

ENVIRONMENT

Legal & General Assurance (Pensions
Management) Ltd
Unit E3, One Piccadilly Gardens
Manchester

Kitchen Extract Odour Risk Assessment



Legal & General Assurance (Pensions Management) Ltd
Unit E3, One Piccadilly Gardens
Manchester

Kitchen Extract Odour Risk Assessment

Birmingham
Livery Place, 35 Livery Street, Colmore Business District, Birmingham, B3 2PB
T: 0121 233 3322

Leeds
Whitehall Waterfront, 2 Riverside Way, Leeds
LS1 4EH
T: 0113 233 8000

London
11 Borough High Street
London, SE1 9SE
T: 0207 407 3879

Manchester
11 Portland Street
Manchester, M1 3HU
T: 0161 233 4260

Nottingham
Waterfront House, Station Street, Nottingham NG2 3DQ
T: 0115 924 1100

May 2023

DOCUMENT ISSUE RECORD

Document Number:	OPG-XX-ZZ-LA-RP-0001-ODR
BWB Reference:	221769-ODR

Revision	Date of Issue	Status	Author:	Checked:	Approved:
1.0	03/05/2023	Issue	C. Smith BSc (Hons), MIAQM, AMEnvSc	A. Van de Sande MSc, BSc (Hons), MIAQM, MEnvSc	A. Van de Sande MSc, BSc (Hons), MIAQM, MEnvSc

Notice

This document has been prepared for the sole use of the Client in accordance with the terms of the appointment under which it was produced. BWB Consulting Limited accepts no responsibility for any use of or reliance on the contents of this document by any third party. No part of this document shall be copied or reproduced in any form without the prior written permission of BWB.

EXECUTIVE SUMMARY

BWB Consulting Limited was appointed by Legal & General Assurance (Pensions Management) Ltd to undertake a kitchen extract odour risk assessment to assist in the discharging of a condition for the consented development at Unit E3, One Piccadilly Gardens, Manchester.

The consented development comprises the installation of a new window vent and door at Unit E3, One Piccadilly Gardens associated with a Mexican style restaurant. The window vent will provide ventilation from the commercial kitchen at the unit and as such, a kitchen extract odour risk assessment was undertaken to determine the potential for odour impacts and define the level of odour control required.

The kitchen extract odour risk assessment was undertaken in accordance with the EMAQ 2018 Addendum to the 2005 Defra guidance on the 'Control of Odour and Noise from Commercial Kitchen Exhaust Systems'. Based on the risk assessment results, the consented development was considered as 'very high' risk for odour effects due to the poor dispersion potential and the proximity of the closest receptors.

In order to preserve amenity in the development locale, the ventilation and filter system for the proposed development must be designed to achieve a very high odour control. The kitchen extract system at Unit E3 will include fine filtration and UV-C systems to reduce odour and grease loading.

Based on the above, the odour abatement measures were considered to be acceptable to reduce odour as a result of the installation of the window vent and reduce the potential for odour impacts.

CONTENTS

EXECUTIVE SUMMARY	iii
1. INTRODUCTION.....	5
Appointment & Background.....	5
Site Setting	5
2. LEGISLATION AND PLANNING POLICY	7
National Planning Policy	7
Local Planning Policy	8
Odour Nuisance Regulation.....	8
Guidance	9
3. METHODOLOGY	3-10
Communication with Manchester City Council	3-10
EMAQ Addendum to Defra Guidance	3-10
4. REVIEW OF EXISTING ODOUR SOURCES.....	4-12
5. REVIEW OF RECEPTOR LOCATIONS	5-13
6. REVIEW OF ODOUR COMPLAINTS	6-15
7. Assessment of Potential Odour Risk.....	7-16
EMAQ Addendum.....	7-16
8. ODOUR ABATEMENT	8-17
9. CONCLUSIONS	9-18

FIGURES

Figure 1.1: Site Location

Figure 5.1: Receptor Buffer Zones

APPENDICES

Appendix A: Proposed Development Plans

1. INTRODUCTION

Appointment & Background

- 1.1 BWB Consulting Limited (BWB) was appointed by Legal & General Assurance (Pensions Management) Ltd (the 'Client') to undertake an odour assessment to assist with the discharging of a condition for the consented development at Unit E3, One Piccadilly Gardens, Manchester ('the Site').
- 1.2 The consented development comprises the installation of new window vent and door at Unit E3, One Piccadilly Gardens, Manchester. The consented development relates to a new Mexican-style restaurant including a commercial kitchen opening within Unit E3. A planning application was submitted to Manchester City Council (MCC) in May 2022 (ref: 133296/FO/2022) and planning permission was granted in October 2022 subject to a number of conditions including the following relating to odour:

"4)a) 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. Mixed use schemes shall ensure provision for internal ducting in risers that terminate at roof level. Schemes that are outside of the scope of such developments shall ensure that flues terminate at least 1m above the eave level and/or any openable windows/ventilation intakes of nearby properties.

b) Prior to commencement of the use hereby approved confirmation shall be submitted for the approval of the City Council as local planning authority that the approved scheme has been implemented."

- 1.3 A kitchen extract odour risk assessment was therefore undertaken to consider the potential for odour impacts as a result of the consented development and recommended odour abatement measures, if required.

Site Setting

- 1.4 The Site is located at One Piccadilly Gardens, an existing building in Manchester city centre comprising commercial use at ground floor and office use above at first to fifth floor. The Site is surrounded by existing commercial uses including a number of cafés, restaurants and take away units located at the ground floor of One Piccadilly Gardens. Unit E3 is situated within the south western corner of One Piccadilly Gardens and is adjacent to a pedestrianised area to the east and a pedestrian walkway and the Piccadilly Gardens Metrolink Tram Stop to the west. To the south is Portland Street with existing commercial uses beyond.
- 1.5 **Figure 1.1** details the Site location and the site plans are provided in **Appendix A**.

Figure 1.1: Site Location



2. LEGISLATION AND PLANNING POLICY

National Planning Policy

National Planning Policy Framework

2.1 The National Planning Policy Framework¹ (NPPF) was revised in July 2021 and sets out the Government's planning policies for England and how these are expected to be applied.

2.2 With regard to assessing cumulative effects the NPPF¹ states:

"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.

[...]"

2.3 The NPPF¹ recognises air quality within Section 15: Conserving and enhancing the natural environment, and states that:

"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;

[...]

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."

¹ Ministry of Housing, Communities and Local Government. (2021). National Planning Policy Framework, HMSO London.

Local Planning Policy

Manchester's Local Development Framework: Core Strategy Development Plan Document

- 2.4 MCC adopted the Local Development Framework: Core Strategy Development Plan Document² in 2012. The Document² covers a five year period between 2012 and 2027 and outlines MCC's vision for Manchester as well as planning policies to deliver that vision. A review of the Document¹⁰ indicated the following policy is relevant to odour:

"Policy DM1

Development Management

All development should have regard to the following specific issues for which more detailed guidance may be given within the supplementary planning document:-

Effects on amenity, including privacy, light, noise, vibration, air quality, odours, litter, vermin, birds, road safety and traffic generation. This could also include proposals which would be sensitive to existing environmental conditions, such as noise."

- 2.5 The above policy was taken into consideration throughout the undertaking of the assessment.

Odour Nuisance Regulation

Statutory Nuisance

- 2.6 Odour emissions from premises are typically controlled through the Environmental Permitting (England and Wales) Regulations (2016)³, and subsequent amendments by the Statutory Nuisance provisions in Part III of the Environmental Protection Act (1990)⁴. Statutory nuisance is defined as:

"any dust, steam, smell or other effluvia arising on industrial trade or business premises and being prejudicial to health of a nuisance."

- 2.7 Enforcement of the statutory nuisance provisions under the Act⁴ is by the local authority, whose officers are required to provide an independent evaluation of whether there is a nuisance or not. If the local authority is satisfied that a statutory nuisance exists or is likely to occur or reoccur, it must serve an abatement notice. The local authority can insist that there be no malodour beyond the boundary of the premises where odour generating activities are taking place.
- 2.8 It should be noted that planning policy requires that general amenity be taken into account and that loss of amenity does not equate directly to nuisance. It is often the

² Manchester City Council (2012) Manchester's Local Development Framework: Core Strategy Development Plan Document

³ HMSO (2016) Statutory Instruments 2016 No. 1154. The Environmental Permitting (England and Wales) Regulations

⁴ HMSO (1990) Environmental Protection Act

case that loss of amenity occurs at much lower levels of odour exposure than what would be considered as a statutory nuisance.

Guidance

Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems

- 2.9 EMAQ's 2018 addendum to the 2005 Defra guidance⁵ on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems⁶ provides guidance to the regulations of commercial kitchens and the issues of odour and noise emissions from the associated exhausts. This guidance is not a statutory document but provides information on best practice techniques for the minimisation of odour and noise from kitchen exhaust systems.

⁵ Defra (2005) Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems (withdrawn)

⁶ EMAQ, Ricardo-AEA (2018) Addendum to the 2005 Defra guidance Control of Odour and Noise from Commercial Kitchen Exhaust Systems

3. METHODOLOGY

Communication with Manchester City Council

3.1 Consultation was undertaken with MCC on the 21st April 2023 in which the proposed methodology was provided. A response was received on the 25th April 2023 agreeing the methodology.

3.2 The assessment methodology, as agreed with MCC, is detailed below:

- Review of Existing Odour Sources – a desk based review of existing potential odour sources was undertaken to identify any existing operations in the vicinity of the Site that may give rise to odorous emissions.
- Review of Sensitive Receptor Locations – the location of receptors sensitive to odours was reviewed to identify the closest existing and proposed sensitive receptors to the Site, and the level of amenity that may be expected at the receptors considered.
- Review of Odour Complaints – odour complaints were requested from MCC to identify any established odour annoyance or nuisance in the vicinity of the Site.
- Information to inform the assessment - the following information was used to inform the kitchen extract odour risk assessment:
 - The type of food to be cooked;
 - Method of cooking; and
 - Window vent height.
- Mitigation – odour abatement measures proportionate to the results of the kitchen extract odour risk assessment will be recommended for inclusion within the proposed plant.

3.3 The methodology utilised in the odour assessment is set out below.

EMAQ Addendum to Defra Guidance

3.4 The kitchen extract odour risk assessment was undertaken utilising the methodology detailed in Appendix 3 of the EMAQ Addendum⁶. The EMAQ Addendum⁶ identifies the factors that influence the magnitude of potential odour from kitchens as:

- The location of the kitchen extract discharge unit;
- The proximity of receptors;
- The size of the cooking facility based on the number of covers (meals served) per day;
- The methods of preparation and cooking;
- The type of meals served; and
- The proposed hours of operation of the business and any ventilation plant.

3.5 The EMAQ Addendum⁶ provides a scoring system for each of the factors above as a means of determining odour control requirements using a simple risk assessment approach. The risk assessment criteria detailed in the EMAQ Addendum⁶ is reproduced in **Table 3.1** below.

Table 3.1: Kitchen Extract Odour Risk Scoring Criteria

Criteria	Score	Score	Details
Dispersion	Very poor	20	Low level discharge, discharge into courtyard of 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 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 20m 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 takeaway
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	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

- 3.6 A significance score based on the sum on contributions detailed in **Table 3.1** was then calculated to determine the impact risk and the level of odour control required, as shown in **Table 3.2**.

Table 3.2: Significance Score, Impact Risk and Odour Control Requirement

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

- 3.7 The EMAQ Addendum⁶ provides specific odour abatement measures based on the odour control requirement and these were recommended as necessary.

4. REVIEW OF EXISTING ODOUR SOURCES

- 4.1 A review of potential odour sources in the vicinity of the Site was undertaken using aerial imagery. The odour sources identified were considered with regard to their relative offensiveness in accordance with IAQM guidance⁷. **Table 4.1** details the benchmark odour criteria set out in IAQM guidance⁷.

Table 4.1: Benchmark Odour Criteria

Criterion C98 OU _E /m ³	Offensiveness	Odour Emission Sources
1.5	Most Offensive	- Processes involving decaying animal or fish remains - Processes involving septic effluent or sludge - Biological landfill odours
3.0	Moderately Offensive	- Intensive livestock rearing - Fat frying (food processing) - Sugar beet production - Well aerated green waste composting
6.0	Less Offensive	- Brewery - Confectionery - Coffee

- 4.2 The Site is located within an existing area of commercial use including a number of bars, restaurants, coffee shops and cafés within 50m. Based on the commercial uses in the vicinity of the Site, it is considered that the baseline odour environment includes sources such as fat frying which is considered to be moderately offensive and confectionery and coffee which are both considered to be "less offensive" odours. There are no odour sources within the vicinity of the Site which would be considered as most offensive.

⁷ Institute of Air Quality Management (2018) Guidance on the Assessment of Odour for Planning

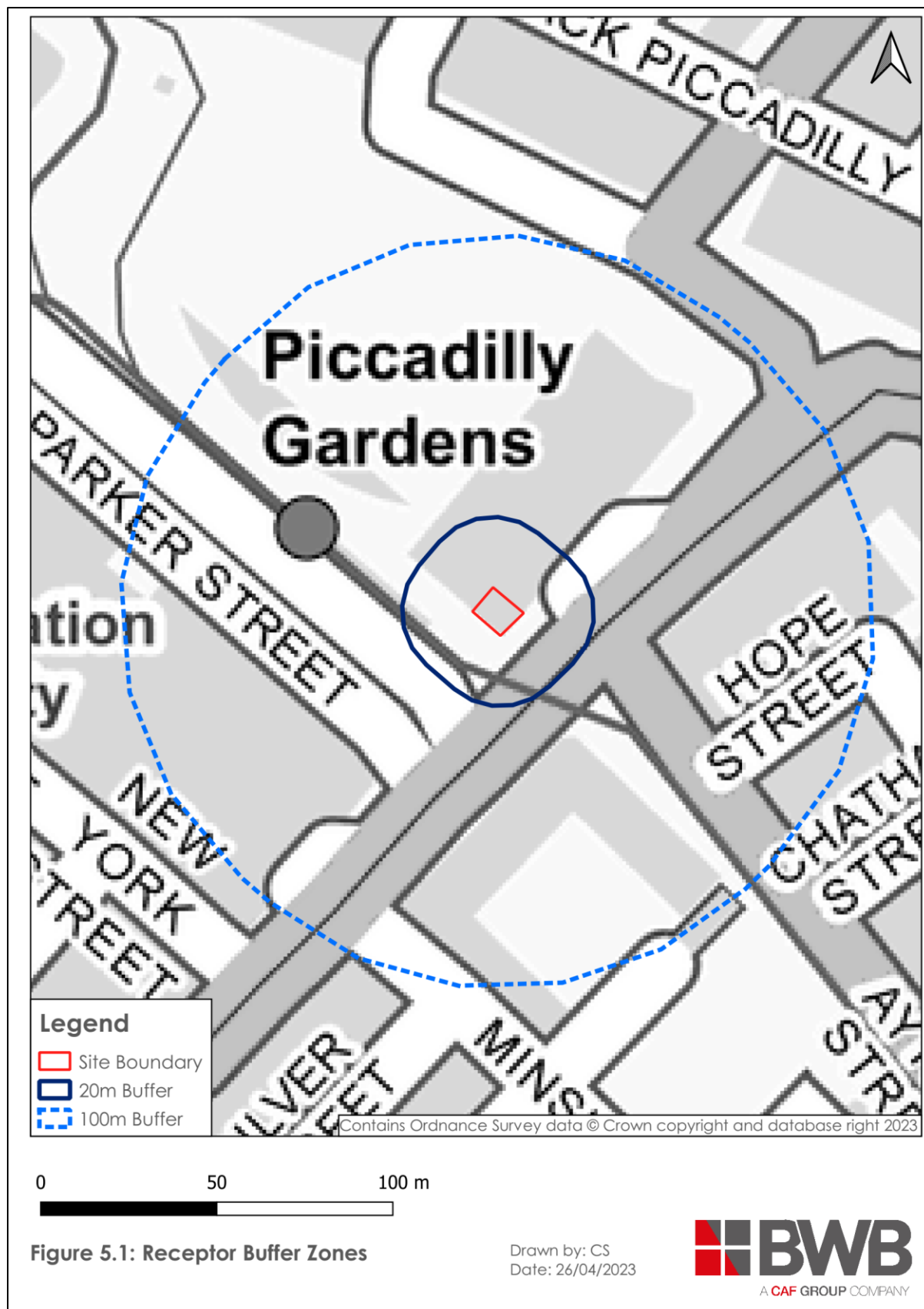
5. REVIEW OF RECEPTOR LOCATIONS

- 5.1 The Site is located in Manchester city centre and therefore there are a number of receptors within close proximity of the Site. **Figure 5.1** illustrates buffer zones of 20m and 100m from the Site. These buffer zones reflect the distances when scoring the proximity of receptors as part of the kitchen extract risk assessment, in accordance with the EMAQ Addendum⁶. **Table 5.1** provides a summary of the types of receptors within the defined buffer zones.

Table 5.1: Receptors within the EMAQ Addendum Buffer Zones

Receptor	Distance and Direction from the Site
Offices at One Piccadilly	Immediately above the proposed development
Vegan Shack restaurant	Immediately to the east
Pedestrianised area	Immediately to the east, south and west
Piccadilly Gardens Tram Stop	<10m west
Offices at Westminster House	30m south east
Piccadilly Gardens outdoor space	40m north
IBIS Hotel	65m north east
Mercure Manchester Piccadilly Hotel	70m south west
Residential dwellings at The Grand	75m south east

Figure 5.1: Receptor Buffer Zones



6. REVIEW OF ODOUR COMPLAINTS

- 6.1 A Freedom of Information (FoI) request was sent to MCC on 21st December 2022 to obtain complaints data relating to odour in the vicinity of the Site. A response was received via email from MCC on 10th January 2023 in which odour complaints within 0.5km of the Site for the last ten years (2014 - 2023) were provided. **Table 6.1** below provides detail on the type of odour complaint and how many occurred in each year.

Table 6.1: MCC Odour Complaint History

Complaint	Year										Total
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
Odour - Chemical	1	1	0	0	1	1	0	0	0	0	4
Odour - Cooking	0	1	0	1	3	1	1	2	1	0	10
Odour - Dog Faeces	0	0	0	0	0	0	1	0	0	0	1
Odour - Rubbish	1	0	0	0	0	0	0	0	0	0	1
Odour - Other	9	5	9	10	5	4	6	13	16	2	79
Total											107

- 6.2 In the last 10 years of available odour complaint data, ten complaints related to odour from cooking with the most recent complaint in 2022. No detail was however provided on whether the complaints related to single events or whether the odour complaints were substantiated by MCC.

7. Assessment of Potential Odour Risk

EMAQ Addendum

- 7.1 The kitchen extract odour risk assessment was undertaken in accordance with the methodology detailed in the EMAQ Addendum⁶.
- 7.2 The consented development includes the installation of a new window vent for kitchen extract and general ventilation on the front façade of the property. The anticipated opening hours of the vendor are currently unknown however it was confirmed by Savills, the Planners for the project, that the type of food at the vendor will be Mexican cuisine and that the food will be cooked on a grill.
- 7.3 A summary of the risk assessment for the potential for odour associated with the consented window vent at the development is detailed in **Table 7.1**.

Table 7.1: Kitchen Extract Odour Risk Assessment

Category	Score	Detail
Dispersion	20	Very poor – the window vent is located on the front façade of the property and discharges into an under croft of the existing building
Proximity of receptors	10	Close – the closest receptors include offices, commercial use and a pedestrianised area which are located immediately above or adjacent to the property as detailed in Table 5.1 .
Size of kitchen	3	Medium – the consented development is considered to be a medium sized kitchen with between 30 and 100 covers per day
Cooking type	4	Medium – the type of food to be cooked is Mexican and the food will be cooked using a grill. There are no deep fat frying methods and therefore the potential for odour and grease loading was determined as medium.
Total score	37	
Impact risk	Very High	

- 7.4 As shown in **Table 7.1**, based on the information available, the odour impact risk of the consented development was determined as 'very high'. This is a result of the low discharge of the window vent and the proximity of the closest receptor. As detailed in **Table 3.2**, a 'very high' impact requires a 'very high' level of odour control.

8. ODOUR ABATEMENT

- 8.1 The EMAQ Addendum recommends the following odour abatement systems to achieve a very high level of odour control:
- i. Fine filtration of electrostatic precipitators (ESP) followed by carbon filters (carbon filters rated with a 0.4 – 0.8 second residence time); or
 - ii. Fine filtration or ESP followed by carbon filtration and by counteractant/neutralising system to achieve the same level of control as point i; or
 - iii. Fine filtration or ESP followed by ultraviolet (UV) ozone system to achieve the same level of control as point i.
- 8.2 It was confirmed by Savills, the Planners for the project, that the kitchen extract system will include fine filtration followed by a UV-C ozone system which is considered to be appropriate mitigation for the level of odour risk identified.
- 8.3 The tenants at the property will be expected to maintain the ventilation and filter system to ensure that grease does not build up and cause odour. Maintenance may include the inspection and cleaning of the grease filters and replacement, where necessary and the schedule of maintenance should be in line with the manufacturer's recommendations.
- 8.4 The inclusion of odour abatement measures assist in reducing the potential for odour and in turn ensures that the impact on amenity at the closest receptor locations identified within this assessment will not be significant.

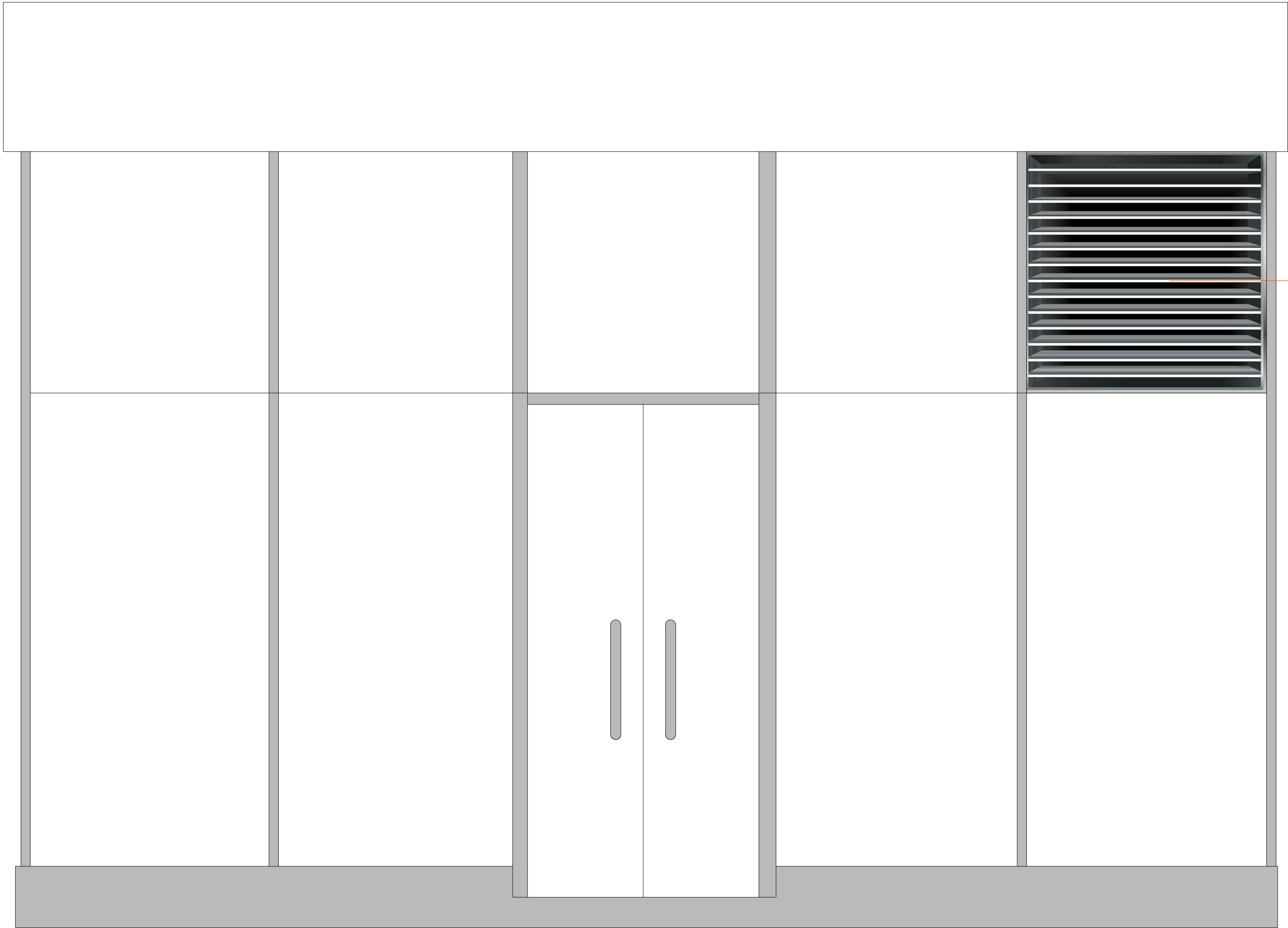
9. CONCLUSIONS

- 9.1 BWB Consulting Limited was appointed to undertake a kitchen extract odour risk assessment to assist in discharging condition for the consented development at Unit E3, One Piccadilly Gardens, Manchester. The consented development comprises the installation of a new window vent and door relating to the opening of a Mexican-style restaurant at Unit E3.
- 9.2 A kitchen extract odour risk assessment was undertaken utilising the methodology detailed within the EMAQ Addendum. The kitchen at Unit E3 was considered to be medium in size with a medium potential for odour and grease loading due to the type of cooking to be undertaken. Due to the location of Unit E3 within Manchester city centre, there are a number of receptors located within close proximity and due to the height of the window vent, poor potential for dispersion was identified. As such, the risk of odour impacts was considered to be very high and a very high level of odour control was required in accordance with the EMAQ Addendum.
- 9.3 It was confirmed that the kitchen extract system at Unit E3 will include fine filtration followed by a UV-C ozone system, which is considered to be appropriate mitigation for the level of odour risk identified. It was recommended that the odour control system should be serviced and maintained according to manufactures specifications to reduce the potential for odour and in turn, ensure that that the impact on amenity at the closest receptors will not be significant.

APPENDICES

APPENDIX A: PROPOSED DEVELOPMENT PLAN

ProposedFrontElevation



WINDOW VENT

Note:
Vent's colour will match
existing frame

ENTER

UNIT FRONT

SCALE 1:30

