



COMMERCIAL KITCHEN ODOUR RISK ASSESSMENT

on behalf of

**ASHANTI ROYALE RESTAURANT AND
CATERING SERVICES LTD.**

for

152 OXFORD ROAD, READING RG1 7PJ

REPORT DATE: 30TH JANUARY 2025

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Summary

This assessment has been undertaken to accompany a planning application for a new restaurant at 152 Oxford Road, Reading RG1 7PJ.

A commercial kitchen odour risk assessment has been undertaken which has concluded that a very high level of odour control is required for the development. Therefore, appropriate mitigation measures have been outlined along with installation and maintenance requirements that the client has agreed to in order to ensure the system remains efficient and in good condition.

With the implementation of appropriate mitigation, there is no reason for this application to be refused on the grounds of odour.

Prepared By Unam Ejaz

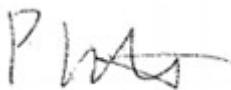
Reviewed By Philip Walton

Signed



22nd October 2024

Signed



22nd October 2024

Record of changes

Version	Date	Change	Initials
1	22 nd October 2024	First issue	UE
2	2 nd December 2024	Updated as per council's recommendation	UE
3	30 th January 2025	Updated summary to confirm mitigation	UE

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1 Introduction

- 1.1 This kitchen odour assessment has been undertaken to accompany a planning application for a new restaurant at 152 Oxford Road, Reading RG1 7PJ. The site lies within the administrative boundary of Reading Borough Council (RBC).
- 1.2 The report provides a commercial kitchen risk assessment and review of the odour associated with the proposed development, in accordance with established guidance from EMAQ+ ^[1] and provides recommendations in respect of odour abatement.
- 1.3 There are a number of factors that influence the magnitude of an odour problem, these include:
- size of the cooking facility – influences the intensity of the odour;
 - type of food being prepared – affects the chemical constituents within the ventilation air;
 - type of cooking appliances used – which the level of fat, water droplets and temperature within the ventilation air; and
 - the location of the premises.

2 Site Description

- 2.1 The site comprises a three-storey property located on the northern side of Oxford Road, Reading. The site is currently used as an estate agent with residential above on the upper floors.
- 2.2 The site is located at the end terrace of a retail frontage. To the north there are residential properties, to the south is Oxford Road with retail units located on the opposite of the road. To the east is a petrol filling station. To the west is the remainder of the retail frontage. The site location is shown in **Appendix A**.

3 Proposed Development

- 3.1 The proposal is for a change of use from an estate agent to a hot food takeaway. The residential uses on the upper floors will remain in-situ and are accounted for in this assessment.

¹ EMAQ+, 2018. Control of Odour and Noise from Commercial Kitchen Exhaust Systems

4 Policy Context – National Planning Policy Framework

- 4.1 The National Planning Policy Framework² (NPPF) does not specifically mention odour, but it does refer to air and pollution. Paragraph 180 states:

“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, taking into account relevant information such as river basin management plans.”

- 4.2 The role of planning is to ensure that new developments that can create odour do not cause a significant adverse effect in the local area or impact upon existing sensitive uses nearby. Furthermore, the planning system aims to protect sensitive uses from being negatively impacted by existing odorous sources and to avoid imposing unnecessary limitations on established odorous businesses.

5 Risk Assessment Methodology – EMAQ+ Odour Control

- 5.1 The EMAQ+ guidance includes a score-based risk assessment methodology to determine the potential odour risk from the commercial kitchen. The scoring system is based on the sum of the contributions from dispersion, the proximity of receptors, size of kitchen and cooking type. These scores are then combined to determine the impact risk and level of odour control required, as detailed in **Table 1**.

² Ministry of Housing, Communities and Local Government (MHCLG) (2023) National Planning Policy Framework

Table 1: Determining a Score for Odour Control

Impact Risk	Odour Control Requirement	Significance Score
Low to Medium	Low Level odour control	<20
High	High Level Odour Control	20-35
Very High	Very High Level Odour Control	>35

5.2 Table 2 lists the types of mitigation that can be implemented to achieve the required level of odour control. Regular cleaning and maintenance is required to promote a good odour control system.

Table 2: Odour Control

Level of Control		
Low to Medium	High	Very High
1. Fine filtration or electrostatic Precipitator (ESP) followed by carbon filtration (carbon filters rated with 0.1 second residence time).	1. Fine filtration or ESP followed carbon filtration (carbon filters rated with 0.2-0.4 second residence time).	1. Fine filtration or ESP followed carbon filtration (carbon filters rated with 0.4-0.8 second residence time).
2. Fine filtration followed by counteractant/neutralising system to achieve the same level of control as 1.	2. Fine filtration or ESP followed by ultraviolet (UV) ozone system to achieve the same level of control as 1.	2. Fine filtration or ESP followed by counteractant/neutralising system to achieve the same level of control as 1.
		3. Fine filtration or ESP followed by UV ozone system to achieve the same level of control as 1.

6 Commercial Kitchen Odour Risk Assessment

6.1 The kitchen ventilation flue will discharge 1 m above the eaves however, the flow rate is unknown so it has been assumed poor dispersion. The proposed dispersion stack position is shown in Appendix B.

- 6.2 **Appendix C** shows the full breakdown and score for each parameter assessed within the risk assessment. The resulting significance score has been considered in conjunction with **Table 1** to determine the level of odour control required.
- 6.3 The premises will serve African cuisine. With reference to the EMAQ+ guidance, the food type is "*Kebab, Vietnamese, Thai or Indian*". This equates to a "very high" rating in terms of odour and grease loading.
- 6.4 In respect of the three other EMAQ+ parameters are:
- **Dispersion:** the kitchen ventilation flue will discharge 1 m above the eave. The flow rate is unknown so 'poor' dispersion has been selected conservatively.
 - **Covers:** the number of daily covers is expected to be above 100 covers, equating to a 'large' rating for size of kitchen.
 - **Receptor proximity:** residential properties are located within 20 m of the kitchen flue, equating to a 'close' risk rating.
- 6.5 The total score for all four parameters is **37**, corresponding to a low to medium impact risk. The risk assessment concludes that **very high** level odour control is required at the site.
- 6.6 With reference to odour control mitigation listed in EMAQ+ (detailed in **Table 2**), very high level odour control requires implementation of one of the following:
- Fine filtration or ESP followed carbon filtration (carbon filters rated with 0.4–0.8 second residence time).
 - Fine filtration or ESP followed by counteractant/neutralising system to achieve the same level of control as above; or
 - Fine filtration or ESP followed by UV ozone system to achieve the same level of control as 1.
- 6.7 The Applicant confirms that the first option listed (fine filtration/ESP followed by carbon filtration) for odour abatement will be installed by the appointed kitchen and ventilation installer.
- 6.8 EMAQ+ guidance advises that the design and maintenance of the kitchen extraction system is an important factor. Minimum design performance criteria and maintenance criteria are provided in **Appendix D**.

7 Summary of Impacts and Conclusion

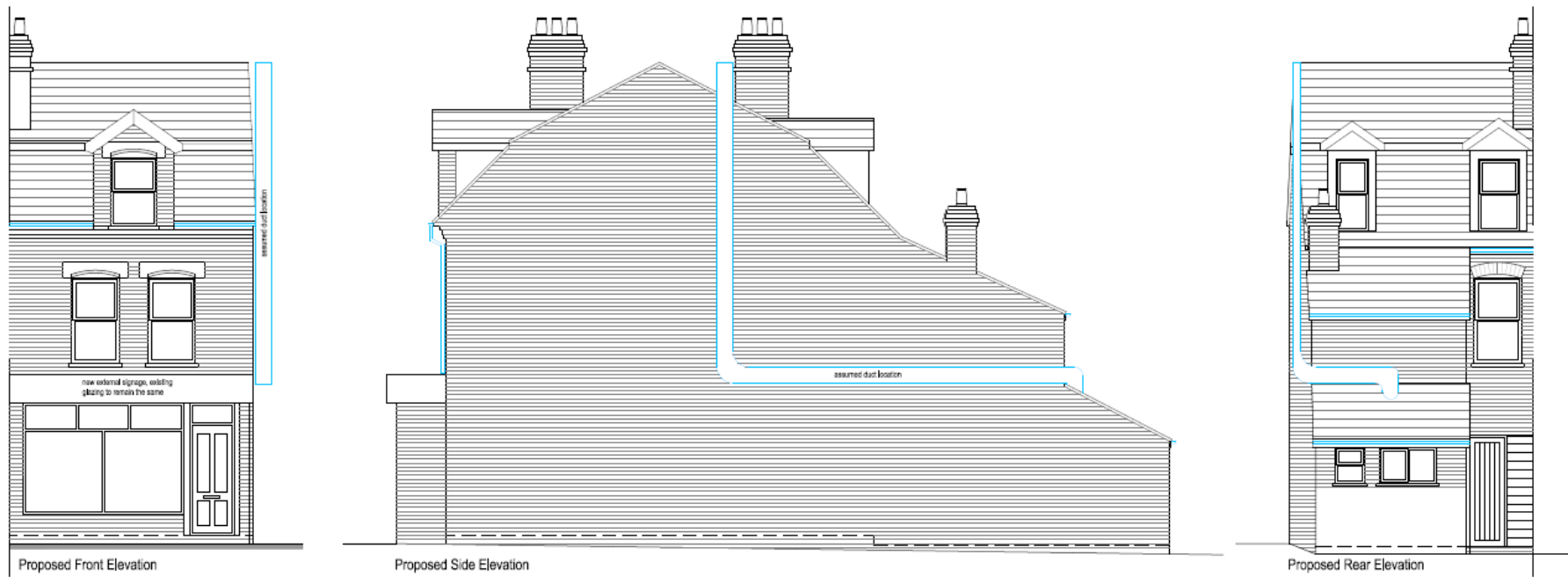
- 7.1 The commercial kitchen odour risk assessment indicates that the potential risk of kitchen odours is low to medium, requiring very high level odour control mitigation at the development. This is to be provided by a combination of flue dispersion and abatement in the form of fine filtration or ESP with carbon filters. The Applicant has confirmed that a specialist kitchen installer and ventilation engineer will fulfil the odour mitigation as listed in this report.
- 7.2 Recommendations have been provided in relation to the design and maintenance of the kitchen exhaust system and provided these are followed there should be no risk to the amenity of adjacent sensitive receptors.
- 7.3 With the implementation of the mitigation, there is no reason for this application to be refused on the grounds of odour.

APPENDICES

Appendix A: Site Location



Appendix B: Proposed Duct Location



Appendix C: Risk Assessment for Cooking Odour

Criteria		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 10 m/s.
	Moderate	10	Discharging 1m above eaves at 10 –15 m/s
	Good	5	Discharging 1m above ridge at 15 m/s
Proximity of receptors	Close	10	Closest sensitive receptor less than 20m from kitchen discharge.
	Medium	5	Closest sensitive receptor between 20 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 take away.
	Medium	3	Between 30 and 100 covers or medium sized take away
	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 soild fuel
	High	7	Vietnamese, Thai, Indian, Japanese, Chinese, Steakhouse
	Medium	4	Cantonese, Italian, French, Pizza (gas fired)
	Low	1	Most pubs (no fried food, mainly reheating and sandwiches etc), Tea rooms
Total Score		37	Very High Impact Risk Very High Level of odour control required.

Appendix D: Design and Maintenance Requirements

Minimum Requirements for Odour Control

- Positioning of the stacks as far as possible from the nearest residential dwellings;
- Use of Chinaman's hats or other cowls should not be permitted;
- Consideration of the prevailing wind direction in relation to the ducting positioning; and
- Ducting should be rigid in construction and resiliently mounted.

Recommendations for Cleaning

The cleaning period for grease extraction ductwork is shown in **Table C1**.

Table C1: Cleaning period for grease extraction ductwork

Grease loading		Daily usages	Cleaning intervals(months)
Heavy use	Heavy/continuous grease production	6-12 hours	3-6 months
		12-16 hours	2-3 months
Moderate use	Moderate grease production	6-12 hours	6-12 months
		12-16 hours	3-4 months
Light use	No significant grease production	6-12 hours	12 months
		12-16 hours	6 months

Recommendations for Maintenance

System employing fine filtration and carbon filtration;

- change filters every two weeks (or to product manufacturers recommendation);
- change carbon filters every 4 to 6 months (or to product manufacturers recommendation).

Using a system employing ESP and other inline abatement, typically;

- ESP systems cleaned and sump emptied on a four weekly basis;
- UV-C systems used inline, cleaned on a four weekly basis;
- Side stream UV-C systems, cleaned every 3 to 6 months
- Carbon filters with ESP pre-treatment change carbon filter every 6 to 12 months

These time frames may increase or reduce for extreme or very light applications.

Glossary of Terms

Effects The consequences of the changes in airborne concentration and/or dust deposition for a receptor. These might manifest as annoyance due to soiling, increased morbidity or mortality due to exposure to PM₁₀ or PM_{2.5} or plant dieback due to reduced photosynthesis. The term 'significant effect' has a specific meaning in EIA regulations. The opposite is an insignificant effect. In the context of construction impacts any effect will usually be adverse, however, professional judgement is required to determine whether this adverse effect is significant based in the evidence presented.

Impacts The changes in airborne concentrations and/or dust deposition. A scheme can have an 'impact' on airborne dust without having any 'effects', for instance if there are no receptors to experience the impact.

NPPF National Planning Policy Framework

