

Odour Impact Assessment
Wilmslow Road, Manchester

Client: Venture MCR Limited

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Report Issue

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Executive Summary

Redmore Environmental Ltd was commissioned by Venture MCR Limited to undertake an Odour Impact Assessment in support of a planning application for a residential-led mixed use development on land off Wilmslow Road, Manchester.

The proposals comprise the construction of six commercial units at ground level for restaurant use with 40 apartments above, alongside associated infrastructure.

The development has the potential to cause odour impacts as a result of emissions from food preparation activities within the proposed restaurants. As such, an Odour Impact Assessment was undertaken in order to assess potential effects as a result of the scheme.

An assessment using the standard industry methodology was undertaken to identify the odour risk associated with the proposals. This was based on a number of site-specific inputs.

The results of the assessment indicated the odour risk was classified as **high**. This prediction does not infer that the proposed development would result in significant odour impact or affect local amenity levels. However, it does suggest that appropriate mitigation options are required to reduce potential effects to an acceptable level.

The recommended abatement option has been specified in line with the relevant guidance for kitchens with a **high** risk of impact. It therefore follows that with this mitigation in place, potential odour impacts at nearby sensitive receptors would be reduced to an acceptable level.

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1.0 INTRODUCTION

1.1 Background

1.1.1 Redmore Environmental Ltd was commissioned by Venture MCR Limited to undertake an Odour Impact Assessment in support of a planning application for a residential-led mixed use development on land off Wilmslow Road, Manchester.

1.1.2 The development has the potential to cause odour impacts as a result of emissions from food preparation activities within a number of proposed restaurants. As such, an Odour Impact Assessment was undertaken in order to assess potential effects as a result of the scheme and identify the necessary mitigation measures to prevent adverse impacts.

1.2 Site Location and Context

1.2.1 The site is located at 98 Wilmslow Road, Manchester, at approximate National Grid Reference (NGR): 385198, 395256. Reference should be made to Figure 1 for a map of the site and surrounding area.

1.2.2 The proposals comprise the construction of six retail units at ground floor level for restaurant use with 40 apartments above, alongside associated infrastructure. Reference should be made to Figure 2 for a site layout plan at ground floor level.

1.2.3 The site is bordered to the east by Wilmslow Road and to the south by Grandale Road. There are a number of existing restaurants immediately west of the development and Rusholme Job Centre is located to the north. Residential properties are positioned to the north-west, south and east of the site. The closest of these are the proposed apartments associated with the development at first floor level and above.

1.2.4 Cuisine types to be prepared in the restaurants include Indian, Thai, Turkish, Vietnamese and pizza. Emissions from hot food preparation within the kitchens serving the restaurants will be extracted and emitted to atmosphere vertically via a high velocity jet cowl located approximately 2.1m above the eaves of the building. Reference should be made to Figure 3 for a roof layout plan showing the extract locations.

1.2.5 The preparation of hot food at the premises may result in odour emissions. These have the potential to cause impacts at sensitive locations within the vicinity of the site. As such, an Odour Impact Assessment has been undertaken in order to assess potential effects as a result of the scheme and identify the necessary mitigation measures to prevent adverse impacts. This is 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, is a useful reminder of the factors that will determine the degree of odour pollution. These are described by the IAQM² 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 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 in relation to the following and the potential for an odour emission to cause a nuisance:

- 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 nuisance, 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 **Legislative Control**

2.3.1 The main requirement with respect to odour control from premises not controlled under the Environmental Permitting (England and Wales) Regulations (2016) and subsequent amendments, such as commercial kitchens, 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 premises 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 operation are being controlled according to best practicable means.

2.4 National Planning Policy

2.4.1 The revised National Planning Policy Framework³ (NPPF) was published in July 2021 and sets out the Government's planning policies for England and how these are expected to be applied.

2.4.2 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 air quality:

"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."

2.4.3 Chapter 15 of the NPPF details objectives in relation to conserving and enhancing the natural environment. It states that:

"Planning policies and decisions should contribute to and enhance the natural and local environment by:

[...]

e) 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 [...]"

2.4.4 The NPPF specifically recognises air quality as part of delivering sustainable development and states that:

³ NPPF, Ministry of Housing, Communities and Local Government, 2021.

"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."

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

2.5 Local Planning Policy

2.5.1 The Core Strategy⁴ was adopted by Manchester City Council (MCC) on 11th July 2012. It is the key document in the Local Development Framework and sets out the long term strategic policies for the Manchester's future development. A review of the Core Strategy indicated the following policy of relevance to this assessment:

"Policy DM 1 - Development Management

All development should have regard to the following specific issues for which more detailed guidance may be given within a supplementary planning document:

[...]

- Effects on amenity, including privacy, light, noise, vibration, air quality, odours, litter, vermin, birds, road safety and traffic generation [...]."

⁴ Core Strategy, MCC, 2012.

2.5.2 MCC have also produced a Supplementary Planning Document (SPD) for Hot Food Takeaways within the city. The guidance⁵ was adopted in March 2017 and aims to expand on the policies within Manchester's Core Strategy and relevant national guidance.

2.5.3 The above policy and guidance was taken into consideration throughout the undertaking of the assessment.

⁵ Hot Food Takeaways SPD, MCC, 2017.

3.0 **METHODOLOGY**

3.1 **Introduction**

3.1.1 The development has the potential to cause odour impacts as a result of emissions from cooking processes within a number of proposed restaurants. An assessment has therefore been undertaken in accordance with guidance document 'Control of Odour and Noise from Commercial Kitchen Exhaust Systems' prepared by EMAQ+ for Department for Environment, Food and Rural Affairs (DEFRA)⁶. This document provides an update to the 2005 guidance⁷ produced by DEFRA.

3.1.2 The relevant process is summarised in the following Sections.

3.2 **Assessment Methodology**

3.2.1 The EMAQ+ and DEFRA methodology provides an approach for identifying the risk of odour impact associated with food preparation premises and defining an appropriate level of mitigation to control potential effects to an acceptable level.

3.2.2 The first stage in the process is to score the proposed premises in accordance with the criteria outlined in Table 1.

Table 1 Risk Scoring Criteria

Criteria	Score	Score	Details
Dispersion	Very poor	20	Low level discharge, discharge into courtyard or restriction on stack
	Poor	15	Not low level but below eaves, or discharge at or below 10m/s
	Moderate	10	Discharging 1m above eaves at 10 - 15m/s
	Good	5	Discharging 1m above ridge at 15m/s
Proximity of receptors	Close	10	Closest sensitive receptor less than 20m from kitchen discharge

⁶ Control of Odour and Noise from Commercial Kitchen Exhaust Systems, EMAQ+, 2018.

⁷ Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems, DEFRA, 2005.

Criteria	Score	Score	Details
	Medium	5	Closest sensitive receptor between 20m and 100m from kitchen discharge
	Far	1	Closest sensitive receptor more than 100m from kitchen discharge
Size of kitchen	Large	5	More than 100 covers or large sized takeaway
	Medium	3	Between 30 and 100 covers or medium sized takeaway
	Small	1	Less than 30 covers or small take away
Cooking type (odour and grease loading)	Very high	10	Pub (high level of fried food), fried chicken, burgers or fish & chips, fast food or any premises cooking with solid fuel
	High	7	Vietnamese, Thai, Indian, Turkish, Kebab houses, Pizza (wood-fired), casual dining (burgers/chicken)
	Medium	4	Cantonese, Chinese, Japanese, Italian, French, Pizza (gas fired), Steakhouses
	Low	1	Most pubs (no fried food, mainly reheating and sandwiches etc) or Tea rooms

3.2.3 The score obtained using the values shown in Table 1 is subsequently used to define the associated risk and odour control requirement. The relevant criteria are summarised in Table 2.

Table 2 Odour Control Requirement

Significance Score	Impact Risk	Odour Control Requirement
Less than 20	Low to Medium	Low level odour control
20 to 35	High	High level odour control
More than 35	Very high	Very high level odour control

3.2.4 A suitable odour control system can then be identified from the techniques summarised in the EMAQ+ and DEFRA guidance⁸.

⁸ Control of Odour and Noise from Commercial Kitchen Exhaust Systems, EMAQ+, 2018.

4.0 ASSESSMENT

4.1 Odour Risk

4.1.1 The odour risk associated with the proposals was rated in accordance with the EMAQ+ and DEFRA methodology⁹. The results are provided in the following Sections.

Table 3 Odour Risk

Criteria	Score	Score	Notes
Dispersion	Moderate	10	Emissions from cooking processes will be extracted and discharged to the atmosphere vertically via a high velocity jet cowl positioned approximately 2.1m above the eaves of the building
Proximity of receptors	Close	10	The closest sensitive receptors are less than 20m from the discharge points. These include proposed residential units which are associated with the development
Size of kitchen	Large	5	The number of covers was not known at the time of assessment. As such, the kitchen size has been classified as large to provide a worst case assessment
Cooking type (odour and grease loading)	High	7	Cuisine types prepared on the premises will include Indian, Thai, Turkish, Vietnamese and pizza. These are considered to have a high odour score

4.1.2 As shown in Table 3, the odour risk from the proposed development was scored as 32. The risk was therefore classified as **high**, in accordance with the EMAQ+ and DEFRA criteria.

4.2 Odour Control

4.2.1 Based on the assessment results, the development requires mitigation suitable for a **high** level of odour risk. There are a number of options for abatement identified within the EMAQ+ and DEFRA guidance¹⁰ that provide this level of control. These include:

⁹ Control of Odour and Noise from Commercial Kitchen Exhaust Systems, EMAQ+, 2018.

¹⁰ Control of Odour and Noise from Commercial Kitchen Exhaust Systems, EMAQ+, 2018.

- Emission collection - Odour should be collected via extraction hoods situated above the hot food preparation area;
- Grease filtration system - Mesh type grease filters, such as baffle or cartridge filters, should be included for the purpose of grease filtration. These are suitable for heavy grease loads and would provide a robust control of emissions from the cooking processes within the proposed kitchens;
- Fine dust filter - Bag, fan or High-Efficiency Particulate Arrestance (HEPA) filter;
- Gaseous phase - An activated carbon filter rated with a 0.2 - 0.8 second residence time should be included for odour removal. Alternatively, an oxidation system such as ultraviolet light or ozone may be used; and,
- Dispersion - Emissions should be discharged vertically through a stack, high enough to ensure adequate dilution.

4.2.2 As outlined in the assessment, emissions will be discharged vertically to the atmosphere via a high velocity jet cowl that terminates approximately 2.1m above the eaves of the building. This measure is consistent with the requirements suggested within the EMAQ+ and DEFRA guidance¹¹ for activities with a **high** risk of impact. However, it is recommended that additional control techniques such as baffle filters, fine filters and carbon filters are included for all kitchen extract systems serving the restaurants in order to reduce the potential for odour effects and demonstrate full alignment with the requirements of the guidance.

4.2.3 The above mitigation could be secured through planning condition if deemed necessary by MCC.

¹¹ Control of Odour and Noise from Commercial Kitchen Exhaust Systems, EMAQ+, 2018.

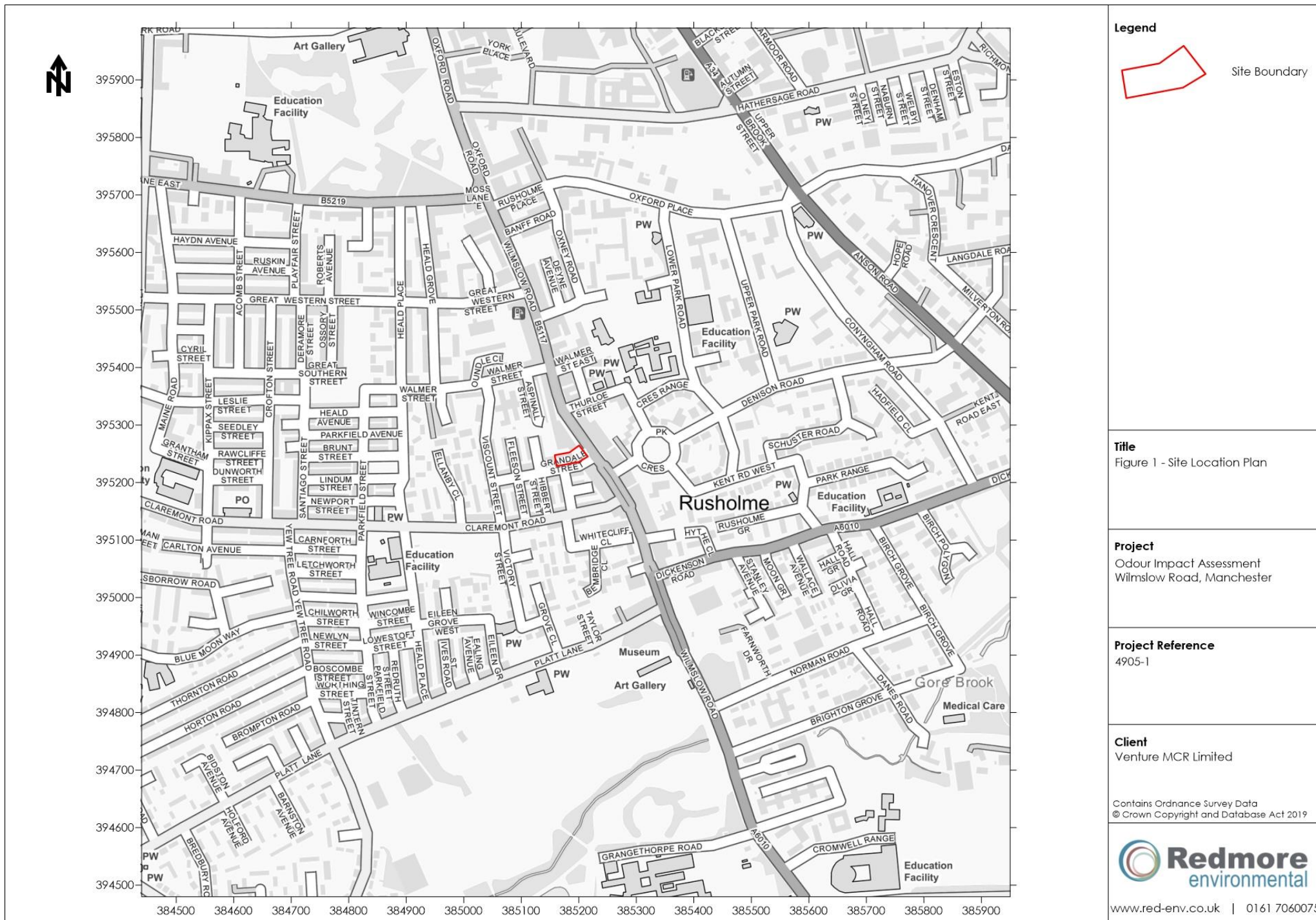
5.0 CONCLUSION

- 5.1.1 Redmore Environmental Ltd was commissioned by Venture MCR Limited to undertake an Odour Impact Assessment in support of a planning application for a residential-led mixed use development on land off Wilmslow Road, Manchester.
- 5.1.2 The development has the potential to cause odour impacts as a result of emissions from food preparation activities on the premises. As such, an Odour Impact Assessment was undertaken in order to assess potential effects as a result of the scheme.
- 5.1.3 An assessment using standard methodology was undertaken in order to identify the odour risk associated with the proposals. This was based on a number of site-specific inputs.
- 5.1.4 The results of the assessment indicated the odour risk was classified as **high**. It should be noted that this prediction does not infer that the proposed development would result in significant odour impact or affect local amenity levels. However, it does suggest that appropriate mitigation options may be required to reduce potential effects to an acceptable level.
- 5.1.5 The odour abatement strategy for the scheme has been specified in line with EMAQ+ and DEFRA guidance for kitchens with a **high** risk of impact. It therefore follows that with this mitigation in place, potential odour impacts would be reduced to an acceptable level. As such, the proposed mitigation is considered to be suitable for a development of this nature.

6.0 ABBREVIATIONS

DEFRA	Department for Environment, Food and Rural Affairs
HEPA	High Efficiency Particulate Arrestance
IAQM	Institute of Air Quality Management
MCC	Manchester City Council
NGR	National Grid Reference
NPPF	National Planning Policy Framework
SPD	Supplementary Planning Document

Figures



Legend

 Site Boundary

Title
Figure 1 - Site Location Plan

Project
Odour Impact Assessment
Wilmslow Road, Manchester

Project Reference
4905-1

Client
Venture MCR Limited

Contains Ordnance Survey Data
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Legend

Title

Figure 2 - Site Layout Plan at Ground Floor Level

Project

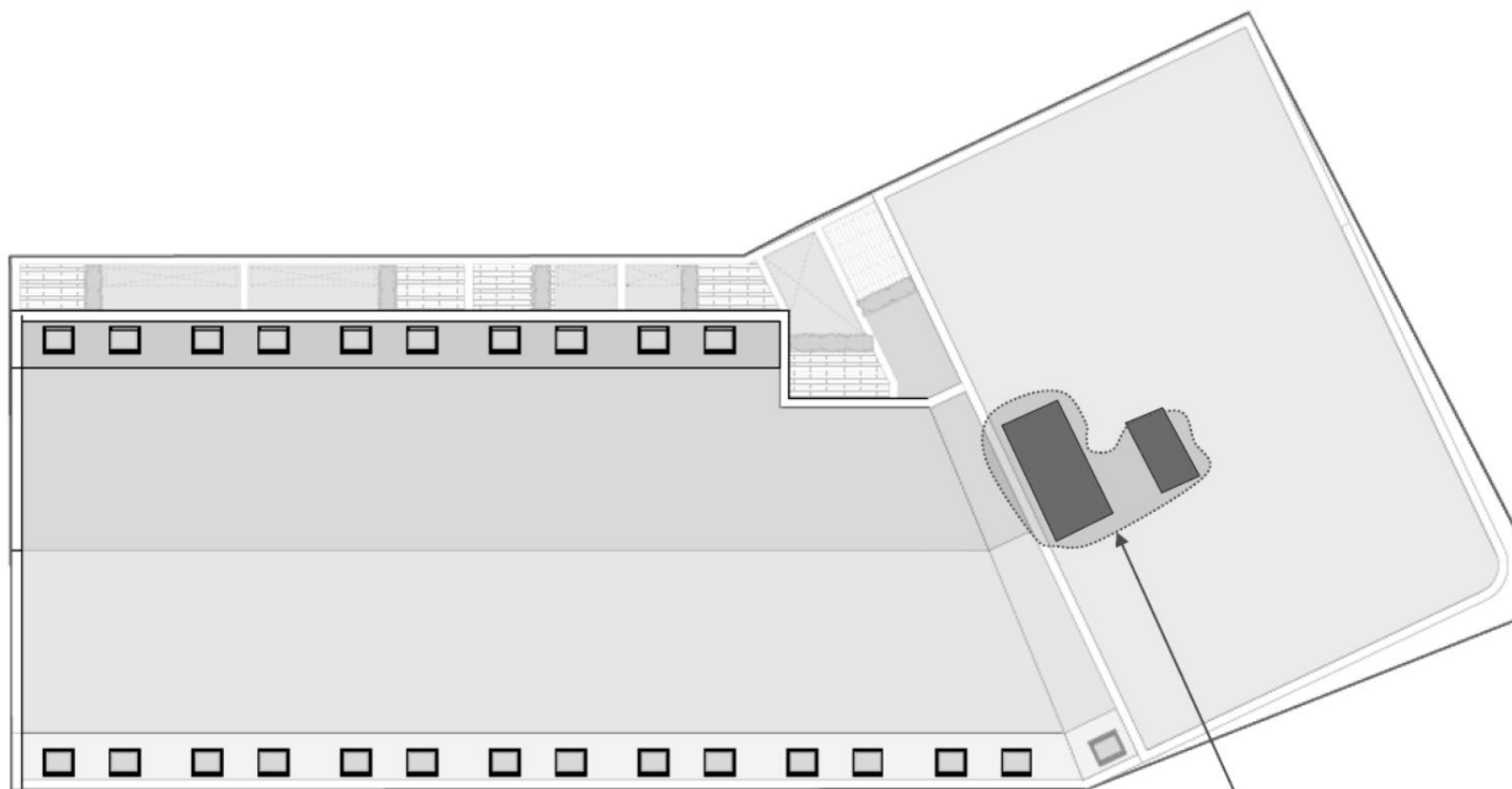
Odour Impact Assessment
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Ducts from ground floor restaurant units

Legend

Title

Figure 3 - Site Layout Plan at Roof Level

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