Odour Risk Assessment	
12 High Street, Hillingdon	
Job number:	J0652
Document number:	J0652/1/F1
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Date:	23 May 2022

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1 Introduction

1.1.1 This report considers the potential for annoyance due to odours from the proposed commercial kitchen at 12 High Street, Harefield, UB9 6BU. The application site is shown in **Figure 1**.

1.1.2 Odours from the kitchen have the potential to impact on the amenity of odour sensitive receptors at local properties. The report has been produced in support of a planning application for a change of use from a shop to a hot food takeaway. This report includes an odour risk assessment, that follows the methodology set out in EMAQ guidance on Control of Odour and Noise from Commercial Kitchen Exhaust Systems (EMAQ, 2018). The risk assessment methodology has been used to determine the level of odour abatement that would be required as part of the kitchen extract system.

1.1.3 The professional experience of the consultant preparing this report is set out in **Appendix A1**.

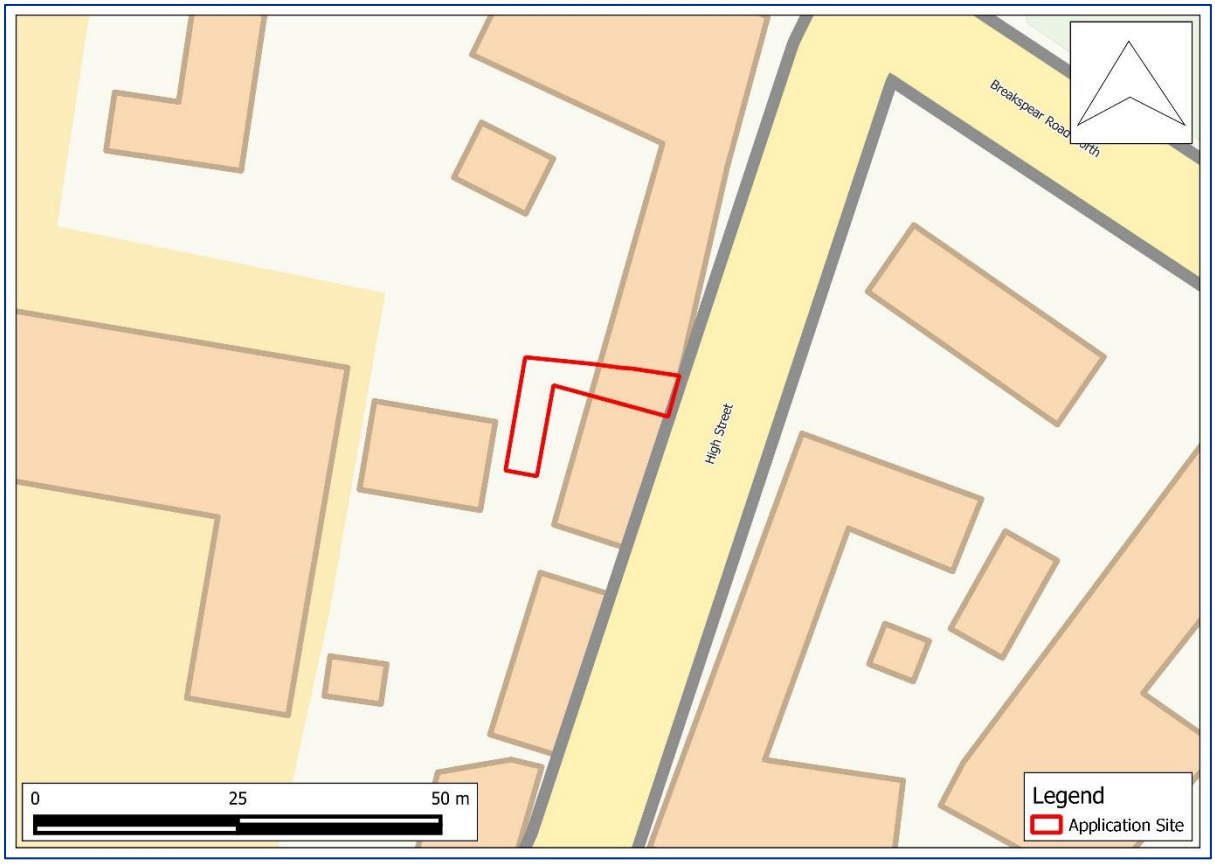

Figure 1: Application Site
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2 Odour Legislation and Planning Policy

2.1. Legislation

Environmental Protection Act

2.1.1 Nuisances caused by odours are regulated by the statutory nuisance provisions in Part III of the Environmental Protection Act (EPA) (HMSO, 1990). Section 79(1)(d) of the EPA states that a statutory nuisance is:

"dust, steam, smell or other effluvia arising on an industrial, trade and business premises and being prejudicial to health or a nuisance" (Section 79(1)(d)

2.1.2 Local authorities have a duty under the Environmental Protection Act to inspect their districts from time to time for statutory nuisances and to investigate any complaint about an alleged odour nuisance made by a member of the public. If the local authority finds that a statutory nuisance exists, then it must serve an abatement notice.

2.2. Planning Policy

National Policies

2.2.1 The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these should be applied (Ministry of Housing, Communities & Local Government, 2021). It provides a framework within which locally-prepared plans for development can be produced. At Paragraph 8c, the NPPF states that the purpose of the planning system is to contribute to the achievement of sustainable development and includes an overarching 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."

2.2.2 At Paragraph 185, the NPPF states that:

"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development."

2.2.3 At Paragraph 188, the NPPF goes on the say that:

"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."

2.2.4 The NPPF is supported by Planning Practice Guidance (PPG) (Ministry of Housing, Communities & Local Government, 2019b). The PPG makes clear that that:

"Odour and dust can also be a planning concern, for example, because of the effect on local amenity".

Local Policies

2.2.5 The Hillingdon Local Plan Part 1 includes Policy BE1: Built Environment (Hillingdon Council, 2012):, the relevant parts of which state:

"The Council will require all new development to improve and maintain the quality of the built environment in order to create successful and sustainable neighbourhoods, where people enjoy living and working and that serve the long-term needs of all residents. All new developments should: …

2. Be designed to be appropriate to the identity and context of Hillingdon's buildings, townscapes, landscapes and views, and make a positive contribution to the local area in terms of layout, form, scale and materials and seek to protect the amenity of surrounding land and buildings, particularly residential properties; …"

2.2.6 The Hillingdon Local Plan Part 2, Development Management Policies, includes Policy DMHB 11: Design of New Development, the relevant parts of which state (Hillingdon Council, 2020),:

"… B) Development proposals should not adversely impact on the amenity, daylight and sunlight of adjacent properties and open space. …"

2.2.7 The Hillingdon Local Plan Part 2, Development Management Policies also includes Policy DMTC 4: Amenity and Town Centre Uses, which states:

"Proposals for restaurants and hot food takeaways, drinking establishments, betting shops, night clubs, casinos, amusement centres, minicab offices and other similar uses will only be supported provided that they:

i) would not result in adverse cumulative impacts due to an unacceptable concentration of such uses in one area;

ii) would not cause unacceptable disturbance or loss of amenity to nearby properties by reason of noise, odour, emissions, safety and security, refuse, parking or traffic congestion; and

iii) would not detrimentally affect the character or function of an area by virtue of the proposed use or visual impact."

3 Odour Risk Assessment

3.1. Methodology

3.1.1 EMAQ guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems includes a risk assessment methodology for identifying the potential risk of odour impacts from commercial kitchen operations. The results of the risk assessment may then be used to determine a suitable level of odour abatement to be installed into a commercial kitchen.

3.1.2 The risk assessment for odours is split into the following four categories;

- dispersion;
- proximity of receptors;
- size of kitchen; and
- cooking type (odour and grease loading).

3.1.3 A risk rating is scored for each category and the total risk rating, i.e., the sum of the risk rating for each category, is compared with the significance score in **Table 1.** The level of odour control which is likely to be required to prevent the kitchen from causing odour nuisance impacts can then be determined. The risk ratings for each category are shown in **Table 2**.

Table 1: Significance Score and Odour Control Requirement

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

a based on the sum of scores from dispersion, proximity to receptors, size of kitchen and cooking type.

Table 2: Risk Ratings

Criteria	Rating	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 1 m above eaves at 10-15 m/s.
	Good	5	Discharging 1 m above ridge at 15 m/s.
Proximity of Receptors	Close	10	Closest sensitive receptor less than 20 m from kitchen discharge.
	Medium	5	Closest sensitive receptor between 20 and 100 m from kitchen discharge.
	Far	1	Closest sensitive receptor more than 100 m from kitchen discharge. [a]
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 takeaway. [a]
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	Kebab, Vietnamese, Thai, Indian, Japanese, Chinese or Steakhouse.
	Medium	4	Cantonese, Italian, French or Pizza (gas fired).
	Low	1	Most pubs (no fried food, mainly reheating and sandwiches etc.), or Tea Rooms. [a]

a A planner may take a pragmatic view when assessing whether certain low risk kitchens require any odour abatement to be fitted. In reaching this decision the Planner may consider the nature of the food being cooked and/or the size of kitchen and/or its location.

3.2. Risk Assessment

Dispersion

3.2.1 The risk rating for dispersion relates to the location of the discharge flue of the kitchen extraction system, and the flow rate of the exhaust air at the point of discharge.

3.2.2 Plans submitted in support of the planning application show that the flue terminus for the extract system would discharge at a low level at the rear of the building into an

area where dispersion would be restricted. Based on the information in **Table 2**, the risk ratings for dispersion would be described as **Very Poor**.

Proximity to Receptors

3.2.3 The risk rating for proximity to receptors relates to the distance from the point of discharge of the kitchen extraction system to the nearest sensitive receptor. Examples of high sensitivity receptors, as set out in the Institute of Air Quality Management (IAQM) Guidance on the Assessment of Odour for Planning (IAQM, 2018), include residential dwellings.

3.2.4 The extract flue would be located within 20m of the residential dwellings located above the commercial units on the High Street adjacent to the proposed development, as shown in **Figure 2**; therefore, based on the information in **Table 2**, the risk rating for dispersion would be described as **Close**.

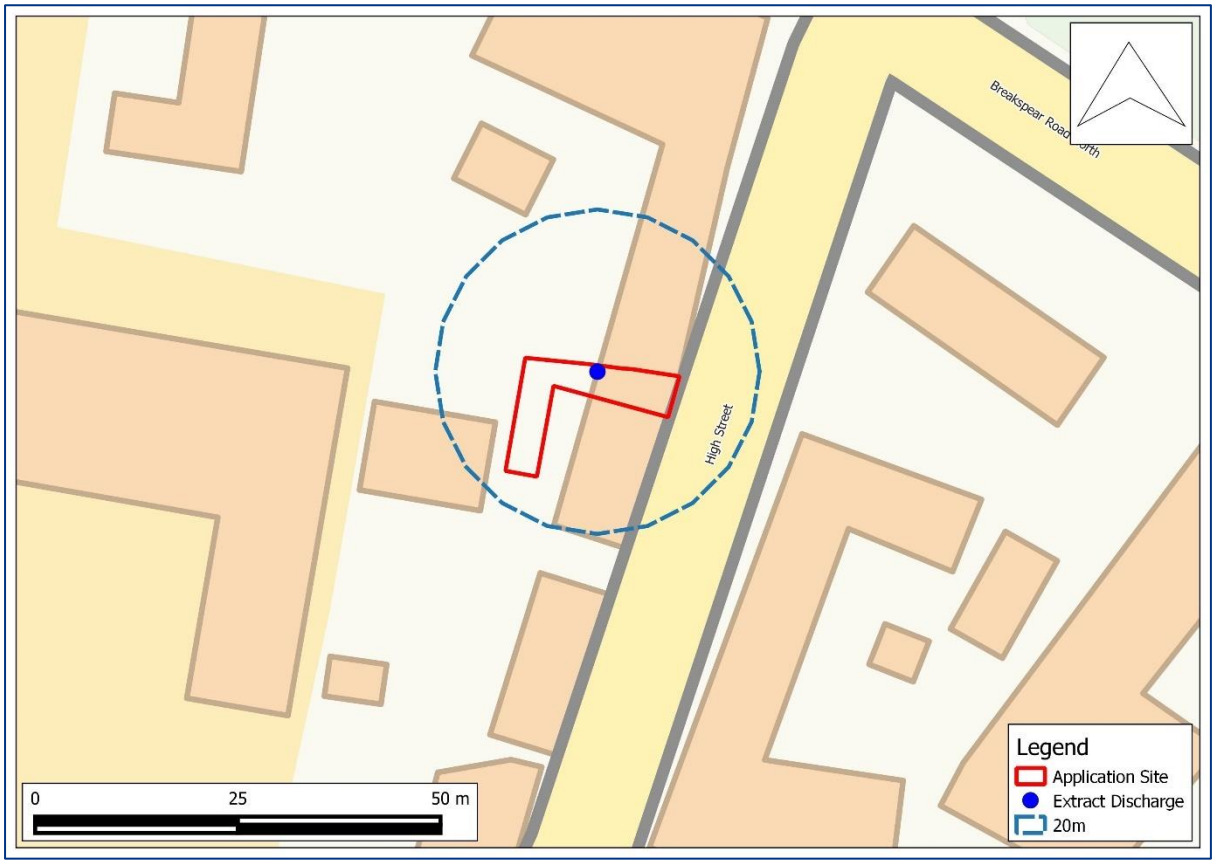

Figure 2: Flue Location
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Size of Kitchen

3.2.5 The risk rating for the size of kitchen relates to the volume of food prepared by the kitchen, as described by the number of covers of a restaurant, or the size of a takeaway.

3.2.6 The proposed restaurant would be of a small scale; therefore, based on the information in **Table 2**, the risk rating for the size of the kitchens would be described as **Small**.

Cooking Type

3.2.7 The risk rating for cooking type relates to the type of food prepared in the kitchen, and the cooking methods used.

3.2.8 The proposed restaurant would serve Indian foods; therefore, the overall odour and grease loading would be **High** (based on the information in **Table 2**).

Summary

3.2.9 A summary of the risk assessment and the total risk rating for the commercial kitchens is shown in **Table 3**. With regard to the significance scores set out in **Table 1**, the overall risk rating is **High**; therefore, the extraction systems would require a high level of odour control to mitigate the potential odour impacts at local sensitive receptors.

Table 3: Odour Risk Assessment Summary

Criteria	Rating	Significance Score
Dispersion	Very Poor	20
Proximity of Receptors	Close	10
Size of Kitchen	Small	1
Cooking Type (Odour and Grease Loading)	High	7
Overall Risk Rating	**Very High**	**38**

4 Odour Mitigation

4.1.1 The odour risk assessment has identified that the commercial kitchen would require a very high level of odour control (see **Table 3**). The EMAQ guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems outlines that abatement systems offering a very high level of odour control may include:

1. Fine filtration or electrostatic precipitator (ESP) followed by carbon filtration (carbon filters rated with a 0.4-0.8 second residence time); or
3. Fine filtration or ESP followed by carbon filtration and by counteractant/neutralising system to achieve the same level of control as 1; or
2. Fine filtration or ESP followed by UV ozone system to achieve the same level of control as 1.

4.1.2 The proposed extract system would include pre-filters and a carbon filtration unit (as shown in plans submitted with the planning application). The proposed extract system will be designed to ensure that a residence time of 0.4-0.8 seconds is maintained. Therefore, the proposed extract system would meet the high level of odour control mitigation requirements of the EMAQ guidance and there should be no risk of odour effects at local receptors.

4.1.3 Canopy hoods will also be installed above all cooking areas. The canopy hoods should be fitted with washable grease baffle filters. Grease laden air passing through the filter is forced through direction and velocity changes, depositing grease on the vanes, which is then drained from the filter. The use of baffle filters, which typically have a grease removal efficiency of 65-80%, will help prevent contamination of the fine filters. Mesh filters are not recommended as they do not provide a flame barrier.

4.1.4 The extract flow rate of each system should be sufficient to ensure a capture velocity at the extract canopy appropriate to the type of cooking to be undertaken. An adequate capture velocity will also help prevent untreated odour emissions due to leakage from the building, i.e., through doors and windows. Any adjustments to the flow rate of the ventilation air will need to take account of the residence time requirements of the carbon filtration system.

Maintenance

4.1.5 A suitably qualified and experienced ventilation systems engineer should design and install the ventilation systems.

4.1.6 Regular maintenance of the ventilation systems is essential to ensure that they operate effectively and continue to provide adequate mitigation against odour nuisance. Assuming a heavy grease loading and operation for 6-12 hours daily, the EMAQ guidance provides recommended cleaning schedules for extract systems as follows:

- Cooker hoods and grease filters should be cleaned daily;
- Baffle filters should be cleaned weekly as a minimum;
- ductwork should be cleaned every 3-6 months;
- fine filters should be changed every 2 weeks; and

- carbon filters should be changed every 4 to 6 months.

4.1.7 Periodic 'deep hygiene cleaning' of the entire ventilation system should be undertaken by a specialist contractor.

5 Conclusions

5.1.1 The odour risk assessment has identified that the commercial kitchens would have a very high-risk rating with regard to odour effects and that a very high level of odour control would be required.

5.1.2 The proposed extract system would meet the requirements for a very high level of odour control, as set out in the EMAQ guidance, and there should be no risk of odour effects, provided the extract systems are installed as specified.

5.1.3 With the installation of the specified odour controls, there should be no constraints to the operation of a restaurant at 12 High Street, Harewood with regard to odour, as the proposed development would be consistent with the relevant parts of:

- The NPPF and PPG;
- Policy BE1 of the Hillingdon Local Plan Part 1; and
- Policies DMHB 11 and DMTC 4 of the Hillingdon Local Plan Part 2.

6 References

EMAQ, 2018. *Control of Odour and Noise from Commercial Kitchen Exhaust Systems.* s.l.:s.n.

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7 Appendices

A1 Professional Experience

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Bob Thomas is a Director at AQA, with over fourteen years' experience in the field of air quality management and assessment. He has carried out air quality assessments for a wide range of developments, including residential, commercial, industrial, minerals and waste developments. He has been responsible for air quality projects that include ambient air quality monitoring of nitrogen dioxide, dust and PM_{10}, the assessment of nuisance odours and dust, and the preparation of Review and Assessment reports for local authorities. He has extensive dispersion modelling experience for road traffic, energy centre and industrial sources, and has completed many stand-alone reports and chapters for inclusion within an Environmental Statement. Bob has worked with a variety of clients to provide expert air quality services and advice, including local authorities, planners, developers, architects and process operators, and has provided expert witness services at public inquiry. He is a Chartered Scientist, a Member of the Institute of Air Quality Management and a Member of the Institution of Environmental Sciences.

A full CV for Bob Thomas is available at http://aqassessments.co.uk/about