

Odour Assessment

Hungamaa Restaurant
575 Barlow Moor Road, Manchester, M21 8AE

February 2023

Executive Summary

This report was commissioned by Hungamaa to undertake an Odour Assessment in support of a planning application for the restaurant at 575 Barlow Moor Road, Manchester M21 8AE.

The development has the potential to cause odour impacts as a result of emissions from the proposed food preparation activities. As such, an Odour Assessment was undertaken in order to assess potential effects as a result of the scheme and identify the necessary mitigation measures to prevent adverse impacts.

An assessment using the standard industry methodology was undertaken in order to identify the odour risk associated with the proposals. This was based on a number of site-specific inputs.

The results of the assessment indicated the odour risk was classified as high. This prediction does not infer that the proposed development would result in significant odour impact or affect local amenity levels. However, it does suggest that appropriate mitigation options may be required to reduce potential effects to an acceptable level.

An abatement system has been designed in accordance with the relevant guidance for kitchens with a high risk of impact. It therefore follows that with this mitigation in place, potential odour impacts at nearby sensitive receptors would be reduced to an acceptable level.

Based on the results of the assessment, odour issues are not considered to represent a constraint to planning consent for the proposals, subject to the inclusion of the specified mitigation.

1.0 Introduction

1.1 Background

1.1.1 This report was commissioned by Hungamaa to undertake an Odour Assessment in support of a planning application for the erection of mechanical extraction at 575 Barlow Moor Road, Manchester M21 8AE.

1.1.2 The development has the potential to cause odour impacts as a result of emissions from the proposed food preparation activities. As such, an Odour Assessment was undertaken in order to evaluate potential effects as a result of the scheme and identify the necessary mitigation measures to prevent adverse impacts.

1.2 Site Location and Context

The proposed restaurant is located at 575 Barlow Moor Road, Manchester M21 8AE, at approximate National Grid Reference (NGR): 381706, 393918. Reference should be made to Figure 1 for a map of the site and surrounding area.

The development is situated in a suburban setting. Commercial properties including shops, restaurants and other businesses are situated immediately to the east and west along Barlow Moor Road. Residential dwellings are located to the north and south, as well as at first floor level above the proposed restaurant and other commercial properties to the east and west of the site.

The proposals comprise the change of use of the existing retail unit to a vegan Indian

The kitchen will be located towards the rear of the building and will include a charcoal grill, hot holds, a tandoor oven as well as 6 gas burners. The opening hours are:-

Sunday	12:00 - 22:00
Monday	Closed
Tuesday	17:00 - 22:00
Wednesday	17:00 - 22:00
Thursday	17:00 - 22:00
Friday	12:00 - 23:00
Saturday	12:00 - 23:00

The menu for the restaurant has not yet been finalised. However, information provided by the applicant indicates that a range of vegan Indian meal types will be prepared and served at the premises.

Emissions from hot food preparation within the kitchen will be removed via an extraction canopy fitted with internal grease filters. The extract air will then be transferred through a V Line Pleated Panel Filter to remove particulates prior to final treatment using 2 Carbon 208 EA Panel Filters (model AC207-2-2424) which have a dwell time of 0.4s. Following filtration, emissions will be discharged to atmosphere vertically via a dedicated flue located on the southern façade of the building. This will terminate approximately 1.5m above the ridge of the building. Air will be discharged from the flue at an efflux velocity of 8 meters per second (m/s).

A planning application for the development (reference: 126793/FO/2020) was submitted to Manchester City Council (MCC) in June 2020. The application was approved. Since the approval mechanical extraction installed is not as per the approved application. Therefore a revised scheme will capture a revised location for the mechanical extraction.

2.0 Odour Background

2.1 Odour Definition

2.1.1 The Institute of Air Quality Management (IAQM) guidance² defines odour as:

“[...] the human olfactory response (perception followed by psychological appraisal) to one, or more often a complex mixture of, chemical species in the air.”

2.1.2 The stated definition is considered to be relevant in the context of this assessment.

2.2 Odour Impacts

2.2.1 The magnitude of odour impact depends on a number of factors and the potential for complaints varies due to the subjective nature of odour perception. The FIDOL acronym, is a useful reminder of the factors that will determine the degree of odour pollution. These are described by the IAQM³ as follows:

- Frequency - how often an individual is exposed to odour;
- Intensity - the individual's perception of the strength of the odour;
- Duration - the overall duration that individuals are exposed to an odour over time;
- Odour unpleasantness - odour unpleasantness describes the character of an odour as it relates to the 'hedonic tone' (which may be pleasant, neutral or unpleasant) at a given odour concentration/ intensity. This can be measured in the laboratory as the hedonic tone, and when measured by the standard method and expressed on a standard nine-point scale it is termed the hedonic score; and,
- Location - the type of land use and nature of human activities in the vicinity of an odour source. Tolerance and expectation of the receptor. The 'Location' factor can be considered to encompass the receptor characteristics, receptor sensitivity, and socio-economic factors.

² Guidance on the Assessment of Odour for Planning v1.1, IAQM, 2018.

³ Guidance on the Assessment of Odour for Planning v1.1, IAQM, 2018.

2.2.2 It is important to note that even infrequent emissions may cause loss of amenity if odours are perceived to be particularly intense or offensive.

2.2.3 The FIDOL factors can be considered further in relation to the following and the potential for an odour emission to cause a nuisance:

- The rate of emission of the compound(s);
- The duration and frequency of emissions;
- The time of the day that this emission occurs;
- The prevailing meteorology;
- The sensitivity of receptors to the emission i.e. whether the odorous compound is more likely to cause nuisance, such as the sick or elderly, who may be more sensitive;
- The odour detection capacity of individuals to the various compound(s); and,
- The individual perception of the odour (i.e. whether the odour is regarded as unpleasant). This is greatly subjective and may vary significantly from individual to individual. For example, some individuals may consider some odours as pleasant, such as petrol, paint and creosote.

2.3 Legislative Control

2.3.1 The main requirement with respect to odour control from premises not controlled under the Environmental Permitting (England and Wales) Regulations (2016) and subsequent amendments, such as commercial kitchens, is that provided in Section 79 of Part III of the Environmental Protection Act (1990). The Act defines nuisance as:

“Any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance.”

2.3.2 Enforcement of the Act, in regard to nuisance, is currently under the jurisdiction of the local Environmental Health Department, whose officers are deemed to provide an independent evaluation of nuisance. If the Local Authority is satisfied that a statutory nuisance exists, or is likely to occur or happen again, it must serve an Abatement Notice under Part III of the Environmental Protection Act (1990). The only defence is to show that the process to which the nuisance has been attributed and its operation are being controlled according to best practicable means.

2.3.3 The legislative controls described above were considered as necessary throughout the undertaking of the assessment.

2.4 National Planning Policy

2.4.1 The revised National Planning Policy Framework⁴ (NPPF) was published in July 2021 and sets out the Government's planning policies for England and how these are expected to be applied.

2.4.2 The purpose of the planning system is to contribute to the achievement of sustainable development. In order to ensure this, the NPPF recognises three overarching objectives including the following of relevance to odour:

“c) An 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.”

2.4.3 Chapter 12 of the NPPF details objectives in relation to achieving well-designed place. It states that: “Planning policies and decisions should ensure that developments:

[...]

f) create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users; and where crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesions and resilience [...].”

2.4.4 The implications of the NPPF have been considered throughout this assessment.

3.0 Methodology

3.1 Introduction

3.1.1 The proposed development has the potential to cause odour impacts as a result of emissions from cooking processes. An assessment has therefore been undertaken in accordance with guidance document 'Control of Odour and Noise from Commercial Kitchen Exhaust Systems' prepared by EMAQ+ for Department for Environment, Food and Rural Affairs (DEFRA)⁶. This document provides an update to the 2005 guidance⁷ produced by DEFRA.

3.2 Assessment Methodology

3.2.1 The EMAQ+ and DEFRA methodology provides an approach for identifying the risk of odour impact associated with food preparation premises and defining an appropriate level of mitigation to control potential effects to an acceptable level.

3.2.2 The first stage in the process is to score the proposed premises in accordance with the criteria outlined in Table 1.

Table 1 Risk Scoring Criteria

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 10m/s
	Moderate	10	Discharging 1m above eaves at 10 - 15m/s
	Good	5	Discharging 1m above ridge at 15m/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

⁶ Control of Odour and Noise from Commercial Kitchen Exhaust Systems, EMAQ+, 2018.

⁷ Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems, DEFRA, 2005.

Criteria	Score	Score	Details
	Far	1	Closest sensitive receptor more than 100m from kitchen discharge
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 take away
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 or steakhouse
	Medium	4	Cantonese, Italian, French, Pizza (gas fired)
	Low	1	Most pubs (no fried food, mainly reheating and sandwiches etc) or Tea rooms

3.2.3 The score obtained using the values shown in Table 1 is subsequently used to define the associated risk and odour control requirement. The relevant criteria are summarised in Table 2.

Table 2 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

3.2.4 A suitable odour control system can then be identified from the techniques summarised in the EMAQ+ and DEFRA guidance⁸.

⁸ Control of Odour and Noise from Commercial Kitchen Exhaust Systems, EMAQ+, 2018.

4.0 Assessment

4.1 Odour Risk

4.1.1 The odour risk associated with the proposals was rated in accordance with the EMAQ+ and DEFRA methodology⁹. The results are summarised in Table 3.

Table 3 Odour Risk

Criteria	Score	Score	Notes
Dispersion	Moderate	10	Emissions from cooking processes will be removed via an extraction canopy fitted with grease filters. Emissions will then be transferred to panel and carbon filters for treatment prior to discharge to atmosphere vertically via a dedicated flue located on the southern façade of the building. This will terminate approximately 1.5m above the ridge of the property. Air will be discharged from the flue at an efflux velocity of 8m/s
Proximity of receptors	Close	10	The closest sensitive receptors are less than 20m from the discharge point. These include residential units above commercial premises along Stockport Road, as well as dwellings located to the south of the site
Size of kitchen	Large	5	No details regarding anticipated number of covers had been provided at the time of assessment. As such, it was assumed that the restaurant will serve more than 100 covers throughout the day in order to provide a worst-case assessment
Cooking type (odour and grease loading)	Very High	10	The restaurant will serve vegan Indian food. Cooking processes will include frying and charcoal grilling. As such, a 'very high' score was applied in order in accordance with the EMAQ+ and DEFRA criteria

4.1.2 As shown in Table 3, the odour risk from the proposed kitchen facility was scored as 35. The risk was therefore classified as high, in accordance with the EMAQ+ and DEFRA criteria¹⁰.

4.2 Odour Control

4.2.1 Based on the assessment results, the development requires mitigation suitable for a high level of odour risk. There are a number of options for abatement identified within the EMAQ+ and DEFRA guidance¹¹ that provide this level of control. These include:

- Emission collection - Odour should be collected via extraction hoods situated above the hot food preparation area;
- Grease filtration system - Mesh type grease filters, such as baffle or cartridge filters, should be included for the purpose of grease filtration. These are suitable for heavy grease loads and would provide a robust control of emissions from the cooking processes at the proposed kitchen;
- Fine dust filter - Bag, fan or High-Efficiency Particulate Arrestance (HEPA) filter;
- Gaseous phase - An activated carbon filter rated with a 0.2 - 0.4 second residence time should be included for odour removal. Alternatively, an oxidation system such as ultraviolet light or ozone may be used; and,
- Dispersion - Emissions should be discharged vertically through a stack, high enough to ensure adequate dilution.

4.2.2 Information provided by the applicant and obtained from the Extract and Ventilation Statement¹² for the scheme indicates that the kitchen extract system will incorporate the following emission control measures:

- Emission collection - Emissions will be collected via a dedicated extraction hood situated above the hot food preparation area;
- Grease filtration system - Primary filters will be fitted in the canopy hood in order to assist with grease and particulate removal;
- Fine dust filter - Emissions will pass through a V Line Pleated Panel Filter to remove particulates;
- Gaseous phase - Two Carbon 208 EA (AC207-2-2424) Panel Filters will be installed within the extract flue in order to provide final treatment of air prior to discharge to atmosphere. These will have a dwell time of 0.4s; and,
- Dispersion - Emissions will be discharged vertically through a stack at a height of approximately 1.5m above the ridge of the building. Air will be released from the flue at an efflux velocity of at least 8m/s.

4.2.3 The proposed control measures are consistent with abatement options suggested within the EMAQ+ and DEFRA guidance¹³ for activities with a high risk of impact. It therefore follows that with this mitigation in place, potential odour impacts at nearby sensitive receptors would be reduced to an acceptable level.

4.2.4 Information provided in the Extract and Ventilation Statement¹⁴ for the scheme indicates that the following regular maintenance will be undertaken to ensure that the stated controls operate effectively:

- Kitchen canopy - The primary grease filters and all cooking equipment below the canopy will be cleaned every 2 to 3 days;
- V Line Pleated Panel Filter - The panel filter will be replaced as a minimum every 3-months. However, the frequency of replacement may be increased during periods of high cooking volume;
- Carbon filters - The carbon filters will be located at a sufficient distance along the extract duct to reduce the potential for heat from cooking processes to affect efficiency. The filter housing has been designed to ensure ease of access for maintenance and to provide a good seal around the filter to prevent gases bypassing the filters and rendering them ineffective. The internal surfaces of the filter housing will be cleaned monthly; and,
- Extraction motor/fan - The extract motor will be cleaned and maintained in accordance with the manufacturer's specifications.

5.0 Conclusion

5.1.1 This report was commissioned by Hungamaa to undertake an Odour Assessment in support of a planning application for the erection of mechanical extraction at 575 Barlow Moor Road, Manchester M21 8AE.

5.1.2 The development has the potential to cause odour impacts as a result of emissions from the proposed food preparation activities. As such, an Odour Assessment was undertaken in order to assess potential effects as a result of the scheme and identify the necessary mitigation measures to prevent adverse impacts.

5.1.3 An assessment using standard methodology was undertaken in order to identify the odour risk associated with the proposals. This was based on a number of site-specific inputs.

5.1.4 The results of the assessment indicated the odour risk was classified as high. The prediction does not infer that the proposed development would result in significant odour impact or affect local amenity levels. However, it does suggest that appropriate mitigation options may be required to reduce potential effects to an acceptable level.

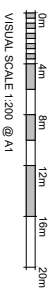
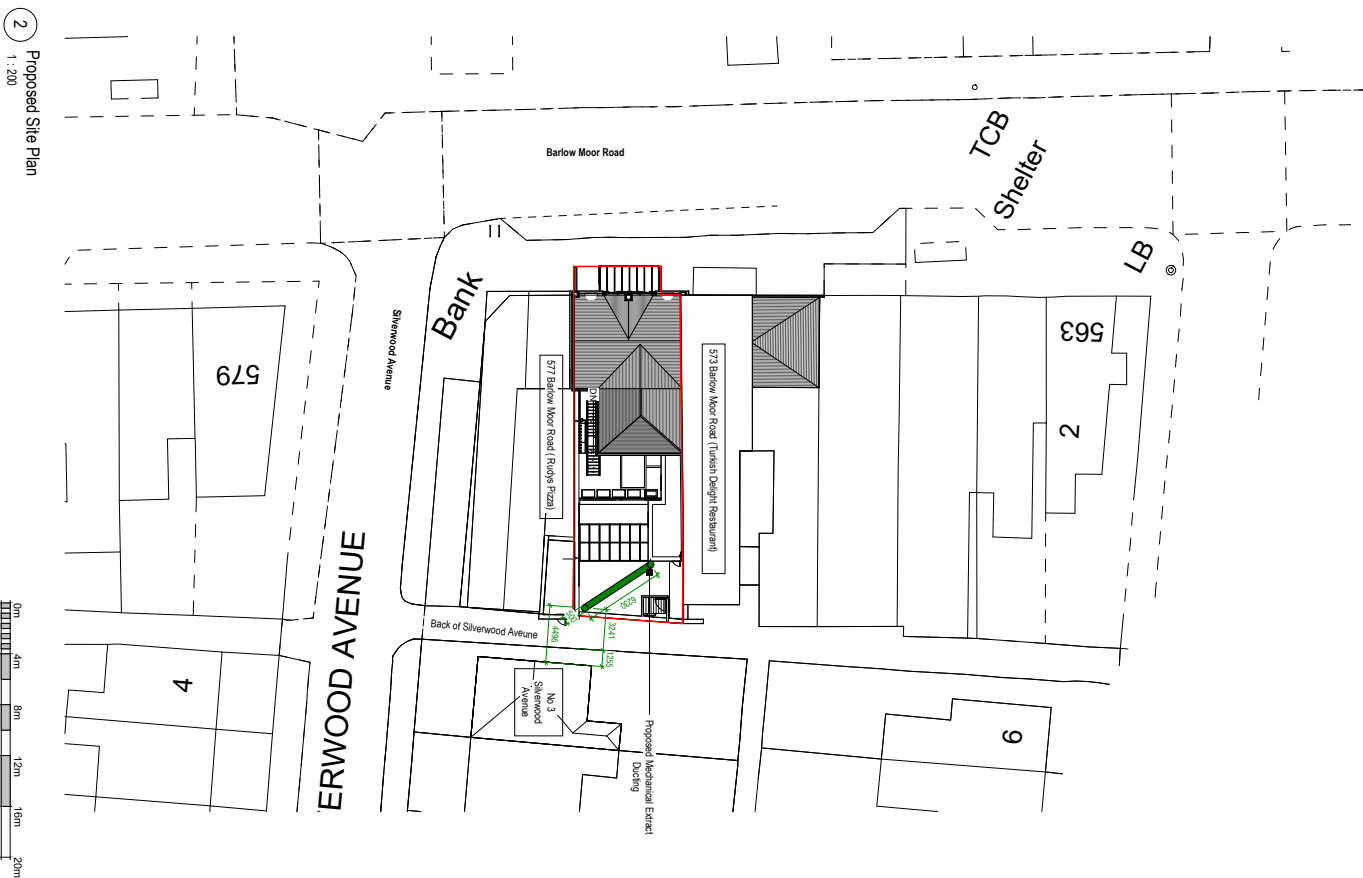
5.1.5 The odour abatement for the site has been specified in line with EMAQ+ and DEFRA guidance for kitchens with a high risk of impact. It therefore follows that with this mitigation in place, potential odour impact would be reduced to an acceptable level. As such, the proposed mitigation is considered to be suitable for a development of this nature.

5.1.6 Based on the results of the assessment, odour issues are not considered to represent a constraint to planning consent for the proposals, subject to the inclusion of the specified mitigation.

6.0 Abbreviations

DEFRA	Department for Environment, Food and Rural Affairs
HEPA	High-Efficiency Particulate Arrestance
IAQM	Institute of Air Quality Management
m/s	meters per second
NGR	National Grid Reference
NPPF	National Planning Policy Framework
MCC	Manchester City Council

Figures

[illegible][illegible]

NOTES:

The margin is not a working drawing, with only one set of dimensions of the finished part.

A. Properly dimensioned
B. Missing dimension
C. Missing dimension
D. Missing dimension

The dimension is impossible for a finished part because of the tolerance of any dimension on the finished part. The dimension is impossible for a finished part because of the tolerance of any dimension on the finished part.

An outside work, finished and made of other material than the one to be finished, is called a subassembly. It is a subassembly that is used for the finished part.

Any working work that is used as a base for the finished part is called a subassembly. It is a subassembly that is used for the finished part.

Dimensions, tolerances, and dimensions are the same. Dimensions, tolerances, and dimensions are the same. Dimensions, tolerances, and dimensions are the same.

The dimension is not a working drawing, with only one set of dimensions of the finished part.

A. Properly dimensioned
B. Missing dimension
C. Missing dimension
D. Missing dimension

This floor plan illustrates the layout of the existing building. The main area is the 'Main Restaurant' which 'Existing Covers - 65'. A 'Bar' is located within the restaurant area. To the right of the bar is a 'Stairs' area with 'UP' and 'DN' directions. Below the stairs is a 'W/C' (restroom) and another 'W/C' is located further right. A 'Back of Silverwood Avenue' is indicated at the bottom. An 'Existing Entrance' is shown on the left side. A 'Party Wall' is indicated on the far left. An 'Access to 373A Barrow Moor Road' is shown at the top right, with an 'UP' direction indicated. A 'Party Wall' is also indicated on the far right.

Architectural floor plan of the first floor of a building, showing various rooms and proposed modifications. The plan includes a bar, kitchen, dining area, and restrooms. A dashed line indicates the removal of an existing door and canopy, and the replacement with a 1hr fire-rated door. A new lockable bin store is also indicated. The plan is oriented with a PARTY WALL on the left and a PARTY WALL on the right. A dashed line indicates the removal of an existing door and canopy, and the replacement with a 1hr fire-rated door. A new lockable bin store is also indicated.

Access to 5/2A
Barrow Moor Road

UP

Bar

Acc.

W.C.

Stairs

DN

W.C.

DN

Commercial Kitchen

1000

1000

Removing existing door and replacing with 1hr fire rated door.

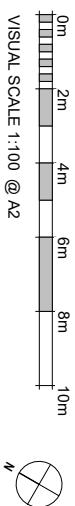
New lockable bin store

Dashed line denote kitchen canopy and mechanical extraction above

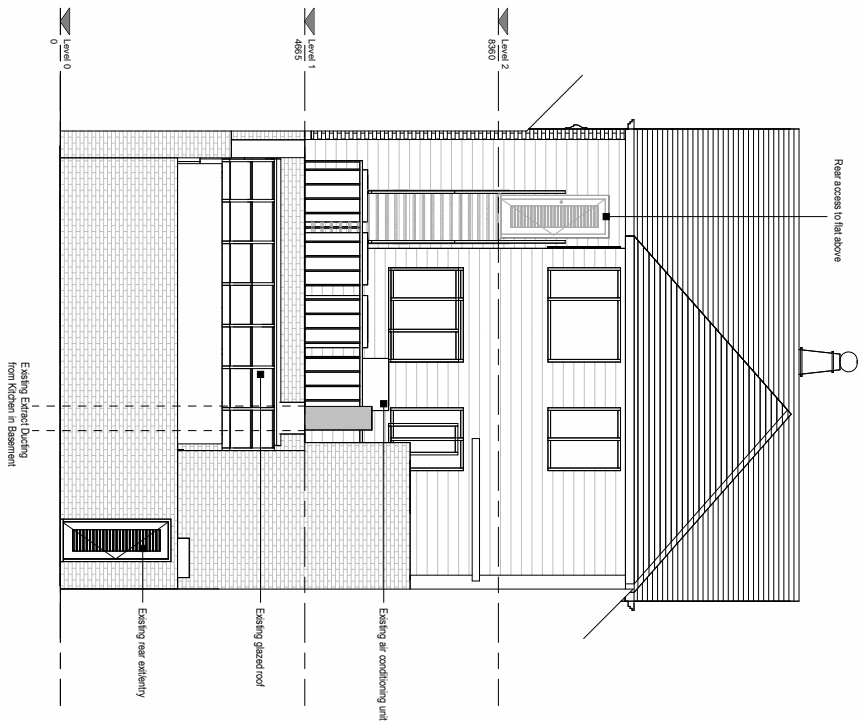
Neighbouring brickwork wall

PARTY WALL

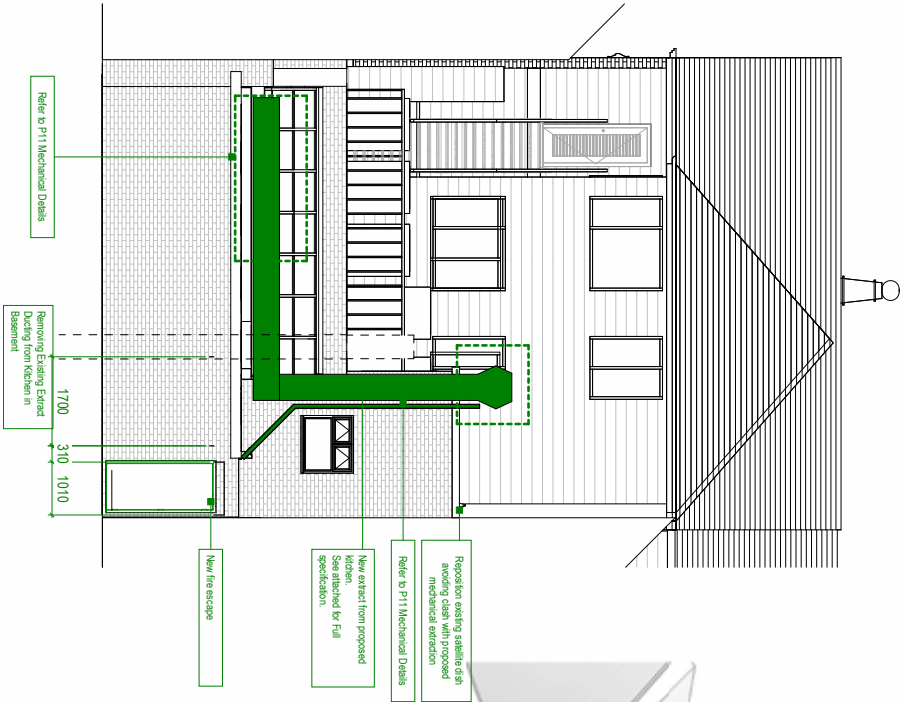
PARTY WALL

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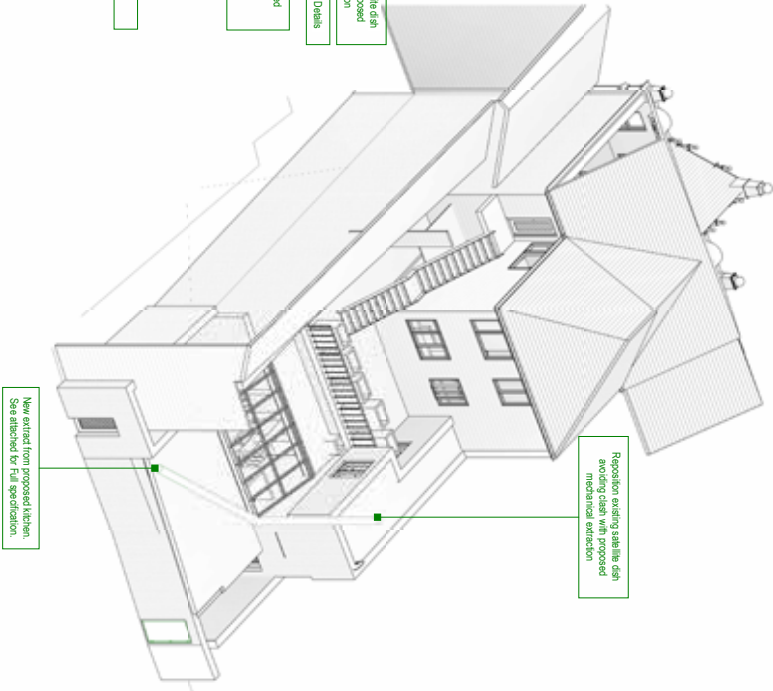
Note: Proposed Mechanical Extraction system to be erected by a suitably qualified professional company using scaffolding wherever possible.
Overhead cables to be taken into consideration when erecting scaffold.
Satellite dishes to be relocated.



1 Existing Rear Elevation
1:50



2 Proposed Rear Elevation
1:50



3 Proposed Extraction
1:50

0m 1m 2m 3m 4m 5m
VISUAL SCALE 1:50 @ A1

Project Name	Project Number
Client Name	Client Address
Architect Name	Architect Address
Engineer Name	Engineer Address
Structural Engineer Name	Structural Engineer Address
Electrical Engineer Name	Electrical Engineer Address
Mechanical Engineer Name	Mechanical Engineer Address
Plumbing Engineer Name	Plumbing Engineer Address
Heating Engineer Name	Heating Engineer Address
Cooling Engineer Name	Cooling Engineer Address
Lighting Engineer Name	Lighting Engineer Address
Acoustic Engineer Name	Acoustic Engineer Address
Environmental Engineer Name	Environmental Engineer Address
Health and Safety Engineer Name	Health and Safety Engineer Address
Fire Engineer Name	Fire Engineer Address
Transport Engineer Name	Transport Engineer Address
Water Engineer Name	Water Engineer Address
Waste Engineer Name	Waste Engineer Address
Energy Engineer Name	Energy Engineer Address
Climate Engineer Name	Climate Engineer Address
Soil Engineer Name	Soil Engineer Address
Foundation Engineer Name	Foundation Engineer Address
Structural Foundation Engineer Name	Structural Foundation Engineer Address
Geotechnical Engineer Name	Geotechnical Engineer Address
Geological Engineer Name	Geological Engineer Address
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NOTES
1. All work to be carried out in accordance with the Building Regulations 2010.
2. All work to be carried out in accordance with the Building Regulations 2010.
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