Kitchen Fume Extract Strategy Report

Condition 4 & Condition 5 Discharge Submission

467–471 Wilmslow Road, Manchester, M20 4AN

Planning Permission Reference

138520/FO/2023

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1. Introduction

This Kitchen Fume Extract Strategy Report has been prepared in support of an application to discharge Conditions 4 and 5 attached to Planning Permission 138520/FO/2023 for 467–471 Wilmslow Road, Manchester, M20 4AN.

The report has been prepared in response to the requirements of Manchester City Council and Environmental Health relating to the extraction, treatment and discharge of cooking fumes, odour and noise associated with the proposed restaurant use.

The report should be read in conjunction with the submitted extraction layout drawings, technical specifications and manufacturer information.

The extraction strategy has been developed having regard to the principles contained within EMAQ's guidance document, Control.of.Odour.and.Noise.from.Commercial. Kitchen.Exhaust.Systems (May 2022).

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2. Site Description

The application site comprises a ground floor and basement commercial unit located on Wilmslow Road within a mixed-use urban environment.

The proposed restaurant use includes kitchen facilities at both ground floor and basement level. Residential accommodation is located in proximity to the site and therefore careful consideration has been given to odour control, noise attenuation and the effective dispersal of cooking emissions.

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3. Proposed Extraction System

The proposed commercial kitchen extraction system serves both kitchen areas within the premises.

The extraction arrangement comprises:

- Stainless steel extraction canopies incorporating EN16282 compliant grease filtration.
- Electrostatic Precipitator (ESP) filtration units.
- UV treatment for odour reduction.
- Carbon filtration.
- Acoustic attenuators/silencers.
- High-level discharge terminals.
- Dedicated replacement air system.

The extraction system comprises two commercial kitchen canopies connected to a common extract system providing a total extract rate of approximately 2.88m^3/s.

The extract system is served by a Systemair MUB 062 630D4 extract fan and terminates via a high velocity discharge cowl positioned approximately 1.2 metres above eaves level.

The extraction system has been designed to provide effective removal of cooking fumes, grease, smoke and odour whilst safeguarding neighbouring amenity.

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4. Odour Control Strategy

The proposed extraction system incorporates a multi-stage odour control strategy consistent with the recommendations of EMAQ guidance.

Stage 1 – Grease Filtration

The extraction canopies incorporate EN16282 compliant grease filters designed to remove larger grease particles at source.

This significantly reduces grease accumulation within the extraction ductwork and improves overall system performance.

Stage 2 – Electrostatic Precipitator (ESP)

The extraction system incorporates an ESP6000 Electrostatic Precipitator specifically designed for commercial kitchen applications.

The ESP system removes up to 98% of oil, grease and smoke particles from the extracted air stream and significantly reduces grease deposition within the ductwork.

The system is designed specifically for commercial kitchen extraction systems and assists in reducing odour and particulate emissions prior to discharge.

Stage 3 – UV Treatment

UV treatment is incorporated within the filtration sequence to assist with grease vapour reduction and odour control prior to discharge.

Stage 4 – Carbon Filtration

Carbon filtration forms the final stage of the odour control process.

The carbon filters absorb residual odorous compounds before discharge to atmosphere and provide additional protection for nearby residential properties.

The combination of grease filtration, ESP treatment, UV treatment and carbon filtration provides a robust odour mitigation strategy appropriate for a commercial kitchen located within a mixed-use environment.

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5. Noise Mitigation Strategy

Noise control has been a key consideration in the design of the extraction system.

Noise mitigation measures include:

- Acoustic attenuators fitted to the extract system.
- Acoustic attenuators fitted to the replacement air system.
- Internal positioning of equipment where practicable.
- High-level discharge arrangement.
- Specification of commercial ventilation equipment suitable for the proposed application.

The ventilation specification includes dedicated silencers to both the extract and supply air systems in order to minimise noise emissions from mechanical equipment.

Noise data and technical information for the proposed fans have been submitted in support of this application.

The extraction equipment will be installed, operated and maintained in accordance with manufacturer recommendations and all reasonable measures will be taken to minimise noise impact upon neighbouring residential properties.

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6. Replacement Air Strategy

Replacement air is provided via a dedicated supply air system delivering approximately 80% of the extract rate.

Fresh air will be introduced through ceiling mounted four-way supply grilles served by a Systemair AR560DV axial fan.

The replacement air strategy has been designed to maintain appropriate internal pressure balance, ensure efficient operation of the extraction system and prevent excessive negative pressure within the building.

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7. Maintenance and Management

The extraction system will be maintained in accordance with manufacturer recommendations and industry good practice.

Maintenance procedures will include:

- Regular cleaning of canopy grease filters.
- Routine inspection and cleaning of ductwork.
- Periodic servicing of ESP units.
- Replacement of UV lamps in accordance with manufacturer recommendations.
- Replacement of carbon filters as required.
- Inspection and maintenance of fans, silencers and associated plant.

Inspection access points will be provided throughout the ductwork system to facilitate ongoing maintenance.

All ductwork will be constructed as welded grease-tight ductwork and installed in accordance with relevant industry standards.

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8. Discharge Height

Extract air will be discharged through a high velocity discharge cowl terminating approximately 1.2 metres above eaves level.

The elevated discharge point promotes effective dispersion of cooking emissions and assists in reducing potential impacts upon nearby receptors.

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9. Conclusion

The proposed extraction system has been specifically designed to minimise odour and noise impacts associated with the operation of the commercial kitchen.

The submitted scheme incorporates:

- EN16282 compliant grease filtration.
- ESP6000 electrostatic filtration.
- UV treatment.
- Carbon filtration.
- Acoustic attenuators.
- High-level discharge terminals.
- Dedicated replacement air provision.

The extraction strategy has been prepared having regard to EMAQ guidance and is considered appropriate for the proposed restaurant use and surrounding context.

It is therefore respectfully submitted that the information provided satisfies the requirements of Conditions 4 and 5 attached to Planning Permission 138520/FO/2023 and that the conditions can be discharged.