

Odour Impact Assessment
Bowland Road, Manchester

Client: Bergins Estate Agents

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Report Issue

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Executive Summary

Redmore Environmental Ltd was commissioned by Bergins Estate Agents to undertake an Odour Impact Assessment in support of a proposed hot food takeaway at 21 Bowland Road, Manchester.

A planning application has been submitted for the change of use of the premises from a café to a hot food takeaway. A consultation response produced by Manchester City Council highlighted concerns regarding impacts associated with odour emissions from cooking activities on the premises. As such, an Odour Impact Assessment was requested in order to assess potential effects as a result of the scheme and identify suitable mitigation techniques to control emissions to an acceptable level.

An assessment using the standard industry methodology was undertaken in order 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 **very 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 odour abatement strategy has been specified in line with the relevant guidance for kitchens with a **very high** risk of impact. It therefore follows that with this mitigation in place, potential odour impact 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 Bergins Estate Agents to undertake an Odour Impact Assessment in support of the planning application for a proposed hot food takeaway at 21 Bowland Road, Manchester.
- 1.1.2 A planning application has been submitted for the change of use of the premises from a café to a hot food takeaway. A consultation response¹ produced by Manchester City Council (MCC) highlighted concerns regarding impacts associated with odour emissions from cooking activities on the premises. As such, an Odour Impact Assessment was requested in order to assess potential effects as a result of the scheme and identify any necessary mitigation measures to prevent adverse impacts.

1.2 Site Location and Context

- 1.2.1 The site is located at 21 Bowland Road, Manchester, at approximate National Grid Reference (NGR): 380903, 388741. Reference should be made to Figure 1 for a map of the site and surrounding area.
- 1.2.2 The development site is part of a terrace building fronting Bowland Road. This includes a Chinese takeaway, hairdressers, pharmacy and food store at ground floor, with residential receptors above. The unit is bound by residential properties.
- 1.2.3 The proposals comprise the change of use from a café, Use Class A3, to a hot food takeaway, Use Class A5, at ground floor level of the three storey building. The proposed opening hours are 11:00 to 22:00 Monday to Thursday and 15:00 to 22:00 Friday to Sunday. The food served will include pizzas and kebabs. Emissions from the cooking processes will be collected via a stainless steel canopy over the cooking area, passed through the abatement system and discharged downwards at a height of 2.78m above ground into an enclosed courtyard to the rear of the property. Reference should be made to Figure 2 for a site layout plan.

¹ 21 Bowland Road, Manchester, Consultation Response, MCC, 2020.

- 1.2.4 The preparation of hot food may result in odour emissions. These have the potential to cause impacts at sensitive locations within the vicinity of the site and have therefore been assessed within this report.

2.0 ODOUR BACKGROUND

2.1 Odour Definition

2.1.1 Department for Environment, Food and Rural Affairs (DEFRA) guidance² defines odour as:

"An odour is the organoleptic attribute perceptible by the olfactory organ on sniffing certain volatile substances. It is a property of odorous substances that make them perceptible to our sense of smell. The term odour refers to the stimuli from a chemical compound that is volatilised in air. Odour is our perception of that sensation and we interpret what the odour means. Odours may be perceived as pleasant or unpleasant. The main concern with odour is its ability to cause a response in individuals that is considered to be objectionable or offensive.

Odours have the potential to trigger strong reactions for good reason. Pleasant odours can provide enjoyment and prompt responses such as those associated with appetite. Equally, unpleasant odours can be useful indicators to protect us from harm such as the ingestion of rotten food. These protective mechanisms are learnt throughout our lives. Whilst there is often agreement about what constitutes pleasant and unpleasant odours, there is a wide variation between individuals as to what is deemed unacceptable and what affects our quality of life."

2.1.2 Although it is recognised that the DEFRA guidance³ has been formally withdrawn, the definition of odour provided within the document is still considered to be relevant in the context of the 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 **FIDOR** acronym, as outlined below, is a useful reminder of the factors that will determine the degree of odour pollution:

² Odour Guidance for Local Authorities, DEFRA, 2010.

³ Odour Guidance for Local Authorities, DEFRA, 2010.

- **Frequency of detection** - frequent odour incidents are more likely to result in complaints;
- **Intensity as perceived** - intense odour incidents are more likely to result in complaints;
- **Duration of exposure** - prolonged exposure is more likely to result in complaints;
- **Offensiveness** - more offensive odours have a higher risk of resulting in complaints; and,
- **Receptor sensitivity** - sensitive areas are more likely to have a lower odour tolerance.

2.2.2 The FIDOR factors can be further considered to provide the following issues in regards to 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 hot food restaurants and takeaways, 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.

- 2.3.3 The legislative controls described above were considered as necessary throughout the undertaking of the assessment.

2.4 National Planning Policy

- 2.4.1 The revised National Planning Policy Framework⁴ (NPPF) was published in February 2019 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 odour:

"c) An environmental objective - to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adaption to climate change, including moving to a low carbon economy"

- 2.4.3 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."

⁴ NPPF, Ministry of Housing, Communities and Local Government, 2019.

2.5 **Local Planning Policy**

2.5.1 The Manchester Local Development Framework consists of a series of planning documents of which the Core Strategy⁵ is central. This was adopted by MCC on 11th July 2012 and provides policies which guide the determination of planning applications within the city.

2.5.2 Review of the Core Strategy identified the following policy of relevance to this assessment:

"Policy DM1

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. This could also include proposals which would be sensitive to existing environmental conditions such as noise.

[...]"

2.5.3 Further to this, MCC have produced a Supplementary Planning Document (SPD) for Hot Food Takeaways within the city. The guidance⁶ was adopted in March 2017 and aims to expand on the policies within Manchester's Development Framework and relevant national guidance.

⁵ Core Strategy, MCC, 2012.

⁶ Hot Food Takeaways SPD, MCC, 2017.

2.5.4 The above policy and guidance have been considered throughout this assessment by considering potential odour effects as a result of the proposals.

3.0 **METHODOLOGY**

3.1 **Introduction**

3.1.1 The proposed development has the potential to cause odour impacts as a result of emissions from cooking processes. An assessment has therefore been undertaken in accordance with the 'Control of Odour and Noise from Commercial Kitchen Exhaust Systems' guidance document prepared by EMAQ+ for DEFRA⁷. This document provides an update to the 2005 guidance⁸ 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 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

⁷ Control of Odour and Noise from Commercial Kitchen Exhaust Systems, EMAQ+, 2018.

⁸ 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, Turkish, Middle Eastern or any premises cooking with solid fuel
	High	7	Vietnamese, Thai, Indian, Japanese, Chinese or steakhouse
	Medium	4	Cantonese, Italian, French, Pizza (gas fired)
	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 guidance⁹.

⁹ 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 methodology¹⁰. The results are summarised in Table 3.

Table 3 Odour Risk

Criteria	Score	Score	Notes
Dispersion	Very Poor	20	The kitchen is located to the front of the property. Emissions from hot food preparation will be discharged downwards at a height of 2.78m above ground into an enclosed courtyard, to the rear of the property
Proximity of receptors	Close	10	The closest sensitive receptors are less than 20m from the discharge point
Size of kitchen	Medium	3	The number of covers is not known at this stage. Based on the size of the establishment, as shown in Figure 2, a medium score has been assumed to provide a robust assessment
Cooking type (odour and grease loading)	Very High	10	Hot food items to be cooked on the premises will include pizza and kebabs using a gas oven, gas deep fryer, gas hot plate grill and gas charcoal grill A proportion of the cooking methods identified are considered to have a very high level of risk for odour and grease loading. The highest score has therefore been assumed to provide a robust assessment

4.1.2 As shown in Table 3, the odour risk from the proposed development was scored as 43. The risk was therefore classified as **very 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 **very high** level of odour risk. This should include removal of both potential particulate and

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

gaseous phase pollutants. There are a number of options for each of the three recommended abatement steps outlined in the relevant guidance¹¹ that provide this level of control.

4.2.2 Consultation with the applicant indicated that the proposed odour abatement system includes the following abatement steps:

- Grease filtration system - Baffle filters will be installed to provide grease filtration and remove heavy grease loads;
- Fine dust filter - A bag or High-Efficiency Particulate Arrestance (HEPA) filter;
- Gaseous phase - A metal cased, extra duty activated carbon 'discarb' filter will be installed for the treatment of odour. Reference should be made to Appendix 1 for a technical specification for the unit; and,
- Dispersion - Emissions will be released downwards into the courtyard to limit dispersion towards residential receptors above.

4.2.3 Installation of the above system would satisfy the requirements outlined within the EMAQ+ and DEFRA guidance¹² for kitchens with a **very high** risk of impact, reducing the residual impact to an acceptable level. As such, it is considered suitable for the proposed kitchen.

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

¹² Control of Odour and Noise from Commercial Kitchen Exhaust Systems, EMAQ+, 2018.

5.0 CONCLUSION

- 5.1.1 Redmore Environmental Ltd was commissioned by Bergins Estate Agents to undertake an Odour Impact Assessment in support of the planning application for a proposed hot food takeaway at 21 Bowland Road, Manchester.
- 5.1.2 The development has the potential to cause odour impacts as a result of emissions from hot food preparation activities. As such, an Odour Impact Assessment was undertaken in order to assess potential effects as a result of the scheme and identify any necessary mitigation measures to prevent adverse impacts.
- 5.1.3 An assessment using the EMAQ+ and DEFRA 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 **very high**. This prediction does not infer that significant odour impacts would occur or local amenity levels would be affected. However, it does suggest that appropriate mitigation is required to reduce potential effects to an acceptable level.
- 5.1.5 The odour abatement strategy for the site has been specified in line with EMAQ+ and DEFRA guidance for kitchens with a **very high** risk of impact. It therefore follows that with this mitigation in place, potential odour impact 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
MCC	Manchester City Council
NGR	National Grid Reference
NPPF	National Planning Policy Framework
SPD	Supplementary Planning Document

Figures



Legend



Title

Figure 1 - Site Location Plan

Project

Odour Impact Assessment
Bowland Road, Manchester

Project Reference

3655

Client

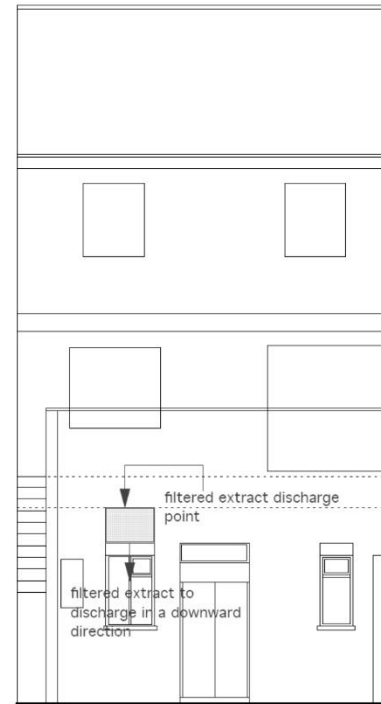
Bergins Estate Agents

Contains Ordnance Survey Data
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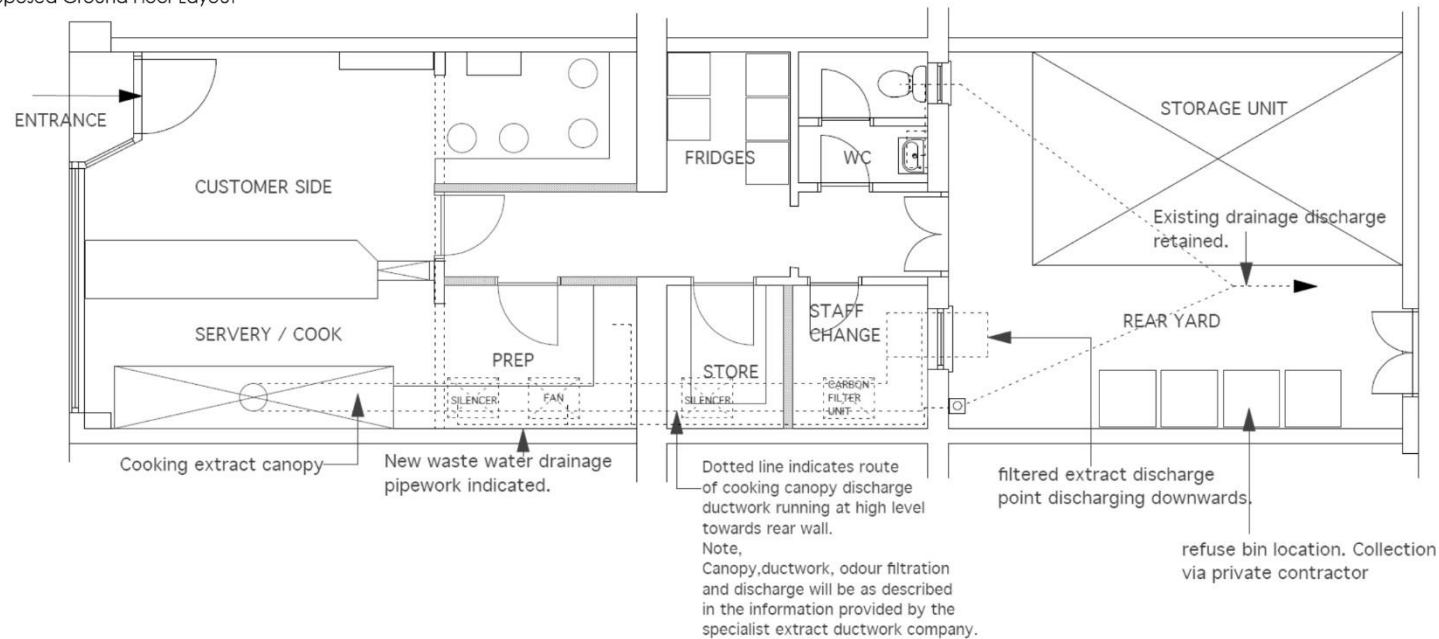


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Proposed Rear Elevation
Showing Discharge Point



Proposed Ground Floor Layout



Legend

Title

Figure 2 - Proposed Discharge Point
and Ground Floor Layout

Project

Odour Impact Assessment
Bowland Road, Manchester

Project Reference

3655

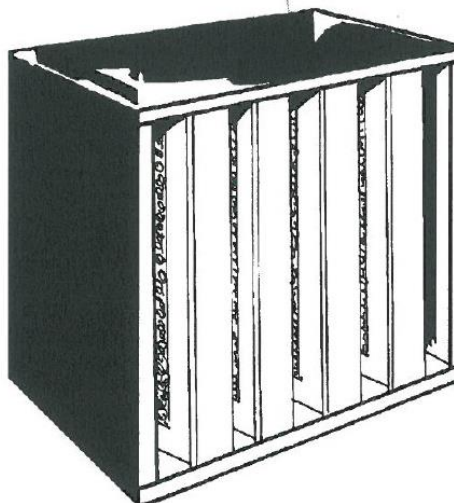
Client

Bergins Estate Agents

Appendix 1 - Technical Specification

Metal Cased Discarbs

The metal cased 'Discarb' cells have the highest carbon loading in our range, and have standard or heavy duty carbon panels permanently sealed into a galvanised sheet steel casing. This construction gives a very strong unit capable of handling large air volumes or where conditions dictate, increased contact time. The advantage of this unit is that with panels sealed in, there is no possibility of air leakage. Also, these units can be manufactured to almost any reasonable size, the limiting factors being the overall weight for handling purposes and the size of individual panels. When the unit has finished its useful life it is discarded and replaced with a complete new cell.



Performance Chart - (std sizes)

Standard Duty Cells							
Nominal Size W x H x L ins	Actual Size W x H x L mm	No. of Panels	Carb wt kg	Discarb wt kg	Air vol m ³ /s	Air vol cfm	Air res Pa
12 x 12 x 12	292 x 292 x 292	6	5	9	0.10	212	75
12 x 12 x 18	292 x 292 x 445	6	8	14	0.15	318	95
12 x 12 x 24	292 x 292 x 597	6	10	18	0.22	466	140
18 x 18 x 12	445 x 445 x 292	8	10	17	0.21	445	55
18 x 18 x 18	445 x 445 x 445	8	15	25	0.31	657	70
18 x 18 x 24	445 x 445 x 597	8	21	33	0.41	868	105
24 x 24 x 12	597 x 597 x 292	12	20	31	0.41	868	70
24 x 24 x 18	597 x 597 x 445	12	31	45	0.61	1292	90
24 x 24 x 24	597 x 597 x 597	12	42	59	0.81	1716	130

Extra Duty Cells							
Nominal Size W x H x L ins	Actual Size W x H x L mm	No. of Panels	Carb wt kg	Discarb wt kg	Air vol m ³ /s	Air vol cfm	Air res Pa
12 x 12 x 12	292 x 292 x 292	6	6	10	0.13	275	125
12 x 12 x 18	292 x 292 x 445	6	9	15	0.20	424	175
12 x 12 x 24	292 x 292 x 597	6	12	20	0.27	572	250
18 x 18 x 12	445 x 445 x 292	8	12	19	0.30	635	95
18 x 18 x 18	445 x 445 x 445	8	19	28	0.41	868	125
18 x 18 x 24	445 x 445 x 597	8	25	37	0.54	1144	185
24 x 24 x 12	597 x 597 x 292	12	25	35	0.54	1144	125
24 x 24 x 18	597 x 597 x 445	12	38	52	0.80	1694	150
24 x 24 x 24	597 x 597 x 597	12	51	68	1.06	2245	225

The capacities shown are based on a dwell time of 0.1 seconds

Non-standard sizes

other sizes are available to suit individual requirements. Our technical Department will be pleased to advise.

The company reserves the right to change specifications without notice. E&OE

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