

# Planning- Condition 20 – Retail Unit 3a, Deansgate Square, Manchester – Rev 02

Fumes, vapours and odours shall be extracted and discharged from the premises in accordance with a scheme to be submitted to and approved in writing by the City Council as local planning authority before the use commences; any works approved shall be implemented before the use commences.

This statement has been produced to detail the supply and extract ventilation strategy for the proposed fit out.

The ventilation design shall comply with the following building regulation approved documents and standards:

## **Design Standards**

The ventilation systems will be designed in accordance with recognised UK and industry best practice.

Design will be based on standards and guidelines, including:

- British and European Standards (BSI).
- Chartered Institution of Building Services Engineers (CIBSE).
- Building Services Research and Information Association (BSRIA).
- Building Research Establishment (BRE).
- Heating & Ventilating Contractors Association (HVCA).
- Control of Odour and Noise from Commercial Kitchen Exhaust Systems (EMAQ)

## **Statutory Requirements**

Ventilation systems design will also be based on the following Statutory Requirements:

- The Building Regulations.
- Clean Air Act 1993.
- The Control of Pollution Act 1974 and Amendment Acts.
- The Construction (Design and Management) Regulations 2015.
- British Standards and Codes of Practice.
- Manchester City Council Planning Conditions & Requirements.

## **System Descriptions**

All equipment shall be installed so as not to create any nuisance by way of noise, vibration, heat or fumes to neighbouring tenants, residential apartments or the public including recirculation.

### **Kitchen extract Ventilation**

The kitchen ventilation has been designed in accordance with EMAQ guidelines and the HVCA DW172 specification, and the extract ventilation rate has been calculated using the thermal calculation of the kW ratings of the cookline.

### **Risk assessment as detailed in Appendix 3 of the EMAQ Guide**

Taking into consideration the level of discharge, proximity of receptors, size of kitchen and cooking type your project requires a high level of odour control to comply.

We have scored as below and as taken from Appendix 3: Risk Assessment for Odour:

Dispersion = **Very poor - 20**

Proximity of receptors = Medium - 5

Size of kitchen = Medium - 3

Cooking type = Very High - 10

Total score = **Very High 38**

The type of odour abatement system that complies is as below, taken directly from the EMAQ Guide and must be to a high level of odour control.

### **Odour arrestment plant performance**

**Very High level odour control includes:**

- 1. Fine filtration or ESP followed by carbon filtration (carbon filters rated with a 0.4 – 0.8 second residence time).**
- 2. Fine filtration or ESP followed by carbon filtration and 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.**

### **Specification**

The kitchen canopy would be manufactured from 20swg 304 grade stainless steel, a continuous perimeter condense drip channel, standard baffle type grease filters and LED lighting.

The extract ductwork would be manufactured and installed in accordance with DW172 for commercial kitchens, and fire rated for 60 minutes, by the application of FM60.

The ductwork would pass through the floor slab to the basement plant area, where the high temperature rated fan (with motor out of airstream) complete with fore and aft silencers, before exhausting the air into the underground car park area.

The fan would have a speed controller, wall mounted in the kitchen.

The system would benefit from full odour control, starting with a UVO-1000 module at the canopy, double pass ESP modules and a carbon filter module, which together will remove ALL grease, smoke and odours from the extracted cooking fume.

All odour control equipment would be manufactured by Purified Air Ltd.

### **Toilet extract system**

The toilet extract system has been designed to provide 12 – 15 air changes per hour to the toilet area, and would comprise 1 x basement mounted extract fan, with fore and aft silencers, and an exhaust duct into the underground car park.

The duct rising to the ground floor would have a fire damper in the floor slab, and a range of galvanised sheets steel ductwork, over the toilet cubicles, with an extract air valve to each cubicle.

The fan would have an adjustable run-on timer and would be controlled by movement sensors in the toilet foyer.

### **Heat Recovery Fresh Air Ventilation**

The fresh air ventilation has been designed to provide the legal minimum of 10 litres/sec/person of 100% fresh, filtered and tempered air, via 2 HRV units, one mounted on top of each doorway porch arrangement.

The fresh air and exhaust air would be via the perforated grilles in the ceiling of the porch.

Air would be extracted from the venue from a louvre above each entrance door, and the fresh air would be directed to both the AC unit and into the main duct riser, for distribution throughout the venue, via the circular swirl diffusers.

Each HRV unit would be individually controlled, from a wall mounted remote control unit.

# Appendix 1 – Risk Assessment for Odour (extract from EMAQ – Control of Odour and Noise from Commercial Kitchen Exhaust Systems)

## Appendix 3: Risk Assessment for Odour

Odour control must be designed to prevent odour nuisance in a given situation. The following score methodology is suggested as a means of determining odour control requirements using a simple risk assessment approach. The odour control requirements considered here are consistent with the performance requirements listed in this report.

| Impact Risk   | Odour Control Requirement     | Significance Score* |
|---------------|-------------------------------|---------------------|
| Low to Medium | Low level odour control       | Less than 20        |
| High          | High level odour control      | 20 to 35            |
| Very high     | Very high level odour control | more than 35        |

\* based on the sum of contributions from dispersion, proximity of receptors, size of kitchen and cooking type:

| 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 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 <sup>1</sup> .                                                                |
| 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 <sup>1</sup> .                                                                                          |
| Cooking type (odour and grease loading) | Very high | 10    | Pub (high level of fried food), fried chicken, burgers or fish & chips. <i>Turkish, Middle Eastern or any premises cooking with solid fuel</i> |
|                                         | High      | 7     | <i>Vietnamese, Thai, Indian, Japanese, Chinese, steakhouse</i>                                                                                 |
|                                         | Medium    | 4     | <i>Cantonese, Italian, French, Pizza (gas fired),</i>                                                                                          |
|                                         | Low       | 1     | <i>Most pubs (no fried food, mainly reheating and sandwiches etc), Tea rooms<sup>1</sup></i>                                                   |

**Note 1: 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.**

## **Appendix 2 – Odour Arrestment Plant Performance (extract from EMAQ – Control of Odour and Noise from Commercial Kitchen Exhaust Systems)**

### **Odour arrestment plant performance**

Low to medium level control may include:

1. Fine filtration or ESP followed by carbon filtration (carbon filters rated with a 0.1 second residence time).
2. Fine filtration followed by counteractant/neutralising system to achieve the same level of control as 1.

High level odour control may include:

1. Fine filtration or ESP followed by carbon filtration (carbon filters rated with a 0.2 - 0.4 second residence time).
2. Fine filtration or ESP followed by UV ozone system to achieve the same level of control as 1.

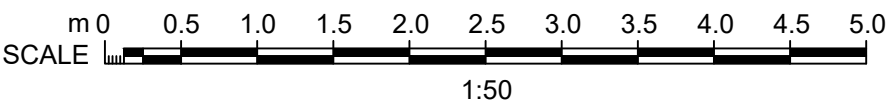
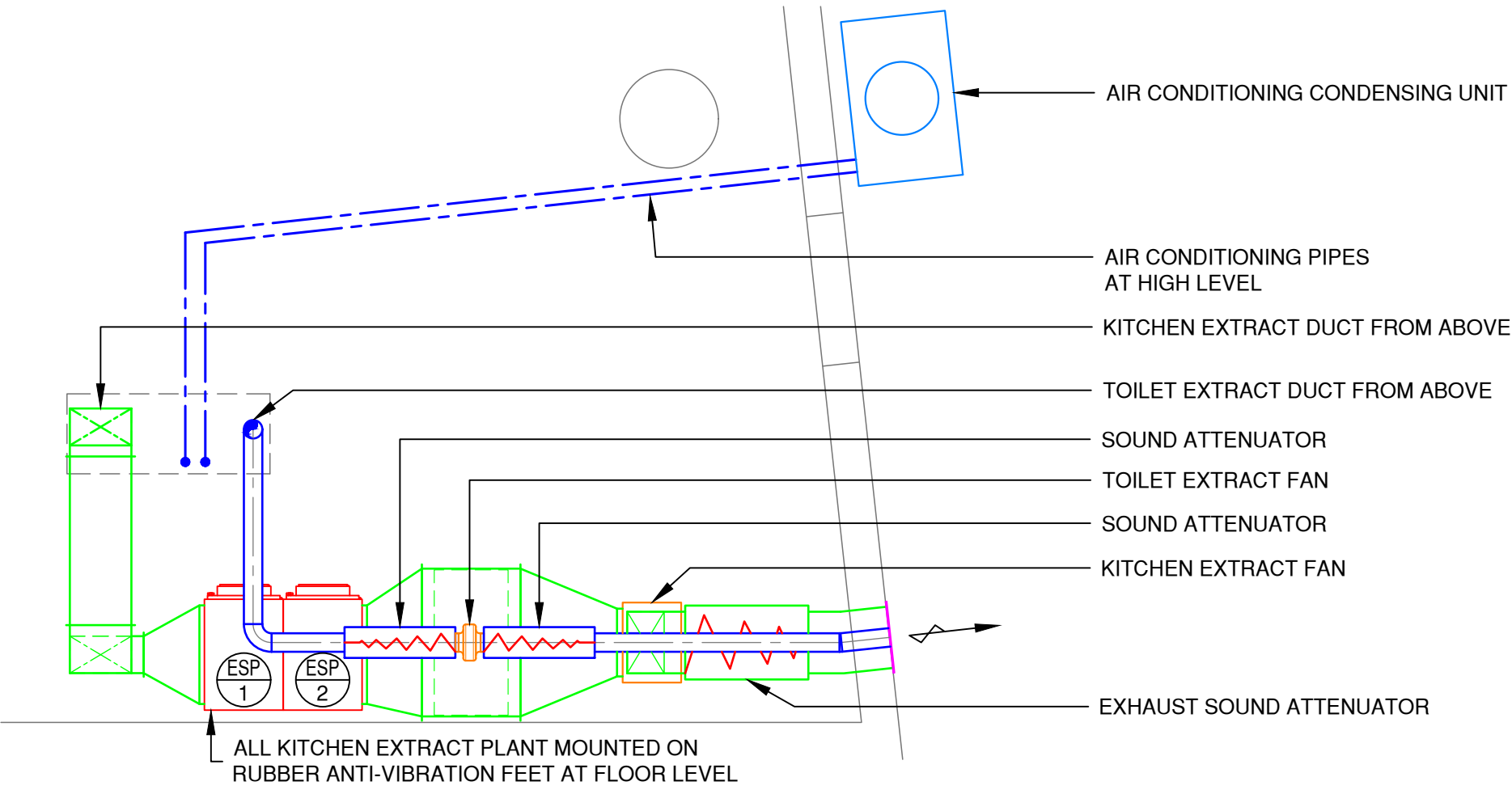
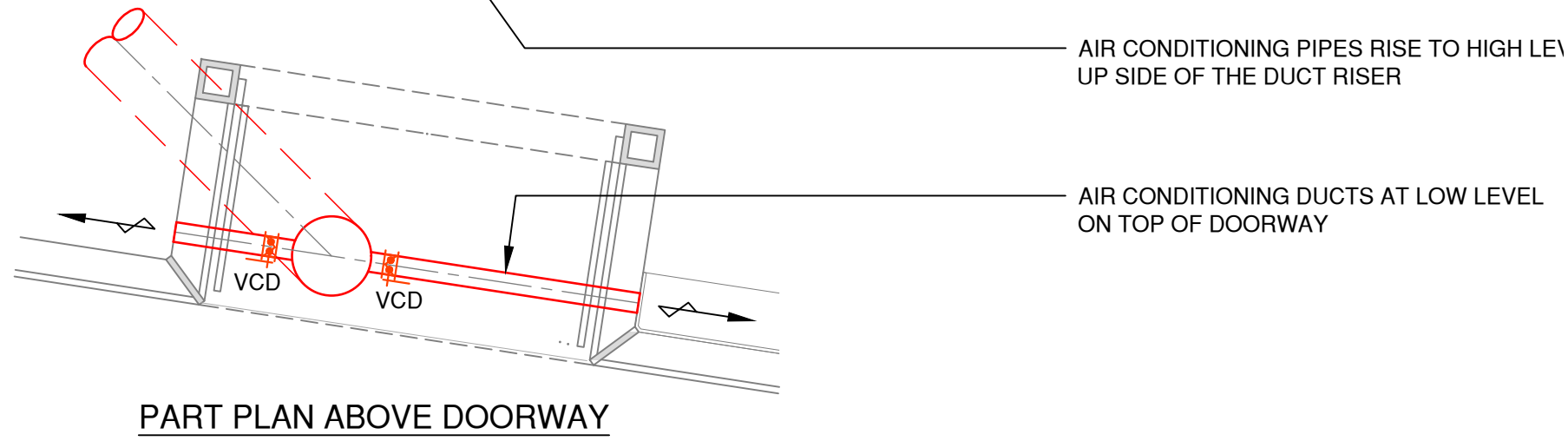
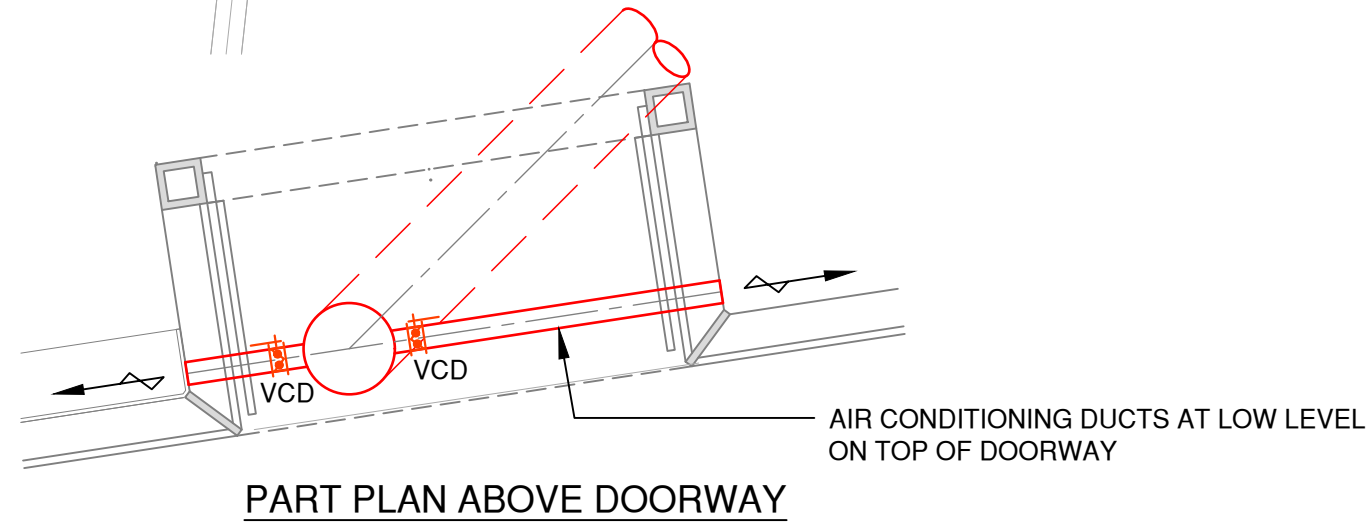
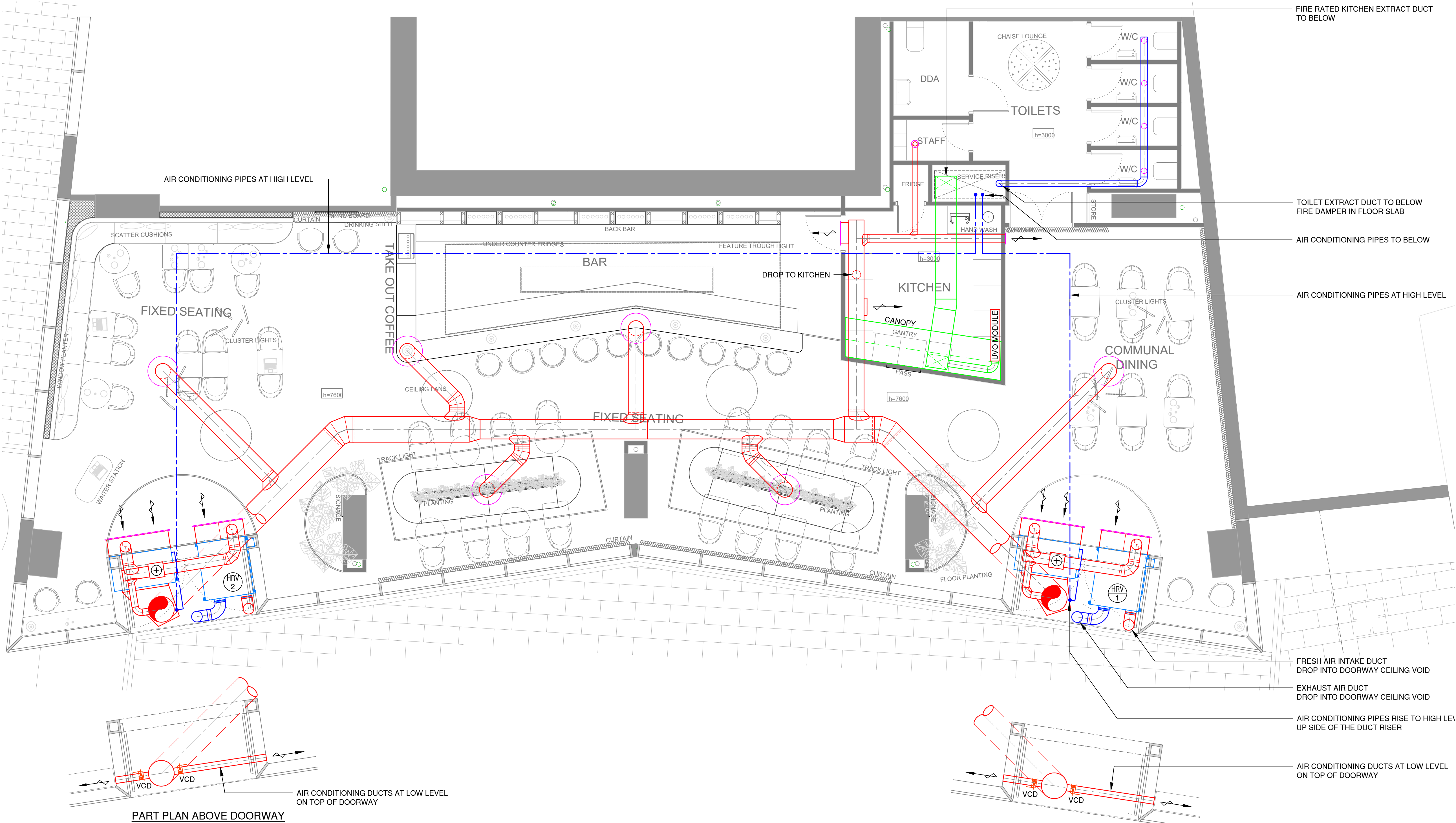
Very high level of odour control may include:

1. Fine filtration or ESP followed by carbon filtration (carbon filters rated with a 0.4 – 0.8 second residence time).
2. Fine filtration or ESP followed by carbon filtration and 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.

*In some instances where very high levels of control are required combinations or sacrificial levels of filtration may be employed.*

Maintenance must be carried out to ensure these performance levels are always achieved.

## **Appendix 3 – Ventilation Design Drawings**



|                                                                                        |          |                |     |
|----------------------------------------------------------------------------------------|----------|----------------|-----|
| Rev                                                                                    | Date     | Description    | By  |
| <b>SWAN Projects</b>                                                                   |          |                |     |
| tel: 0161 300 3465 fax: 0161 959 2093 E mail: info@swan-projects.com                   |          |                |     |
| Client <b>MULE LTD</b>                                                                 |          |                |     |
| Project <b>DEANS GATE SQUARE</b>                                                       |          |                |     |
| Title <b>KITCHEN VENTILATION, AIR CONDITIONING &amp; FRESH AIR VENTILATION SYSTEMS</b> |          |                |     |
| Scale                                                                                  | 1:50     | Drawing Number | Rev |
| Date                                                                                   | 6.8.2021 | <b>C651/1</b>  |     |
| Drawn                                                                                  | PAS      |                |     |
| Checked                                                                                |          |                |     |