will reduce all forms of pollution, contamination and land instability in the borough, by:

[...]

c. Ensuring sensitive new developments such as housing, schools and hospitals are not adversely affected by existing sources of pollution such as roads and certain types of industry;

[...]

g. Using planning conditions or obligations to control pollution from new development, or the impact of pollution on new development."

"DM1 - General development requirements

All development proposals, including changes of use of land and buildings, extensions and alterations, will be expected to demonstrate that they:

[...]

d. Mitigate against any impacts due to noise, air, dust, light and odour pollution, traffic generation or inadequate access, where such mitigation is identified as being necessary; [...]"

¹⁰ Rochdale Core Strategy, RBC, 2016.

2.6.2 The above policies have been taken into account throughout the undertaking of this assessment.

2.7 Institute of Air Quality Management Guidance

2.7.1 The IAQM published the 'Guidance on the Assessment of Odour for Planning'¹¹ on 20th May 2014. This was updated in 2018¹² and specifically deals with assessing odour impacts for planning purposes, namely potential effects on amenity. The assessment methodology outlined in the guidance has been utilised in throughout this report where relevant.

¹¹ Guidance on the Assessment of Odour for Planning, IAQM, 2018.

¹² Guidance on the Assessment of Odour for Planning, IAQM, 2018.

3.0 METHODOLOGY

3.1 Introduction

3.1.1 Castleton WwTWs may result in odour emissions during normal operation. Associated impacts at the proposed development were therefore assessed in accordance with the following stages:

- Identification of odour sources;
- Identification of odour emission rates;
- Dispersion modelling of odour emissions; and,
- Comparison of the modelling results with the relevant criteria.

3.1.2 The following Sections outline the methodology and inputs used for the assessment.

3.2 Dispersion Model

3.2.1 Dispersion modelling was undertaken using ADMS-6.0 (v6.0.2.0), which is developed by Cambridge Environmental Research Consultants (CERC) Ltd. ADMS-6 is a short-range dispersion modelling software package that simulates a wide range of buoyant and passive releases to atmosphere. It is a new generation model utilising boundary layer height and Monin-Obukhov length to describe the atmospheric boundary layer and a skewed Gaussian concentration distribution to calculate dispersion under convective conditions.

3.2.2 The model utilises hourly meteorological data to define conditions for plume rise, transport and diffusion. It estimates the concentration for each source and receptor combination for each hour of input meteorology and calculates user-selected long-term and short-term averages.

3.2.3 The model requires input data that details the following parameters:

- Source and emissions data;
- Assessment area;
- Terrain information;
- Building dimensions;

- Meteorological data;
- Roughness length (z_0); and,
- Monin-Obukhov length.

3.2.4 These are detailed in the following Sections.

3.3 Odour Sources

3.3.1 Consultation was undertaken with UU in order to identify odour sources which required consideration as part of the assessment. These are summarised in Table 3.

Table 3 Odour Sources

Source		Source Description	Total Exposed Area (m ²)
1	Inlet works	1 rectangular source	40.0
2	Existing storm tank	1 rectangular source	180.0
3	Proposed detention tank	1 circular source	251.7
4	Small proposed detention tank	1 rectangular source	12.6

3.3.2 A summary of the model inputs used to represent the sources shown in Table 3 is provided in Table 4.

Table 4 Source Input Data

Source		Source Type	Modelled Area (m ²)
1	Inlet works	Area	39.9
2	Existing storm tank	Area	908.3
3	Proposed detention tank	Area	245.2
4	Small proposed detention tank	Area	11.3

3.3.3 Reference should be made to Figure 3 for a map of the source locations.

3.4 Odour Emission Rates

3.4.1 Emission rates for the sources were provided by UU. These are summarised in Table 5.

Table 5 Odour Emission Rates

Source		Odour Emission Rate (ouE/m ² /s)
1	Inlet works	11.1
2	Existing storm tank	37.4
3	Proposed detention tank	4.2
4	Small proposed detention tank	4.2

3.4.2 The emission rates shown in Table 5 were multiplied by the areas shown in Table 4 to determine the total release per source. These were then entered into ADMS-6, allowing for any differences between modelled and actual areas.

3.4.3 It should be noted that the proposed detention tanks were assumed to be full at all times. This is considered to represent a worst-case assessment scenario, as information provided by UU indicated that there will be periods when the tanks will be empty.

3.5 Modelling Scenarios

3.5.1 The scenarios considered in the modelling assessment are summarised in Table 6.

Table 6 Assessment Scenarios

Parameter	Modelled As	
	Short Term	Long Term
Odour	98 th %ile 1-hour mean	-

3.6 Assessment Area

3.6.1 The assessment area was defined based on the site location, anticipated pollutant dispersion patterns and the positioning of sensitive receptors. Ambient concentrations were predicted over NGR: 387820, 409520 to 388720, 410420. One Cartesian grid with a

resolution of 10m was used within the model to produce data suitable for contour plotting using the Surfer software package.

3.6.2 Reference should be made to Figure 3 for a graphical representation of the assessment grid extents.

3.6.3 Discrete receptor locations were included in the model based on the proposed site layout. Receptors were chosen to represent positions at the nearest residential dwellings. The receptor locations and their associated sensitivities are summarised in Table 7.

Table 7 Discrete Receptor Locations

Receptor		Sensitivity	NGR (m)	
			X	Y
R1	Proposed residential	High	388176.4	409886.4
R2	Proposed residential	High	388177.6	409896.1
R3	Proposed residential	High	388200.6	409929.6
R4	Proposed residential	High	388213.9	409927.7
R5	Proposed residential	High	388235.4	409926.5

3.6.4 Reference should be made to Figure 4 for a map of the receptor locations.

3.7 Meteorological Data

3.7.1 Site specific meteorological data was obtained for use in the model based on assimilation and short-term forecast fields of the Numerical Weather Prediction (NWP) system known as the Global Forecast System (GFS), over the period 1st January 2019 to 31st December 2024 (inclusive).

3.7.2 The GFS is a spectral model. The physics/dynamics model has an equivalent resolution of approximately 13km (latterly 9km), whilst terrain is understood to be resolved at a resolution of approximately 2km, with sub-13/9km terrain effects parameterised. Site specific data may be extrapolated from nearby archive grid points or a representative grid point selected. The GFS resolution adequately captures major topographical features and the broad-scale characteristics of the weather over the UK.

3.7.3 Reference should be made to Figure 5 for wind roses of utilised meteorological records.

3.8 Roughness Length

3.8.1 The z_0 is a modelling parameter applied to allow consideration of surface height roughness elements. A z_0 of 0.5m was used to describe the modelling extents. This value is considered appropriate for the morphology of the area and is suggested within ADMS-6 as being suitable for 'parkland, open suburbia'.

3.9 Monin-Obukhov Length

3.9.1 The Monin-Obukhov length provides a measure of the stability of the atmosphere. A minimum Monin-Obukhov length of 30m was used to describe the modelling extents. This value is considered appropriate for the nature of the area and is suggested within ADMS-6 as being suitable for 'cities and large towns'.

3.10 Terrain Data

3.10.1 Ordnance Survey OS Terrain 50 data was included in the model for the site and surrounding area in order to take account of the specific flow field produced by variations in ground height throughout the assessment extents. This was pre-processed using the method suggested by CERC¹³.

3.11 Assessment Criteria

3.11.1 Predicted ground level odour concentrations were compared with the odour benchmark level of 3.0ou_E/m³ as a 98th %ile 1-hour mean, based on previous planning case law and research undertaken by UKWIR.

¹³ Note 105: Setting up Terrain Data for Input to CERC Models, CERC, 2016.

3.12 Significance of Odour Impacts

3.12.1 The significance of impacts was assessed through the interaction of the predicted 98th %ile of 1-hour mean odour concentrations and receptor sensitivity, as outlined in the IAQM guidance¹⁴.

3.12.2 As stated previously, the results were compared to the EA benchmark of 3.0ouE/m³ which corresponds to 'moderately offensive' odours. The IAQM assessment matrix for 'moderately offensive' odours is summarised in Table 8.

Table 8 Odour Impact - Moderately Offensive Odours

Odour Exposure Level as 98 th %ile of 1-hour Means (ouE/m ³)	Receptor Sensitivity		
	Low	Medium	High
Greater than 10	Moderate	Substantial	Substantial
5 - 10	Slight	Moderate	Moderate
3 - 5	Negligible	Slight	Moderate
1.5 - 3	Negligible	Negligible	Slight
0.5 - 1.5	Negligible	Negligible	Negligible
Less than 0.5	Negligible	Negligible	Negligible

3.12.3 Consultation with UU indicated the requirement assess the significance of potential odour impacts in accordance with the more stringent IAQM criteria for 'most offensive' odours. The relevant assessment matrix is summarised in Table 9.

Table 9 Odour Impact - Most Offensive Odours

Odour Exposure Level as 98 th %ile of 1-hour Means (ouE/m ³)	Receptor Sensitivity		
	Low	Medium	High
Greater than 10	Moderate	Substantial	Substantial
5 - 10	Moderate	Moderate	Substantial
3 - 5	Slight	Moderate	Moderate

¹⁴ Guidance on the Assessment of Odour for Planning, IAQM, 2018.

Odour Exposure Level as 98 th %ile of 1-hour Means (ouE/m ³)	Receptor Sensitivity		
	Low	Medium	High
1.5 - 3	Negligible	Slight	Moderate
0.5 - 1.5	Negligible	Negligible	Slight
Less than 0.5	Negligible	Negligible	Negligible

3.12.4 The IAQM guidance¹⁵ states that an assessment must reach a conclusion on the likely significance of the predicted impact. Where the overall effect is **moderate** or **substantial**, the effect is likely to be considered **significant**, whilst if the impact is **slight** or **negligible**, the impact is likely to be considered **not significant**. It should be noted that this is a binary judgement of either it is **significant** or it is **not significant**.

3.13 Modelling Uncertainty

3.13.1 Uncertainty in dispersion modelling predictions can be associated with a variety of factors, including:

- Model uncertainty - due to model limitations;
- Data uncertainty - due to errors in input data, including emission estimates, operational procedures, land use characteristics and meteorology; and,
- Variability - randomness of measurements used.

3.13.2 Potential uncertainties in the model results were minimised as far as practicable and worst-case inputs used in order to provide a robust assessment. This included the following:

- Choice of model - ADMS-6 is a commonly used atmospheric dispersion model and results have been verified through a number of studies to ensure predictions are as accurate as possible;
- Meteorological data - Modelling was undertaken using five annual site-specific meteorological data sets to take account of a range of conditions. The assessment was based on the worst-case year to ensure maximum concentrations were considered;

¹⁵ Guidance on the Assessment of Odour for Planning, IAQM, 2018.

- Surface characteristics - The z_0 was determined for use in the modelling based on the surrounding land uses and guidance provided by CERC;
- Emission rates - Emission rates were provided by UU. As such, they are considered to be representative of potential releases during normal operation of the WwTWs;
- Receptor locations - A Cartesian Grid was included in the model in order to provide suitable data for contour plotting. Receptor points were also included at sensitive locations to provide additional consideration of these areas; and,
- Variability - All model inputs are as accurate as possible and worst-case conditions were considered as necessary in order to ensure a robust assessment of potential pollutant concentrations.

3.13.3 Results were considered in the context of the relevant odour benchmark level and IAQM criteria suggested by UU. It is considered that the use of the stated measures to reduce uncertainty and the use of worst-case assumptions when necessary has resulted in model accuracy of an acceptable level.

4.0 ASSESSMENT

4.1 Predicted Odour Concentrations

- 4.1.1 Dispersion modelling of potential odour emissions was undertaken using the input data specified previously. Predicted odour concentrations at the discrete receptor locations are summarised in Table 10. It should be noted that the odour concentrations are presented as a 98th %ile of 1-hour mean values over the relevant assessment year. The maximum concentration across the five years of results is highlighted in **bold**.

Table 10 Predicted Odour Concentrations

Receptor		Predicted 98 th %ile 1-hour Mean Odour Concentration (ouE/m ³)				
		2020	2021	2022	2023	2024
R1	Proposed residential	0.89	1.04	0.94	0.97	0.96
R2	Proposed residential	0.84	1.01	0.91	0.94	0.93
R3	Proposed residential	0.72	0.80	0.76	0.81	0.78
R4	Proposed residential	0.65	0.80	0.73	0.78	0.75
R5	Proposed residential	0.57	0.69	0.65	0.69	0.66

- 4.1.2 As indicated in Table 10, predicted odour concentrations were below the EA odour benchmark of 3.0ouE/m³, as well as the more stringent benchmark of 1.5ouE/m³, at all receptor locations for all modelling years.

- 4.1.3 Reference should be made to Figure 6 to Figure 10 for graphical representations of predicted odour concentrations throughout the assessment extents.

4.2 Impact Significance

- 4.2.1 The significance of predicted odour impacts at the sensitive receptors is summarised in Table 11.

Table 11 Predicted Odour Impacts

Receptor		Odour Exposure Level as 98 th %ile of 1-hour Means (OU _E /m ³)	Receptor Sensitivity	Significance of Impact
R1	Proposed residential	0.5 - 1.5	High	Slight
R2	Proposed residential	0.5 - 1.5	High	Slight
R3	Proposed residential	0.5 - 1.5	High	Slight
R4	Proposed residential	0.5 - 1.5	High	Slight
R5	Proposed residential	0.5 - 1.5	High	Slight

4.2.2 As indicated in Table 11, the significance of odour impacts as a result of emissions from the WwTWs was predicted to be **slight** at all receptor locations.

4.2.3 The IAQM guidance¹⁶ states that only if the impact is **moderate** or **substantial**, the effect is considered **significant**. As such, impacts are considered **not significant**, in accordance with the stated methodology.

4.2.4 Based on the dispersion modelling results, odour emission from Castleton WwTWs are not considered a constraint to planning permission for the development.

¹⁶ Guidance on the Assessment of Odour for Planning v1.1, IAQM, 2018.

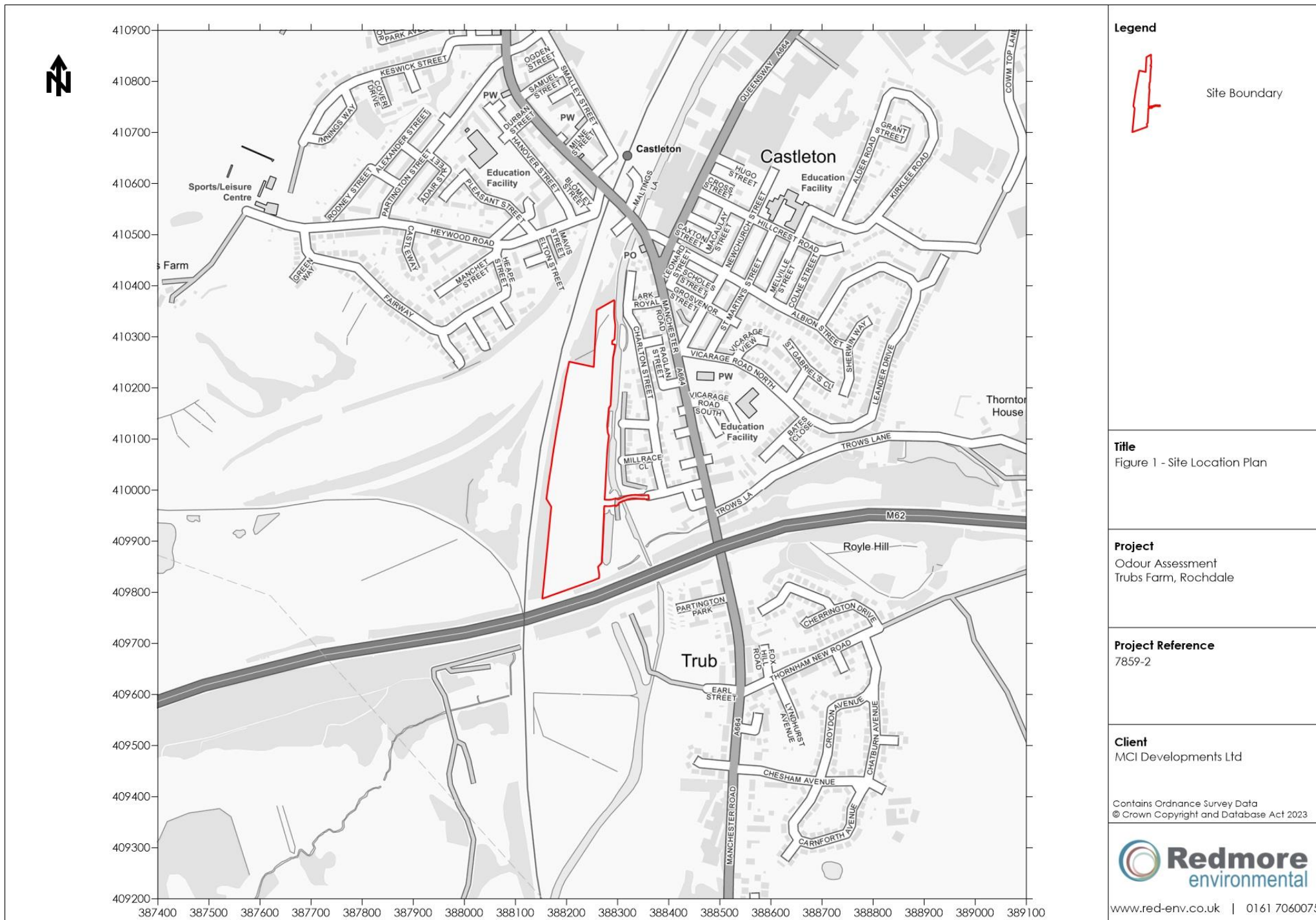
5.0 CONCLUSION

- 5.1.1 Redmore Environmental Ltd was commissioned by MCI Developments Limited to undertake an Odour Assessment in support of a residential development on land at Trubs Farm, Rochdale.
- 5.1.2 The site is located in the vicinity of Castleton WwTW which is operated by UU. Odour emissions from the facility have the potential to cause loss of amenity for future residents of the development. An Odour Assessment was therefore undertaken to quantify effects across the site and consider its suitability for the proposed end-use.
- 5.1.3 Potential odour releases were defined based on the size and nature of the WwTWs and information provided by UU. These were represented within a dispersion model produced using ADMS-6. Impacts at potential sensitive receptor locations on site were quantified, the results compared with the relevant odour benchmark level and the significance assessed in accordance with the IAQM guidance.
- 5.1.4 Predicted odour concentrations were below the relevant odour benchmark level at all locations across the development site for all modelling years. The significance of predicted impacts was defined as **slight** at all positions and overall odour effects as a result of emissions from the facility were concluded to be **not significant** in accordance with the IAQM guidance criteria.
- 5.1.5 Based on the dispersion modelling results, odour emissions from Castleton WwTWs are not considered a constraint to planning consent for the proposed development.

6.0 **ABBREVIATIONS**

CERC	Cambridge Environmental Research Consultants
CIWEM	Chartered Institute of Water and Environmental Management
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
GFS	Global Forecast System
IAQM	Institute of Air Quality Management
NGR	National Grid Reference
NPPF	National Planning Policy
NWP	Numerical Weather Prediction
OU _E	European Odour Units
RBC	Rochdale Borough Council
UKWIR	United Kingdom Waste Industry Research
UU	United Utilities
WwTW	Wastewater Treatment Work
Z ₀	Roughness Length
%ile	Percentile

Figures



Legend

 Site Boundary

Title

Figure 1 - Site Location Plan

Project

Odour Assessment
Trubs Farm, Rochdale

Project Reference

7859-2

Client

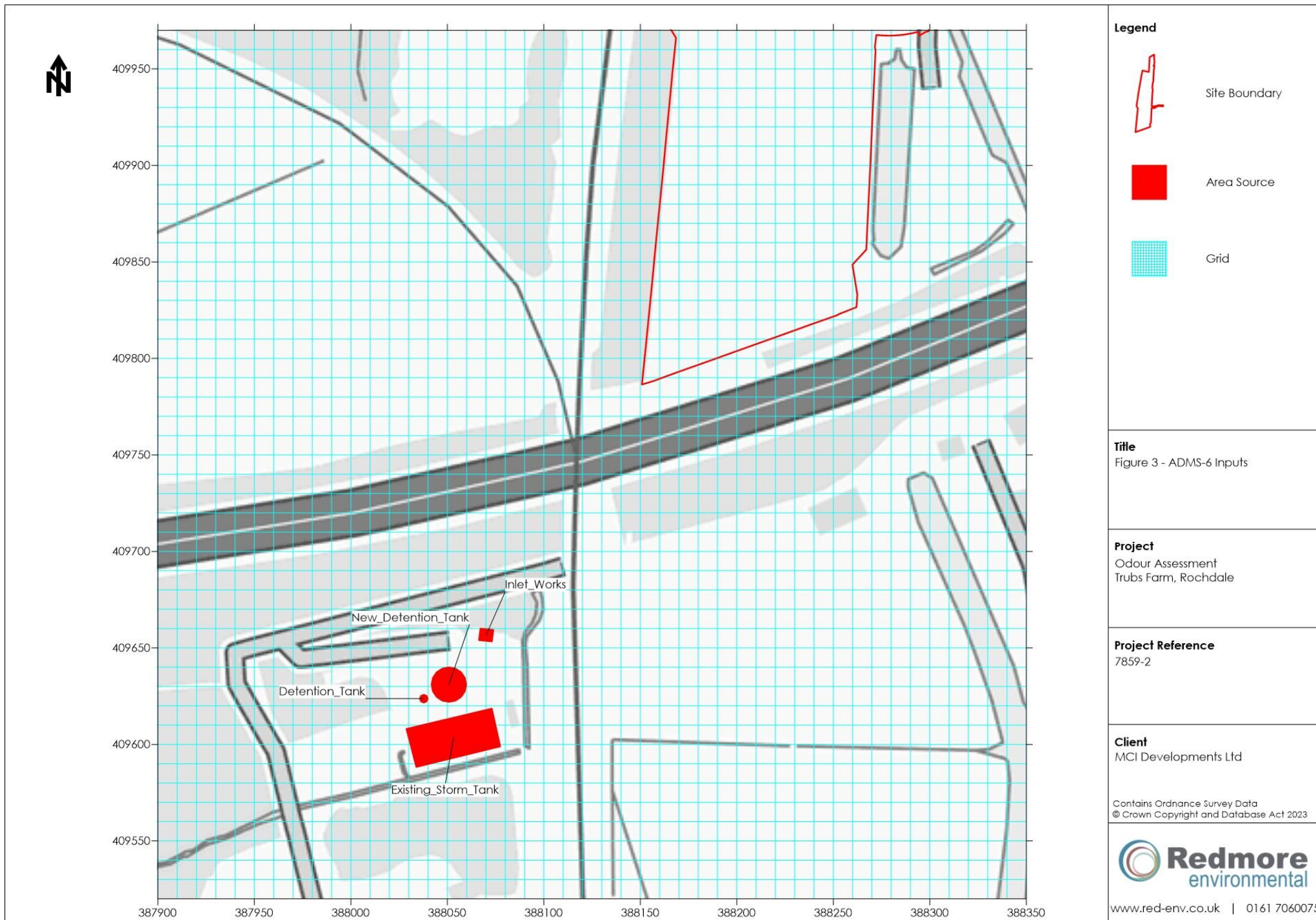
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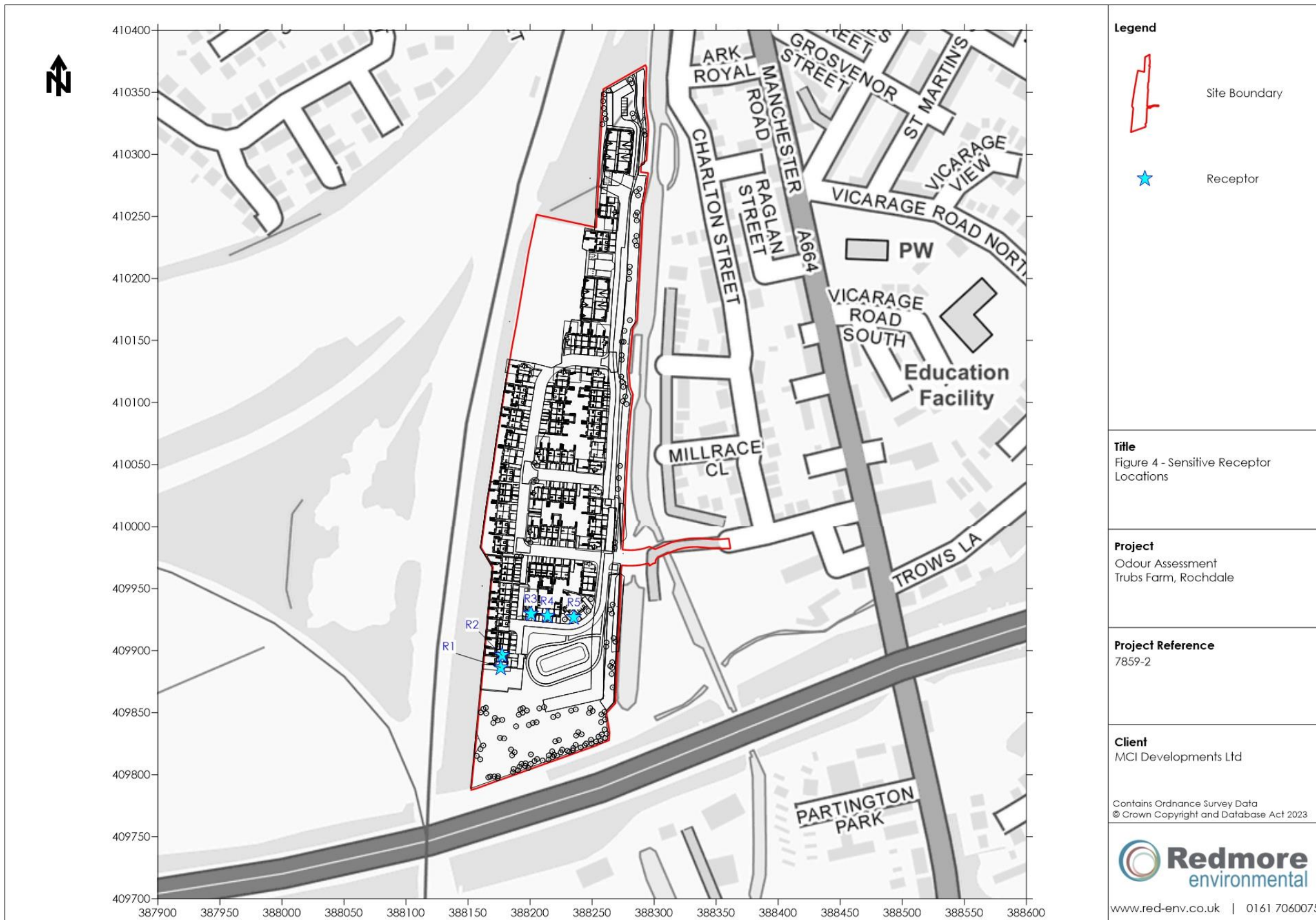
Contains Ordnance Survey Data
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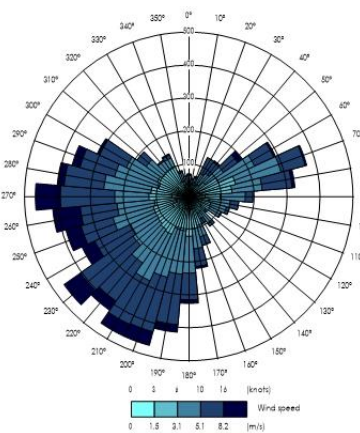
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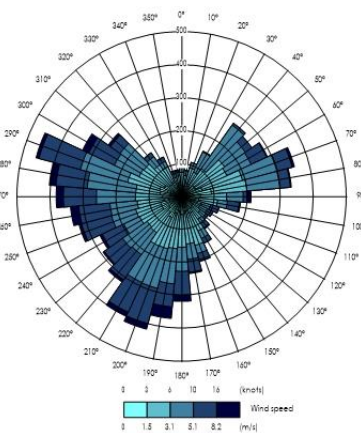




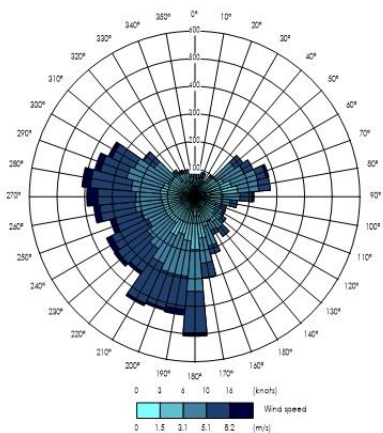




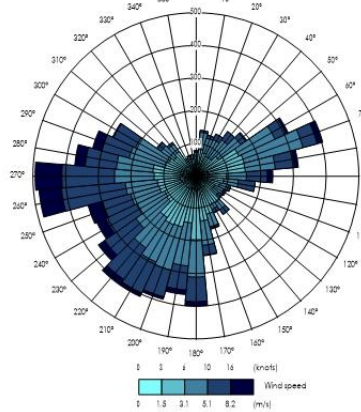
2020 Meteorological Data



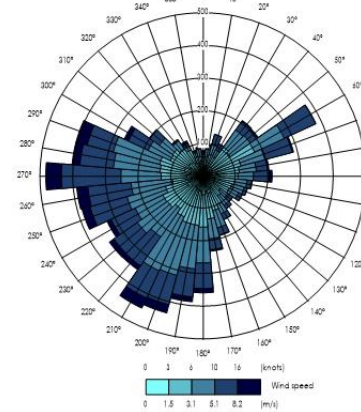
2021 Meteorological Data



2022 Meteorological Data



2023 Meteorological Data



2024 Meteorological Data

Legend

Title

Figure 5 - Wind Roses of 2020 to 2024 GFS Meteorological Data

Project

Odour Assessment
Trubs Farm, Rochdale

Project Reference

7859-2

Client

MCI Developments Ltd

