



Architectural & Environmental Consultants

Noise | Vibration | Air Quality

Odour Impact Assessment

16 Oldham Street, Manchester

Odour Impact Assessment

Project: 16 OLDHAM STREET, MANCHESTER

Report reference: RP01-24646-R0

Client: M1 METRO LIMITED
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1. EXECUTIVE SUMMARY

- 1.1 Cass Allen has been instructed by M1 Metro Limited to assess the potential risk of odour impact upon existing sensitive receptors, resulting from food preparation at the proposed fast-food restaurant located at 16 Oldham Street in Manchester, M1 1JQ.
- 1.2 An Odour Impact Assessment has been requested by Manchester City Council (MCC) to establish the potential risk of odour impacts resulting from cooking activities at the site and any additional mitigation that may be required to control any odours and fumes emitted from the development. The assessment was carried out with regard to relevant local and national planning policy and guidance.
- 1.3 The proposed fast-food restaurant is located in a busy, predominantly commercial, city centre area where the prevailing odour character is likely to be dominated by the activities at other nearby food preparation outlets and vehicle exhaust fumes.
- 1.4 A semi-quantitative Odour Impact Assessment was undertaken to consider potential odours generated from onsite cooking. This followed Institute of Air Quality Management (IAQM) and EMAQ+ guidance.
- 1.5 The assessment included analysis of local meteorological data and the nature of the relevant odour sources. In order to further minimise the risk of any impacts, odour mitigation has been incorporated into the design of the kitchen extraction and recirculation system. Based on the results of the assessment, the proposed operations at the site are judged to have a Negligible Risk of odour impacts on existing receptors. As such, the residual effect of the development will not be significant.
- 1.6 In summary, it is our view that the site is suitable for the development in terms of odour and that the fast-food restaurant will not lead to significant adverse amenity impacts at sensitive receptors in the vicinity. As such, it is our view that Reason 8 of the Invalid Application Letter (Application number: 141282/FO/2024) has been sufficiently addressed.

2. INTRODUCTION

2.1 Cass Allen has been instructed by M1 Metro Limited to assess the potential risk of odour impact upon existing sensitive receptors, resulting from food preparation at the proposed fast-food restaurant located at 16 Oldham Street in Manchester, M1 1JQ.

2.2 An assessment of potential odour impacts resulting from the development is required to address Reason 8 of the Invalid Application Letter (Application number: 141282/FO/2024) issued by MCC on 29 October 2024, which states:

Given the nature of the proposal, the planning application will need to be supported by an appropriate odour impact assessment together with suitable mitigation measures, in order to satisfactorily control any odours and fumes that would be emitted from the development.

2.3 The assessment has been carried out in accordance with relevant local and national planning policy and guidance.

2.4 The aims of the assessment were to consider potential impacts of odour on surrounding sensitive receptors, resulting from onsite cooking activities. At the request of MCC, odour mitigation measures have also been specified, where applicable, to minimise the impacts.

2.5 This report contains technical terminology; a glossary of terms can be found at www.cassallen.co.uk/glossary.

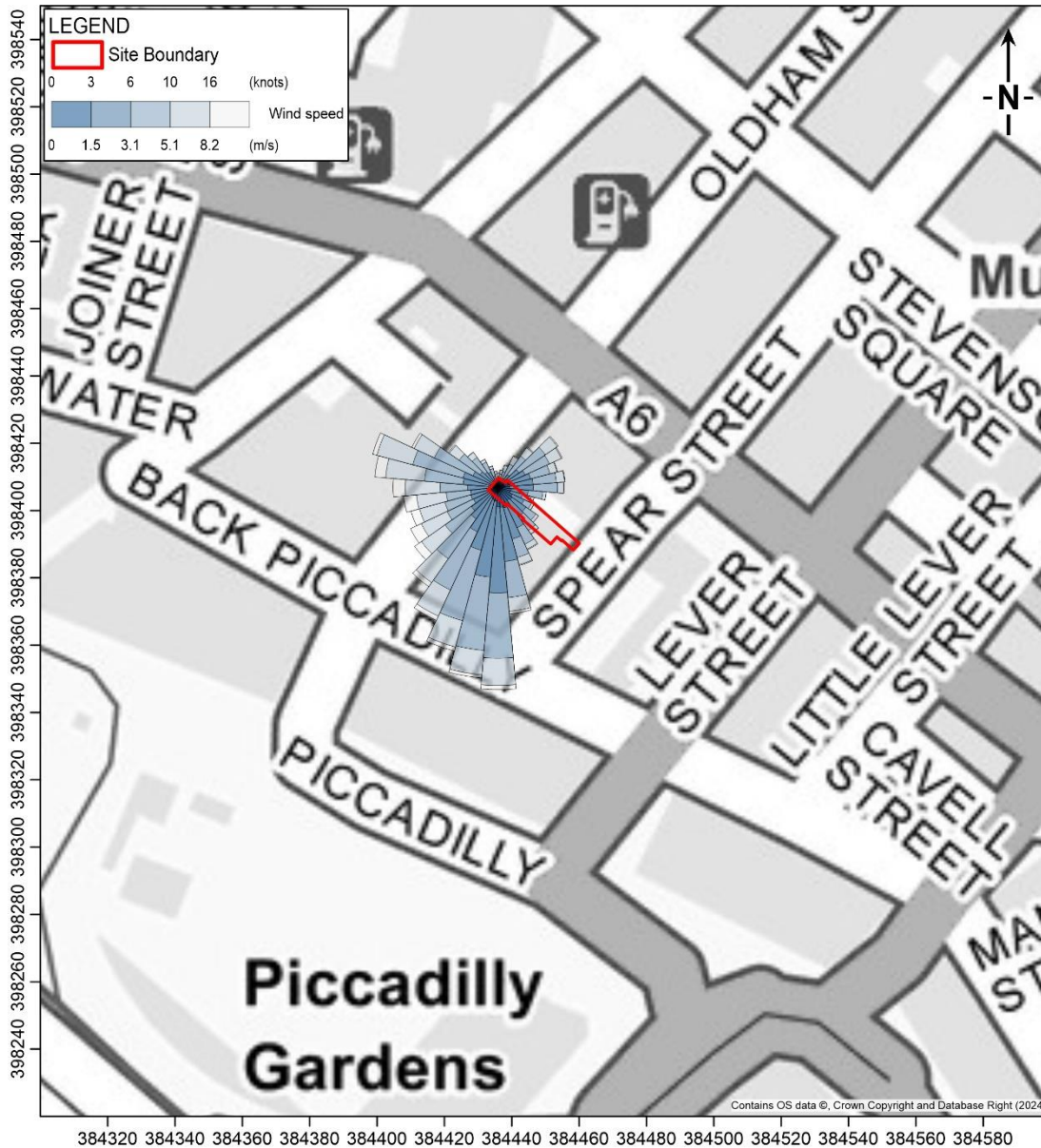
3. PROJECT DESCRIPTION AND SITE CONTEXT

- 3.1 The proposed fast-food restaurant is in a busy city centre location dominated by shops and food outlets at ground floor level, with various commercial and residential uses from first floor upwards.
- 3.2 The prevailing odour character in this location is understood to be dominated by those associated with other nearby food preparation outlets and vehicle exhaust fumes.
- 3.3 It is proposed to open a fast-food restaurant primarily serving burgers, doner kebabs and associated foodstuffs. The kitchen will be used to prepare the hot food which will then be served to guests either within the building or on the go. The proposed advanced Purified Air® extraction system will incorporate a filtration and recirculation tower which returns cleaned air to the kitchen. Thus, in terms of potential impacts, there is not a single efflux location but rather, any residual odours are expected to emanate from the building fabric and any openings in the façade, thereby being considered to be fugitive in nature.

Receptors

- 3.4 Existing residential receptors sensitive to odour impacts are located from the first floor upwards of surrounding buildings and as such, are separated from the potential odour source by a few metres or more.
- 3.5 The site location, closest sensitive receptors and wind rose for Manchester are shown on Figure 1.

Figure 1 Study Area



4. PLANNING LEGISLATION, POLICY AND GUIDANCE

Odour Legislation

- 4.1 Section 79 of the Environmental Protection Act 1990 defines statutory nuisance relevant to odour as:

...(b) smoke emitted from premises so as to be prejudicial to health or a nuisance;

(c) fumes or gases emitted from premises so as to be prejudicial to health or a nuisance;

(d) any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance; [and/or]

(e) any accumulation or deposit which is prejudicial to health or a nuisance ...

- 4.2 Furthermore, Section 80 states that where a statutory nuisance is shown to exist, the local authority must serve an abatement notice. Failure to comply with an abatement notice is an offence and if necessary, the local authority may abate the nuisance and recover expenses.

- 4.3 Due to the inherent subjective nature of odour and the complexities of measuring and assessing odours against any set criteria, there are currently no statutory standards in the UK covering the release of odours or their subsequent impacts.

National Policy

- 4.4 Outline guidance for the assessment of odour affecting or resulting from new developments is given in the 'National Planning Policy Framework (NPPF)', (December 2024). Relevant sections are detailed below:

187. Planning policies and decisions should contribute to and enhance the natural and local environment by: ... preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of ... air ... pollution... Development should, wherever possible, help to improve local environmental conditions such as air ... quality.

198. 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.

201. The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.'

Local Policy

- 4.5 Within 'Manchester's Local Development Framework Core Strategy Development Plan Document' (11 July 2012), Policy DM 1 Development Management states:

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

- *Effects on amenity, including ... air quality, [and] odours...*

- 4.6 Furthermore, Policy 2 of MCC's 'Hot Food Takeaway Supplementary Planning Document' (March 2017) indicates:

Extraction of odours and noise abatement

Hot food takeaways must provide appropriate extraction systems to effectively disperse odours and show that they are meeting the minimum guidance in the Department of Environment, Food and Rural Affairs Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems 2005 and Odour Guidance for Local Authorities 2010. Applications must be accompanied by an Odour Impact Assessment (OIA) and include suitable mitigation measures. They must demonstrate that they have no adverse impacts on visual amenity, including location and external finish.

- 4.7 To address the requirements of the national and local policies, the assessment has considered potential impacts of odour resulting from food preparation activities at the site.

Odour Guidance

- 4.8 The IAQM 'Guidance on the Assessment of Odour for Planning' (updated 2018) specifically deals with assessing odour impacts for planning purposes, namely potential effects on amenity. The assessment methodology outlined in this guidance has been utilised in the assessment of odour emissions associated with the proposed restaurant.
- 4.9 The EMAQ+ guidance on 'Control of Odour and Noise from Commercial Kitchen Exhaust Systems' (September 2018) focuses specifically on potential impacts from professional kitchens, and considers in detail food types, cooking methods and ventilation strategies. The assessment methodology outlined in this document has also been referenced for comparison with the above.

5. ASSESSMENT METHODOLOGY

- 5.1 The scope and methodology for this assessment has been determined with regard to the following guidance documents:
- IAQM 'Guidance on the Assessment of Odour for Planning' (updated 2018);
 - Environment Agency (EA), 'H4 Odour Management: How to comply with your environmental permit' (March 2011); and
 - EMAQ+ 'Control of Odour and Noise from Commercial Kitchen Exhaust Systems' (September 2018).
- 5.2 For odour, before an adverse effect, such as disamenity, annoyance, nuisance or complaints can occur, there must be odour exposure. For odour exposure to occur, there must be an emission source, a pathway for the odour to travel through the air, and the presence of a receptor. The magnitude of an odour impact, also known as relative odour exposure, is determined with reference to the following "FIDOL" factors:
- **F**requency of detection – How often an individual is exposed to odour.
 - **I**ntensity – The individual's preceptor of the strength of the odour.
 - **D**uration – The overall duration that individuals are exposed to an odour over time.
 - **O** odour unpleasantness – Whether it is considered pleasant, unpleasant or neutral.
 - **L**ocation – The nature of the receptor, combined with its tolerance/expectation which is affected by surrounding land use, expectations and socio-economic factors.
- 5.3 The IAQM guidance recommends the use of multiple assessment tools due to the partly subjective nature of odour, the lack of a 'silver bullet' assessment tool that on its own provides an equivocal answer, and due to the inherent uncertainty associated with the assessments. The individual assessment tools used in this assessment are detailed in Section 6 and were utilised with reference to the guidance outlined in Appendix 1 and Appendix 2.

6. ASSESSMENT

- 6.1 As described in paragraph 5.3, it is recommended that multiple assessment tools are utilised within an odour study. According to the IAQM: *'different assessment tools are not mutually exclusive and using them in combination can minimise individual limitations and increase confidence in the overall conclusion. Best practice is to use a multi-tool approach where practicable'*.
- 6.2 Accordingly, the scoring methodology outlined within the EMAQ+ guidance has been used to consider the potential odour risk of the kitchen type, and the requirement for intrinsic mitigation (full details in Appendix 1). An IAQM assessment of potential odour impacts has then been undertaken to consider the residual risk of impacts.

EMAQ+ Methodology

- 6.3 An EMAQ+ Significance Score is calculated based on the sum of the contributions from dispersion, proximity of receptors, size of kitchen and cooking type and this score determines the odour control requirements for the development.
- 6.4 The estimated score for each element and the total score for the development is stated in Table 1.

Table 1 EMAQ+ Significance Score Criteria and Impact Risk

Dispersion	Proximity of Receptors	Size of Kitchen	Cooking Type	Total Score	Impact Risk
N/A (0) Release and recirculation within building, no outdoor discharge point	Close (10) Closest sensitive receptor less than 20m from building façade	Small (1) Small takeaway, less than 30 orders at any one time.	Very High (10) Burgers and doner kebab (Turkish)	21	High

- 6.5 Based on the above inputs, the Significance Score for the development is 21. This is defined as a high odour impact risk level which requires a high level of odour control. However, as discussed above, the development will include the installation of an advanced kitchen air treatment and recirculation system which will actively remove grease, particulate matter (PM), smoke and odour, with no requirement for an outdoor efflux, making the 'dispersion' element of the criteria less relevant. As such, it is anticipated that appropriate odour mitigation will satisfactorily control any odours or fumes that would otherwise have been emitted from the development.

IAQM Methodology

Prevailing Meteorological Conditions

- 6.6 The potential for odour to impact at sensitive locations is dependent upon the prevailing meteorological conditions, particularly wind direction and wind speed, during emissions. In order to consider conditions at the site, a review of historical weather data from Manchester meteorological station was undertaken. This station is located approximately 14.5km south of the site and it is anticipated that conditions would be reasonably similar over this distance. The data were therefore considered suitable for the assessment of odour impacts.

6.7 Table 2 contains the meteorological data between 1 January 2014 and 31 December 2023 (inclusive). The directions which have the potential to impact at the closest sensitive receptors are shown in **bold**. A wind rose for these data is included in Appendix 3 and overlayed on Figure 1.

Table 2 Wind Direction, Frequency and Speed Data

Angle	Direction (blowing from)	Frequency of total Wind (%)	Frequency of Wind at speeds <3m/s (%)
345 - 15°	N	1.56	0.65
15 - 45°	NNE	3.47	1.09
45 - 75°	ENE	6.54	2.87
75 - 105°	E	5.81	3.24
105 - 135°	ESE	4.07	2.87
135 - 165°	SSE	6.64	4.31
165 - 195°	S	16.55	8.61
195 - 225°	SSW	13.90	4.87
225 - 255°	WSW	9.19	2.83
255 - 285°	W	10.24	2.97
285 - 315°	WNW	9.04	2.74
315 - 345°	NNW	3.08	1.52
Total	-	90.10	38.58
Missing/Incomplete	-	9.90	-

6.8 As shown in Table 2, the prevailing wind direction at the site is from the south and south-southwest with a total combined wind frequency of 30.45% over the last 10 years. As described in the IAQM guidance, the dispersion of atmospheric odour is also limited by rainfall, which acts as a natural suppressant. Nearby Rochdale climate station recorded an average of 171 days annually with rainfall over 1mm between 1991 and 2020.

Odour Risk Assessment

Source Odour Potential

6.9 The potential sources of odour resulting from the operation of the development, (*Fat frying (food processing)*) are classed as 'moderately offensive' in H4 guidance. In line with IAQM guidance, the source odour potential would be classified as 'medium' in the absence of mitigation, based on the scale and (un)pleasantness of the odour source.

6.10 However, the proposed Purified Air® extraction system will incorporate a filtration and recirculation unit which uses sequential filtration to remove grease, particulates, smoke and odour and returns cleaned air to the kitchen. As such, it is considered that the IAQM 'Mitigation/control – effective' criteria will be met as there will be 'tangible mitigation measures in place...leading to little or no residual odour.' Thus, the source odour potential is expected to be 'small', in line with this guidance.

Frequency of Potentially Odorous Winds

- 6.11 As shown in Table 2, the total frequency of winds with the potential to transport odours (i.e. of speeds less than 3m/s) is 38.58%. The frequency of these winds with the potential to impact at the closest existing sensitive receptors in the vicinity is approximately 27.86% (blowing from all directions between north-northeast and south-southwest).
- 6.12 This is classed as 'high frequency' in IAQM guidance, though the actual frequency will be considerably smaller as these sectors cover a much wider range of degrees than would actually be affected at any one time, and this assumes continuous release of odours. It also does not take into account the peak operating hours (evening and night), when the release of odours is most likely. This will constitute a much smaller proportion of the time. Therefore, at any individual receptor, the frequency of such winds would be 'low frequency', as the potential for an odour to be transported towards any receptor at any particular time is much lower.

Receptor Distance from Source

- 6.13 Based on the close proximity of the surrounding receptors to the site, the receptor locations are classed as 'adjacent' to 'local' in line with IAQM terminology. As highlighted in paragraph 3.4, there are no highly sensitive uses at ground floor level and as such, receptors will be located from first floor upwards.

Pathway Effectiveness

- 6.14 The combination of 'low frequency' winds and 'adjacent' receptors leads to a 'moderately effective' odour pathway.

Risk of Odour Exposure

- 6.15 The combination of a 'moderately effective' pathway and a 'small' source odour potential, results in a Negligible Risk of odour exposure at the closest residential dwellings.

Receptor Sensitivity

- 6.16 The overall receptor sensitivity has been classed as 'high' according to IAQM guidance, assuming that they are residential properties where a high level of amenity would be expected. Nevertheless, being in the vicinity of various other commercial kitchen sources of odour, the proposed use is in keeping with the character of the area and a 'medium' or 'low' sensitivity could be considered more appropriate for the closest dwellings. Nearby commercial uses would also be of a 'medium' to 'low' sensitivity.

Magnitude of Odour Effects

- 6.17 Nonetheless, the combination of a worst-case 'high' receptor sensitivity and a Negligible Risk of odour exposure results in a Negligible Effect at specific receptor locations.

Summary

- 6.18 In summary, no significant odour impacts or effects are predicted at existing receptor locations as a result of the cooking operations within the development, assuming that the proposed Purified Air® reflow recirculation tower is installed in the kitchen and maintained in line with the manufacturer's guidance.

7. CONCLUSIONS

- 7.1 Cass Allen was instructed by M1 Metro Limited to assess the potential odour impact upon existing sensitive receptors, resulting from food preparation at the proposed fast-food restaurant located at 16 Oldham Street in Manchester, M1 1JQ.
- 7.2 An assessment of potential odour impacts resulting from the hot food preparation at the site is required to address Reason 8 of the Invalid Application Letter (Application number: 141282/FO/2024) issued by MCC on 29 October 2024. The assessment was carried out in accordance with relevant local and national planning policy and guidance.
- 7.3 The results of the IAQM odour impact assessment indicate that with the operation of the proposed Purified Air® extraction, filtration and recirculation unit, there is a Negligible Risk of odour impacts, leading to a Negligible Effect at existing receptor locations surrounding the site. An effect of this magnitude is considered to be not significant, and thus the potential for odour complaints is considered to be highly unlikely.
- 7.4 In summary, it is our view that the site is suitable for the development in terms of odour and that the development will not lead to adverse amenity impacts at sensitive receptors in the vicinity. As such, it is our view that Reason 8 of the Invalid Application Letter (Application number: 141282/FO/2024) has been sufficiently addressed, with respect to odour.

Appendix 1 EMAQ+ Risk Assessment for Odour Methodology

The EMAQ+ Control of Odour and Noise from Commercial Kitchen Exhaust Systems methodology is summarised below.

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 ¹ .
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 ¹ .
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 rooms¹</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 IAQM Odour Assessment Methodology

The IAQM Guidance on the Assessment of Odour for Planning methodology is summarised below.

Risk of Odour Exposure (Impact) at a Specific Receptor Location

		Source Odour Potential		
		Small	Medium	Large
Pathway Effectiveness	Highly effective pathway	Low Risk	Medium Risk	High Risk
	Moderately effective pathway	Negligible Risk	Low Risk	Medium Risk
	Ineffective pathway	Negligible Risk	Negligible Risk	Low Risk

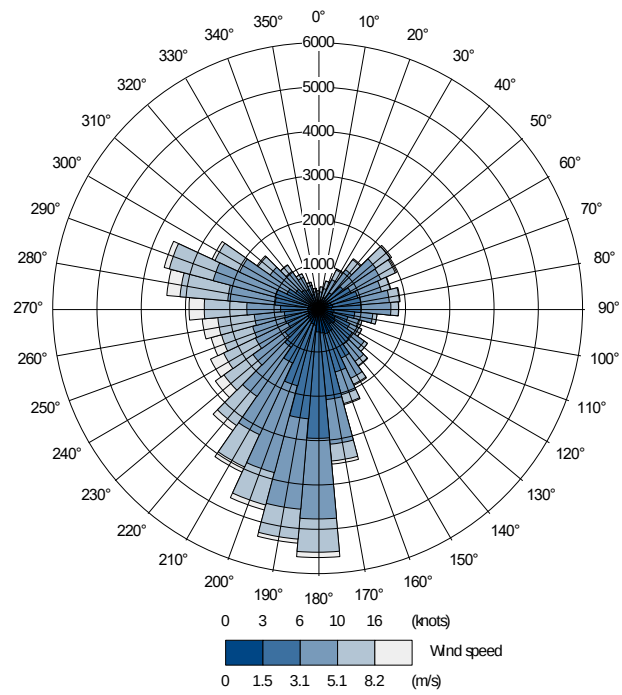
Likely Magnitude of Effect at a Specific Receptor Location

Risk of Odour Exposure	Receptor Sensitivity		
	Low	Medium	High
High Risk of Odour Exposure	Slight Adverse Effect	Moderate Adverse Effect	Substantial Adverse Effect
Medium Risk of Odour Exposure	Negligible Effect	Slight Adverse Effect	Moderate Adverse Effect
Low Risk of Odour Exposure	Negligible Effect	Negligible Effect	Slight Adverse Effect
Negligible Risk of Odour Exposure	Negligible Effect	Negligible Effect	Negligible Effect

Suggested Descriptors for Magnitudes of Odour Effects

		Receptor Sensitivity		
		Low	Medium	High
Relative Odour Exposure (Impact)	Very Large	Moderate adverse	Substantial adverse	Substantial adverse
	Large	Slight adverse	Moderate adverse	Substantial adverse
	Medium	Negligible	Slight adverse	Moderate adverse
	Small	Negligible	Negligible	Slight adverse
	Negligible	Negligible	Negligible	Negligible

Appendix 3 Wind Rose for Manchester (2014-2023)





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