# Odour Assessment:
## 82 New Oxford Street, Camden

October 2016

Experts in air quality management & assessment

## Document Control

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## Contents

# 1 Introduction

1.1 This report sets out an odour risk assessment for the proposed new kitchen extraction system at the Ferretti Italian restaurant at 82 New Oxford Street in the London Borough of Camden.

1.2 The report outlines the methodology and summarises the findings of the odour risk assessment, and describes the odour abatement that should be installed in the kitchen extraction system to minimise the risk of odour impacts resulting from the operation of this outlet. This report has been prepared by Air Quality Consultants Ltd on behalf of Ferretti London 1 Ltd.

# 2 Odour Assessment

2.1 Defra's Guidance on the 'Control of Odour and Noise from Commercial Kitchen Exhaust Systems' (Defra, 2005) contains an assessment procedure for identifying the potential risk of odour impacts from commercial kitchen operations. The results of this risk assessment can be used to determine a suitable level of odour abatement to be installed into a commercial kitchen.

2.2 The risk assessment for odours is split into the following four parts:

- cooking type and grease loading;
- size of kitchen;
- dispersion; and
- proximity to receptors.

2.3 Each part is given a risk rating score and the total risk rating denotes the level of odour abatement which is likely to be required to prevent the kitchen from causing odour nuisance impacts. The following sections of this report outline each part of the risk assessment.

2.4 It should be noted that, where assumptions have been made, these are clearly stated in the risk assessment and are based on the professional experience of Air Quality Consultants Ltd.

## Cooking Type and Grease Loading

2.5 The risk rating for cooking type and grease loading relates to the type of cooking methods employed in the kitchen and the type of food prepared. The relevant risk ratings described in the guidance are shown below. The risk score is shown in parentheses.

- VERY HIGH (10) – Pubs (those serving a high level of fried food), fried chicken, burgers or fish and chips;
- HIGH (7) – Kebab, Vietnamese, Thai or Indian;
- MEDIUM (4) – Cantonese, Japanese or Chinese;
- LOW (1) – Most pubs, Italian, French, Pizza or Steakhouse.

2.6 The restaurant will serve predominantly Italian cuisine, including Italian bakery goods, pasta dishes and cold salads. The grease loading for the restaurant is therefore judged to be LOW.

## Size of Kitchen

2.7 The risk rating for size of kitchen relates to the volume of food prepared by the kitchen and is described in terms of the capacity of the restaurant or take-away. The relevant risk ratings described in the guidance are shown below. The risk score is shown in parentheses.

- LARGE (5) – More than 100 covers or a large-sized takeaway;
- MEDIUM (3) – Between 30 and 100 covers or a medium-sized takeaway;
- SMALL (1) – Less than 30 covers or a small takeaway.

2.8 The restaurant will cater for up to 62 covers at any one time, and thus the restaurant is judged to be of MEDIUM size.

## Dispersion

2.9 The risk rating for dispersion relates to the conditions under which kitchen extraction emissions are discharged. The relevant risk ratings described in the guidance are shown below. The risk score is shown in parentheses.

- VERY POOR (20) – Low level discharge, discharge into courtyard, or restriction on stack;
- POOR (15) – Discharge not low level, but below eaves, or discharge rate below 10 m/s;
- MODERATE (10) – Discharging 1 m above eaves at a rate of 10-15 m/s;
- GOOD (5) – Discharging 1 m above ridge at a rate of 15 m/s or more.

2.10 The risk rating for dispersion is described as VERY POOR; emissions will be discharged via a louvre vent on the rear façade of the development building. Emissions will be discharged onto Bainbridge Street, which is a narrow ‘canyon’ due to the tall row of unbroken buildings on either side; dispersion of odours will thus be inhibited. Emissions will be discharged at approximately 2.5 m above ground level.

## Proximity to Receptors

2.11 The risk rating for proximity to receptors relates to the distance between the point of discharge of kitchen emissions and the nearest sensitive receptor locations. Sensitive receptor locations may be residential properties, commercial premises or frequently used public open spaces. The relevant risk ratings described in the guidance are shown below. The risk score is shown in parentheses.

- CLOSE (10) – Closest sensitive receptor is less than 20 m from kitchen discharge;
- MEDIUM (5) – Closest sensitive receptor is between 20 and 100 m from kitchen discharge;

- FAR (1) – Closest sensitive receptor is more than 100 m from kitchen discharge.

2.12 The risk rating for the proximity to residential properties is judged to be CLOSE. Flats above and behind the restaurant will be situated within 20 m of the extract vents.

## Risk Assessment Summary

2.13 The odour risk assessment summary is shown in Table 1 for the restaurant.

**Table 1: Kitchen Odour Risk Assessment Summary**

| Criteria | Risk Rating | Risk Score[1] | Guidance Description | Comments |
|---|---|---|---|---|
| **Cooking Type and Grease Loading** | Low | 1 | Most pubs, Italian, French, Pizza or Steakhouse. | The restaurant will serve mostly Italian cuisine, including a large proportion of baked goods, which is judged to have a low grease loading. |
| **Size of Kitchen** | Medium | 3 | Between 30 and 100 covers or a medium-sized takeaway. | The restaurant will cater for a maximum of 62 covers. |
| **Dispersion** | Very Poor | 20 | Low level discharge, discharge into courtyard, or restriction on stack | Emissions will be discharged via horizontal louvre vents on the rear façade of the building at an approximate height of 2.5 m. |
| **Proximity to Receptors** | Close | 10 | Closest sensitive receptor less than 20 m from kitchen discharge. | Flats above and behind the proposed development are occupied. |
| **TOTAL RATING** | **High** | **34** | **A <u>High</u> level of odour abatement is recommended based upon the risk score.** | |

[1] Total Risk Score of <20 = Low to Medium Risk, 20 to 35 = High Risk; and >35 = Very High Risk.

2.14 The overall odour risk rating of the restaurant is 'High'. This denotes that it would require a 'High' level of odour control to minimise the risk of odour impacts at nearby residential properties.

2.15 However, it is understood that the restaurant has been operating, as described in this report, for multiple years with no odour-related complaints. Furthermore, there has been no odour abatement system used in this time, with untreated emissions being discharged through the existing louvre vents on the rear façade of the building. Whilst it is of AQC's professional opinion that some odour abatement is required, and thus should be installed at the restaurant; following a review of the location of the premises and the surrounding land uses (i.e. a large number of food outlets), and

based upon the absence of any odour complaint data, it is judged that a '**Low to Medium**' level of odour abatement would be sufficient in this instance.

## Recommended Odour Abatement System

2.16 This section of the report briefly outlines the odour control measures that would need to be installed on the kitchen extract systems at the development to provide optimal odour abatement and minimise the risk of odour impacts at surrounding properties.

2.17 The odour control measures suggested are those recommended within Defra's guidance on odours from commercial kitchens (Defra, 2005) for kitchens with a 'Low to Medium' odour risk assessment score. The requirements set out below provide a guideline for the development of the proposed abatement system described in Section 3.

2.18 The guidance outlines that abatement systems that offer a 'Low to Medium' level of odour control may include:

*"1. Fine filtration or electrostatic precipitation (ESP) followed by carbon filtration (carbon filters rated with a 0.1 second residence time).*

*2. Fine filtration or ESP followed by a counteractant/neutralising system to achieve the same level of control as 1."*

# 3 Odour Abatement System

3.1 In accordance with the recommended odour abatement systems identified in Paragraphs 2.16 to 2.18, the following odour abatement system has been identified as the most effective and feasible option that should be installed at the restaurant. It is judged that the system identified in Table 2 will offer a suitable level of odour abatement and reduce potential odour impacts at nearby sensitive locations as much as practicable.

3.2 It should be noted that the odour abatement system should be specified, designed and installed by a suitably qualified contractor. It is imperative that, following commissioning, the system manufacturer/supplier provides comprehensive information regarding the maintenance of the system to ensure that optimal odour abatement performance is maintained during operation of the restaurant.

**Table 2: Recommended Odour Abatement System**

| Abatement Stage | System | Comment |
|---|---|---|
| **Particle Filtration** | **Filtration system to protect odour removal system** | A fine filtration system or ESP will be required to remove any particles or grease, to protect the odour removal system. The system will be installed in an accessible location to facilitate cleaning and changing of filters. |
| **Odour Removal** | **Carbon Filtration** | Following particulate removal, any residual gaseous odours will be removed using a carbon filtration system, which will achieve a minimum residence time of 0.1s. The system will be installed in an accessible location to facilitate maintenance and filter changes. |

3.3 Based upon AQC's extensive experience of assessing kitchen odours, it is recommended that a carbon system should be used for odour removal, as these offer *much* more effective odour abatement than counteracting/neutralising systems.

# 4 Summary

4.1 Subject to the installation of the odour abatement system set out in Table 2, and assuming the system is operated and maintained in accordance with the manufacturer's maintenance schedule to ensure optimal odour abatement, the treated emissions from the restaurant should not have an adverse impact on the amenity of neighbouring residents.

# Appendix 1. Professional Experience

## Penny Wilson, BSc (Hons) CSci MIEnvSc MIAQM

Ms Wilson is a Principal Consultant with AQC, with more than fifteen years' relevant experience in the field of air quality. She has been responsible for air quality assessments of a wide range of development projects, covering retail, housing, roads, ports, railways and airports. She has also prepared air quality review and assessment reports and air quality action plans for local authorities and appraised local authority assessments and air quality grant applications on behalf of the UK governments. Ms Wilson has arranged air quality and dust monitoring programmes and carried out dust and odour assessments. She has provided expert witness services for planning appeals and is Member of the Institute of Air Quality Management and a Chartered Scientist.

## Paul Outen, BSc (Hons)

Mr Outen is a Senior Consultant with AQC, having joined in 2014. He holds a degree in Environmental Geoscience, having specialised in the study of landfill-related particulate matter for his final year thesis. Prior to joining AQC he worked as an Air Quality Consultant at Odournet UK Ltd for 6 years, undertaking a range of air quality and odour assessments across a number of different industries, as well as managing the sampling/technical department for the company. He now undertakes air quality assessments at AQC, utilising the ADMS dispersion models to assess the impacts of a variety of sources on concentrations of nitrogen dioxide, $PM_{10}$ and $PM_{2.5}$.

Full CVs are available at www.aqconsultants.co.uk