



Environmental Associates

Odour Risk Assessment

58-68 Ocean Road, South Shields

September 2024

Regal Property JDD Ltd



Odour Risk Assessment

58-68 Ocean Road, South Shields

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APPENDICES

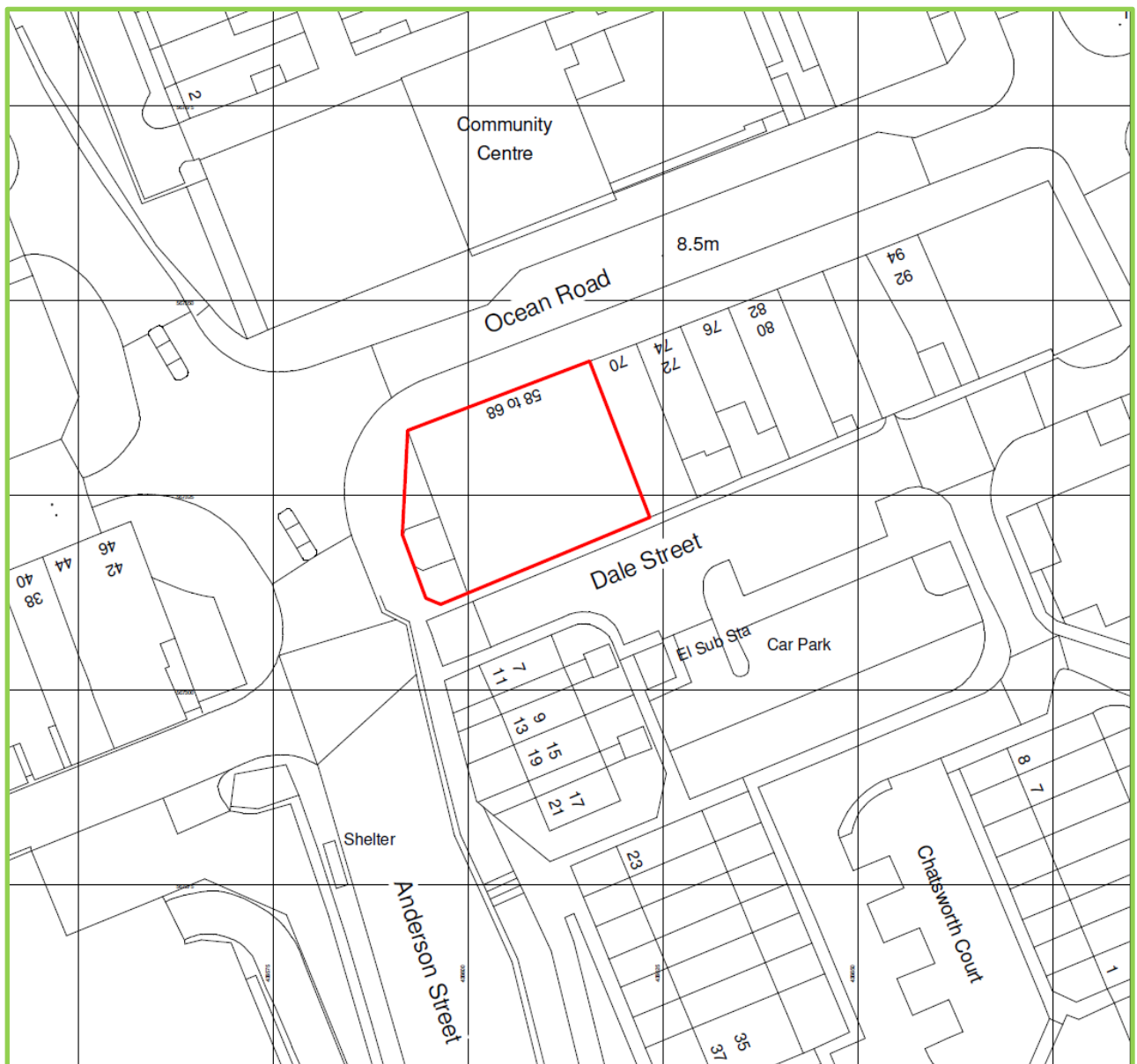
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1 INTRODUCTION

1.1 Background

1.1.1 NJD Environmental Associates Ltd was instructed by Regal Property JDD Ltd to prepare an Odour Risk Assessment, in order to inform a planning application for the change of use of an existing nightclub to student accommodation (the 'Proposed Development'), located at 58-68 Ocean Road in South Shields (the 'Site').

1.1.2 The site location is provided at Drawing 1 below.



Drawing 1 Site location

- 1.1.3 The Site is located to the west of a number of hot food takeaway/restaurant establishments on Ocean Road and as such, a Qualitative Odour Risk Assessment has been undertaken in accordance with the IAQM '*Guidance on the Assessment of Odour for Planning*', taking into consideration the source, pathway and receptor links to determine the potential for odour emissions to cause loss of amenity for future residents of the Proposed Development. Local meteorological conditions have also been considered.
- 1.1.4 Due to the proximity of the adjacent commercial kitchen extraction units associated with the hot food takeaway/restaurants to the rear of the existing building, a total of three Field Odour Surveys (Sniff Tests) were also undertaken in accordance with the IAQM guidance methodology, to address the requirements regarding the assessment of the potential for loss of amenity at the proposed sensitive uses. This has been undertaken by the author of this report, who is a Chartered Scientist and full member of the Institute of Air Quality Management (IAQM) and has undertaken an odour acuity test in accordance with EN 13725: 2003 *Air quality. Determination of odour concentration by dynamic olfactometry* and has been verified as being within the required detection threshold levels of between 20 and 80ppb for N-Butanol and standard deviation of +/- 4 and therefore within the 'normal range'.
- 1.1.5 This Odour Risk Assessment has therefore been undertaken to consider the potential odour effects at proposed dwelling locations in accordance with the IAQM guidance.

2 LEGISLATION AND POLICY

2.1 Environmental Protection Act

2.1.1 This Act defines statutory nuisance relevant to odour as follows:

"Any dust, steam, smell or other effluvia arising from industrial, trade or business premises or smoke, fumes or gases emitted from premises so as to be prejudicial to health or a nuisance."

2.1.2 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). Failure to comply with an abatement notice is an offence and if necessary, the local authority may abate the nuisance and recover expenses.

2.2 National Planning Policy Framework

2.2.1 The revised National Planning Policy Framework (NPPF), dated December 2023, sets out the Government's core policies and principles with respect to land use planning, including air quality and odour.

2.2.2 The purpose of the planning system is to contribute to the achievement of sustainable development. In order to achieve this, the NPPF recognises three overarching objectives, including the following of relevance to air quality and 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."

2.2.3 The NPPF also includes the following considerations which are relevant to this assessment:

"180. 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 soil, air, water or noise pollution or land instability."*

"191. 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."

"194. 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."

2.3 Local Policy

2.3.1 The 'South Tyneside Draft Local Plan 2021-2039' is a planning framework designed to guide decisions and shape development in the borough until 2039, and is currently is being reviewed following a period of consultation during the summer of 2022. A review of the plan has identified the following policies relevant to odour:

"Policy 3 - Pollution

1. Development that may cause pollution of water, soil, or air through noise, vibration, odour, light, fumes, dust, or other pollutants, either individually or cumulatively, shall incorporate measures to prevent or reduce pollution to an acceptable standard to avoid negative impacts on people, the environment or biodiversity
2. Potentially polluting development will only be permitted where satisfactory mitigation measures can be demonstrated
3. Development which could lead to significant pollution, either individually or cumulatively, shall be accompanied by a detailed assessment of the likely impacts. Development proposals where pollution levels are assessed as being unacceptable will only be permitted where mitigation measures can be introduced to provide an acceptable living or working environment in relation to all existing or potential future occupants of the land."

2.3.2 The above policy relating to odour has been considered within this assessment.

3 ASSESSMENT METHODOLOGY

3.1 Guidance on the Assessment of Odour for Planning

- 3.1.1 The Institute of Air Quality Management (IAQM) 'Guidance on the Assessment of Odour for Planning' is used to assess odour impact during the planning process. The guidance is limited to assessing the effects of odour on amenity, not on health.
- 3.1.2 The guidance refers to the three links which are required to be present in order for an odour effect to occur: **Source-Pathway-Receptor**. The scale of the impact is determined by the parameters collectively known as the FIDOL factors (Frequency, Intensity, Duration, Offensiveness and Location). The criteria used during the assessment, as contained within the IAQM guidance, is summarised and provided in Appendix 1 of this report.
- 3.1.3 The magnitude of the effect is dependent upon the scale of the impact (risk of exposure) and the receptor sensitivity, as shown in Table 1.

Table 1 - Descriptors for Magnitudes of Odour Effects			
Risk of Odour Exposure	Receptor Sensitivity		
	Low	Medium	High
High Risk	Slight Adverse Effect	Moderate Adverse Effect	Substantial Adverse Effect
Medium Risk	Negligible Effect	Slight Adverse Effect	Moderate Adverse Effect
Low Risk	Negligible Effect	Negligible Effect	Slight Adverse Effect
Negligible Risk	Negligible Effect	Negligible Effect	Negligible Effect

- 3.1.4 The EIA regulations require an assessment to reach a conclusion on the likely significance of the predicted effect. In accordance with the IAQM guidance, where the overall effect is greater than 'slight adverse', the effect is likely to be considered significant. Concluding an effect is significant should not mean however, that a development is unacceptable, merely that careful consideration needs to be given, and the balance with any wider benefits the proposal would bring.

3.2 Control of Odour and Noise from Commercial Kitchen Exhaust Systems

- 3.2.1 This guidance document, originally issued by Defra in 2005, aims to make sure that appropriate equipment and techniques are employed to minimise the impact of commercial kitchen exhaust systems.

- 3.2.2 It was withdrawn in September 2017 as it was seen to be out of date. EMAQ+, providers of training and technical guidance, have since updated the guidance and reissued in September 2018.

3.3 Meteorological Data

- 3.3.1 The potential for odour to impact sensitive locations depends significantly on meteorology, particularly wind direction and wind speed, during emissions. To consider the prevailing conditions at the Site, a review of historical weather data has been undertaken. The closest, most representative observation station with a suitable dataset is Newcastle Airport, located approximately 17.5km to the north-west of the Site. It is anticipated that meteorological conditions would be reasonably similar over a distance of this magnitude. The data were therefore, considered suitable for an assessment of this nature.
- 3.3.2 Meteorological data were obtained from the observation station at Newcastle Airport for the period 1st January 2014 to 31st December 2023 (inclusive). Reference should be made to Appendix 3 for a wind rose of these data.

4 IMPACT ASSESSMENT

4.1 Prevailing Meteorological Conditions

- 4.1.1 Odour episodes tend to occur during stable atmospheric conditions with low wind speeds (<3m/s), which give poor dispersion and dilution. Any receptors that are located adjacent to the source, in all directions around it, can be affected under these conditions. The IAQM guidance states that when conditions are not calm, it will be the downwind receptors that are affected. Overall, therefore, receptors that are downwind with respect to the prevailing wind direction tend to be at higher risk of odour impact.
- 4.1.2 A review of the wind rose has shown that any receptors to the east of the potential odour sources, have the greatest potential to be affected by odour, as a result of the prevailing wind direction.
- 4.1.3 The frequency of wind from the 12 sectors which best describe the directions that may cause impacts at the Site is shown in Table 2. The directions which have the potential to impact at the closest proposed occupants of the Site, based on the source illustrated in Figure 1, are shown in **bold**. Reference should be made to Appendix 3 for a wind rose of the meteorological data.

Table 2 - Wind Frequency Data			
Wind Direction (Degrees)	Direction (Blowing From)	Frequency of Wind (%)	Directional Wind Speed <3m/s (%)
345 - 15	N	3.38	1.24
15 - 45	NNE	3.66	1.17
45 - 75	ENE	4.51	1.89
75 - 105	E	4.78	2.24
105 - 135	ESE	5.12	2.49
135 - 165	SSE	4.53	3.09
165 - 195	S	8.56	4.67
195 - 225	SSW	9.85	4.42
225 - 255	WSW	14.46	5.52
255 - 285	W	22.23	4.22
285 - 315	WNW	6.45	2.85
315 - 345	NNW	4.11	2.09
Total	-	91.64	-
Missing/Incomplete	-	8.27	-
Calms	-	3.72	-

- 4.1.4 As shown in Table 2 and at Appendix 3, the prevailing wind direction is from the west. In order to represent a robust assessment approach, wind directions with the potential to affect the Site have been grouped, based on the relative orientation of the commercial kitchen extraction units to the Site. The greatest frequency of downwind conditions at the Site occurs when the wind is blowing from the E, which occurs for 4.78% of the time, of which, only 2.24% has wind speeds <3m/s.
- 4.1.5 Based on the above analysis of wind data, there is a **low frequency** of downwind conditions which would have the potential to affect the Site if odour is present, when considering each direction in isolation.
- 4.1.6 It is noted that the operations at the adjacent food establishment will vary and as such, the potential for odour emissions is likely to be dependent on the time of the day, occupancy and other antecedent conditions.
- 4.1.7 A review of the 30-year Climate Averages obtained from the Met Office from Tynemouth Climate Station (North Tyneside) has been undertaken, which indicated that the average annual rainfall is 608.26mm with over 116 days of rainfall greater than 1mm. As such, the potential for entrainment of odours into the air is limited by both wind speed and rainfall.

4.2 Qualitative Odour Risk Assessment

Source Odour Potential

- 4.2.1 In accordance with the IAQM 'Guidance on the Assessment of Odour for Planning', the first step in the assessment is to estimate the odour-generating potential of the sources being considered, taking into account the following three factors:
- The scale (magnitude) of the release from the odour source taking into account the effectiveness of any mitigation measures in place;
 - How odorous the emission is; and
 - The relative pleasantness/unpleasantness of the odour.
- 4.2.2 Table 9 of the IAQM guidance document provides an example risk ranking of the source odour potential which is then categorised as small, medium or large. This is also summarised in Table A1.1 of Appendix 1.

- 4.2.3 In addition to the IAQM Source Odour Potential Definitions, following a review of the EMAQ+ guidance, the relevant odour and grease characteristics have been identified for the nearby hot food takeaway/restaurant establishments, as detailed in Table 3.

Table 3 - Summary of Source Odour Potential				
Catering Establishment	Description	Odour Potential	Grease Content	Smoke Content
Milan Pizza Takeaway	Kebab house, fat, cooking meat	High	High	Very High
Mama Mia Pizza Takeaway	Kebab house, fat, cooking meat	High	High	Very High
Da Vinci Italian Restaurant	Italian, herbs, garlic	Moderate	Moderate	High
Radhuni Indian Restaurant	India, spices, oil	High	High	Moderate

- 4.2.4 The restaurant directly adjacent to the Site is permanently closed.
- 4.2.5 Based on the proximity of the existing residential flats located above the food establishments and to the south on Anderson Street and Chatsworth Court, in accordance with the EMAQ+ guidance, a high level of odour control is likely to be installed within the existing commercial kitchen extract systems.
- 4.2.6 Following observations noted during the site visits, the extraction flue outlets are all located approximately 1m above the eaves, as shown at Appendix 4, allowing for a moderate to good level of dispersion, dependent upon the discharge velocity.
- 4.2.7 In order to operate efficiently, the extraction systems should be well maintained and cleaned. It is noted from an online review of the food premises that all businesses hold a four or five-star food hygiene rating, following recent inspections. This indicates that the cleanliness and the condition of facilities and buildings are good, with appropriate ventilation to enable good food hygiene.
- 4.2.8 Table 4 below summarises the source odour potential taking into account the above factors for the source being considered within this assessment, assuming that a high level of odour control has been installed due to the proximity of existing residential receptors and based on observations that the flue extractions are of good design and regularly cleaned and maintained.
- 4.2.9 A hedonic score for the associated odour descriptor has been used to aid in the determination of unpleasantness, obtained from SEPA 'Odour guidance 2010'.

Table 4 - Summary of Source Odour Potential

Source	Magnitude	Odour Detection	Unpleasantness	Source Odour Potential
Hot food kitchen extraction	Medium Scale	Fat frying, with potential for odours to be detected if there is unsuitable odour control.	Moderately offensive with a neutral to unpleasant hedonic score when detected. Oily, fatty type odour hedonic tone -1.41	Small <i>Based on Sniff Testing Observations at the Proposed Development Site</i>

Pathway Effectiveness

4.2.10 The next stage of the assessment is to determine the effectiveness of the pollutant pathway. The following factors should be taken into consideration:

- Distance to receptor;
- Prevailing wind direction;
- The effectiveness of the point of release in promoting good dispersion;
- The topography and terrain between the source and receptor.

4.2.11 To provide information on how odour may disperse, wind speed and wind direction data for the period 1st January 2014 to 31st December 2023 (inclusive) have been obtained from the meteorological recording station at Newcastle Airport, located approximately 17.5km to the north-west of the Site, as discussed at Section 4.1. Reference should be made to Appendix 3 for a wind rose of the data.

4.2.12 Table A1.2 of Appendix 1 details the relevant IAQM criteria for determining pathway effectiveness. Table 5 below summaries the pathway effectiveness taking into account the above factors for the source being considered within this assessment.

Table 5 - Summary of Pathway Effectiveness

Source	Distance	Direction	Effectiveness of Dispersion	Pathway Effectiveness
Commercial Kitchen Extract Systems	Approx 20m between the closest kitchen extract and the closest window on the southern façade. There are no windows proposed on the eastern elevation facing the rear of the food premises - receptor is local.	NE of Site	With the appropriate level of odour control and with moderate to good dispersion, the detection of fugitive emissions during operation of the commercial kitchen extracts is likely to be low. Low frequency (%) of winds from the kitchen extracts at any one time, with the potential to result in odour impacts during low wind speeds.	Ineffective <i>Site is upwind for majority of time.</i>

Receptor Sensitivity

- 4.2.13 As the Proposed Development is residential, the receptor sensitivity is considered to be **high**.

Likely Odour Effect

- 4.2.14 The estimates of Source Odour Potential and Pathway Effectiveness are then considered together to predict the risk of odour exposure (impact) at the receptor location, using the matrix provided within Table 10 of the IAQM guidance, and presented in Table A1.3 of Appendix 1.
- 4.2.15 The next step is then to estimate the effect of that odour impact on the receptor locations, using Table 11 provided within the IAQM guidance. A summary of the likely magnitude of odour effect is provided below in Table 6.

Table 6 - Summary of the Likely Magnitude of Odour Effect					
Source	Source Odour Potential	Pathway Effectiveness	Odour Exposure	Receptor Sensitivity	Likely Odour Effect
Commercial Kitchen Extract Systems	Small	Ineffective	Negligible Risk	High	Negligible Effect

4.3 Site Visits

Introduction

- 4.3.1 A total of three Site visits were conducted in September 2024. Reference should be made to Figure 1 for details of the survey locations, Site location and prevailing wind direction.
- 4.3.2 With regard to site visits, the IAQM guidance provides the following:
- "As an absolute minimum, the IAQM recommends sampling on three separate days, provided the observed Pasquill stability categories (based on observed sunshine, cloud cover and wind) account for at least 70% of conditions typically experienced over the course of a year."*
- 4.3.3 Odour observations were undertaken in accordance with the procedure provided within the IAQM guidance, with a 5-minute observation period at each monitoring location. The IAQM Sniff Test methodology is detailed within Box 4 of the guidance document and is provided below for ease of reference.

Box 4: Example of sniff test sampling procedure

The sensory test is carried out at each test location over a standard observation time, typically 5 minutes. Testing should start from locations affected by the least-intense odours, to avoid olfactory fatigue. For each test location, the start time of the observation period and the attributes of the odour over the observation period are recorded as follows:

i) The assessor breathes normally, inhaling ambient air samples through the nose at regular intervals (say, every 10 seconds, to give 30 samples over typically a 5 minute observation period). However, where the odour levels are either constant or intense then the odour assessor should avoid olfactory fatigue/desensitisation by alternating each sample sniff of ambient air with a sniff of odour-free air from an ori-nasal face mask fitted with carbon filters.

ii) For each sample, the odour intensity (VDI scale, 0-6) is recorded.

iii) At the end of the observation period at the test location, the odour unpleasantness is noted down by classifying it as unpleasant, neutral (neither pleasant nor unpleasant) or pleasant. This assumes that at least some of the 30 samples were of intensity 3 or more ("i.e. the odour is at least "barely recognisable").

iv) The odour descriptor should also noted: odours can be objectively described using standardised categories and reference vocabulary. It is useful to provide odour assessors with standard descriptor terms, which are organised with similar terms in categories and groups either as a list or as an "odour wheel".

v) Next the pervasiveness/extent of the odour at this test location is assessed. This can be calculated as the percentage odour time, $t_{10\%}$, which is the number of samples where odour was recognisable divided by the total number of samples (i.e. 30). Note that "recognisable odour" is where the odour strength exceeds the recognition threshold and is definitely recognisable by the assessor, i.e. the assessor is capable of definitely identifying its quality/character, which corresponds to VDI intensity of 4 or more.

vi) The average odour intensity, I_{mean} , over the test period is calculated and the maximum intensity observed is noted.

The above procedure is then repeated at the next test location, remembering that the character of an odour mixture can change over distance, as the particular components may become diluted below their individual detection thresholds at different distances.

A record should be kept of the meteorological conditions at the time of testing (including wind strength and direction, atmospheric stability category, barometric pressure, rainfall, temperature and humidity), together with information relating to the operations and activities being undertaken on site and in the surrounding area.

4.3.4 The site visits coincided with the busier periods at the food premises, i.e., evenings and weekends, in order to consider worst case odour emissions.

4.3.5 Further detail for each Site visit conducted in September 2024, including the weather conditions, is provided in detail below.

Odour Survey Results

4.3.6 A summary of the Odour Surveys undertaken in September 2024 is included within Table 7. This includes prevailing wind and weather conditions for each date and details of the predominant odours that were observed, including their location, character, intensity and frequency.

Table 7 - Odour Survey Summary

Survey Date & Time	Prevailing Weather	Locations (Figure 1)	Odour Character, Description	Average Intensity (I _{mean}) (VDI)	Percentage Odour Time (t _{≥4})	Odour Exposure
First Survey						
6 th Sept 2024 21:00	16°C	ML2	Cooking odour, neutral	2 (Intensity 2 for 5-min)	N/A	N/A
	Wind speed 3m/s	ML3, ML5, ML6	Cooking type odour, neutral	3 (Intensity 3 for 5-min)	N/A	N/A
	Wind NE	ML7, ML8, ML9	Grease cooking type odour, neutral to unpleasant	4 (Intensity 4 for 5-min)	100%	Large
Summary: No cooking/grease type odour was detected at ML1 or ML4, at the site boundary of the existing building. Neutral cooking type odour was detected at ML3 at the SE corner of the existing building, with an intensity of 3, distinct during the 5-min observation period and also at ML5 and ML6 at the front of the food premises. The strongest cooking/grease type related odour was detected at ML7 to ML9 directly adjacent to the rear of the food premises and kitchen extract. The detection of odour at this location was strong (VDI Intensity 4), with a neutral to unpleasant character. It should be noted that these locations are not representative of the proposed development as they are located <10m from the extract units. There were no odours detected that were considered intense or persistent enough to likely cause significant loss of amenity at the Proposed Development, should the direction of the wind and meteorological conditions allow.						
Second Survey						
9 th Sept 2024 20:00	15°C	ML3	Grease cooking type odour, unpleasant	3 (Intensity 4 for total of 90 secs)	30%	Small
	Wind speed 3.5 m/s	ML5, ML6	Cooking type odour, neutral	3 (Intensity 3 for 5-min)	N/A	N/A
	Wind NE to N	ML7, ML8, ML9	Grease cooking type odour, unpleasant	4 (Intensity 4 for 5-min)	100%	Large

Table 7 - Odour Survey Summary

Survey Date & Time	Prevailing Weather	Locations (Figure 1)	Odour Character, Description	Average Intensity (I_{mean}) (VDI)	Percentage Odour Time ($t \geq 4$)	Odour Exposure
Summary: No cooking/grease type odour was detected at ML1, ML2 or ML4, at the site boundary of the existing building. Unpleasant cooking/grease type odour was detected at ML3 at the SE corner of the existing building, with an intensity of 4 for a period of 80 secs, giving rise to a small odour exposure. The strongest cooking/grease type related odour was detected at ML7 to ML9 directly adjacent to the rear of the food premises and kitchen extract. The detection of odour at this location was strong (VDI Intensity 4), with an unpleasant character. It should be noted that these locations are not representative of the proposed development as they are located <10m from the extract units. There were no odours detected that were considered intense or persistent enough to likely cause significant loss of amenity at the Proposed Development, should the direction of the wind and meteorological conditions allow.						
Third Survey						
9 th Sept 2024 18:30	16°C	ML3	Cooking type odour, neutral	1 (Intensity 3 for 120 sec)	N/A	N/A
	Wind speed 4.5m/s	ML5, ML6	Cooking type odour, neutral	3 (Intensity 3 for 5-min)	N/A	N/A
	Wind N/NNE	ML7, ML8, ML9	Grease cooking type odour, unpleasant	4 (Intensity 4 for 5-min)	100%	Large
Summary: No cooking/grease type odour was detected at ML1 or ML4, at the site boundary of the existing building. Neutral cooking type odour was detected at ML3 at the SE corner of the existing building, with an intensity of 3, distinct for 120 sec during the 5-min observation period and also at ML5 and ML6 at the front of the food premises over the duration of the 5-min observation period. The strongest cooking/grease type related odour was detected at ML7 to ML9 directly adjacent to the rear of the food premises and kitchen extract. The detection of odour at this location was strong (VDI Intensity 4), with an unpleasant character. It should be noted that these locations are not representative of the proposed development as they are located <10m from the extract units. There were no odours detected that were considered intense or persistent enough to likely cause significant loss of amenity at the Proposed Development, should the direction of the wind and meteorological conditions allow.						

Summary

- 4.3.7 The Odour Surveys undertaken in September 2024 indicated that faint to strong cooking type odour from the commercial kitchen extraction units is detected at the southern façade of the existing building during calm conditions when wind speeds are less than 3m/s or during downwind conditions. This is during busier evening and weekend periods. At other times odour detection is likely to be less. No odour was detected on the northern or western facades.
- 4.3.8 Odours were most frequently detected at ML7 to ML9, directly adjacent to the extraction and therefore not representative of the Site.
- 4.3.9 At the Site, odour was detected, however, the overall intensity and duration was such that only a small odour exposure is predicted, at worst. It is noted the intensity and frequency of the odour emissions diminished with increasing distance from the odour source, and therefore, can be described as being localised.
- 4.3.10 Whilst odours associated with the kitchen extraction were observed at certain monitoring locations, no particularly persistent odours were detected during the surveys that could lead to a significant loss of amenity at the Site, as shown by the average odour intensity calculations presented in Table 7. It should also be noted that there are no windows proposed on the eastern façade of the building, i.e. there is no direct line of sight of the extraction units at the Proposed Development.
- 4.3.11 Based on these observations, the commercial kitchen extraction units are considered to effectively disperse any residual odours, in line with the requirements of EMAQ+ guidance.
- 4.3.12 In accordance with Table 15 of the IAQM guidance, the worst-case odour exposure during downwind conditions at the Site is considered to be **slight adverse**, resulting in an effect which is considered to be **not significant**.

5 SUMMARY

5.1 Introduction

- 5.1.1 An Odour Risk Assessment has been undertaken in accordance with the IAQM guidance to consider the potential for odour associated with the commercial kitchen extraction units to impact on residential amenity.
- 5.1.2 In accordance with the IAQM guidance, a multi tool approach has been used to determine the likely significance of an odour effect at the Proposed Development.
- 5.1.3 Site observations were also made to determine the potential for odour associated with the commercial kitchen extract units to affect the amenity of future occupants of the Proposed Development.
- 5.1.4 The background information obtained and the various tools used within the assessment, are summarised in the sections below.

5.2 Meteorological Data Analysis

- 5.2.1 The greatest frequency of downwind conditions at the Site occurs when the wind is blowing from the E, which occurs for 4.78% of the time, of which, only 2.24% has wind speeds <3m/s.
- 5.2.2 Based on the analysis of wind data undertaken as part of this assessment, there is a **low frequency** of downwind conditions, with potential to affect the Site, at any one time.

5.3 Risk Assessment

- 5.3.1 A desk-based risk assessment has been undertaken in accordance with the IAQM guidance which takes into consideration the source odour potential, pathway effectiveness and receptor sensitivity.
- 5.3.2 Taking into consideration these factors, the likely odour effect associated with the commercial kitchen extraction units at the Proposed Development is deemed to be **negligible**, which is considered as **not significant**, based on the assessment methodology contained within the IAQM guidance.

5.4 Site Visits

- 5.4.1 As the commercial kitchen extraction units are existing sources and empirical observations take into account what is happening on the ground, considerable weight should normally be given to the observational findings of sensory assessments (such as sniff tests), in accordance with the IAQM guidance.
- 5.4.2 A total of three site visits were undertaken in September 2024, with observations undertaken in accordance with IAQM guidance.
- 5.4.3 When odour was detected, the maximum odour intensity was deemed to be faint to strong at the southern façade of the existing building, with a cooking/grease type odour detected that was described as neutral to unpleasant, depending upon the intensity.
- 5.4.4 Cooking/grease type odour was most noticeable at downwind locations directly adjacent to the extraction units and therefore not representative of the Proposed Development.
- 5.4.5 At the site boundary, cooking/grease type odour was observed during downwind conditions with respect to the commercial kitchen extraction units. When detected, the odour was of an intensity and frequency that gives rise to a small odour exposure in accordance with the IAQM guidance.
- 5.4.6 Overall, the intensity and frequency of the odour emissions diminished rapidly with increasing distance from the odour source, and therefore, can be described as being localised.
- 5.4.7 When taking into consideration a small odour exposure during downwind conditions as a worst case, based on the sniff testing observations, alongside the receptor sensitivity, the likely odour effect is deemed to be at worst **slight adverse**, giving rise to a **not significant** effect.

5.5 Overall Significance of Effect

5.5.1 The outcomes of each stage of this assessment are summarised below.

Table 7: Significance of Effect Based on Odour Assessment Tool		
Assessment Tool	Type	Significance of Effect
Met Data Analysis and Odour Risk Assessment	Predictive	Not Significant
Site Observations - Sniff Tests	Observational/Empirical	Not Significant

5.5.2 It should also be noted that there are no windows proposed on the eastern façade of the Proposed Development and therefore there is no direct line of sight of the adjacent commercial kitchen extraction units.

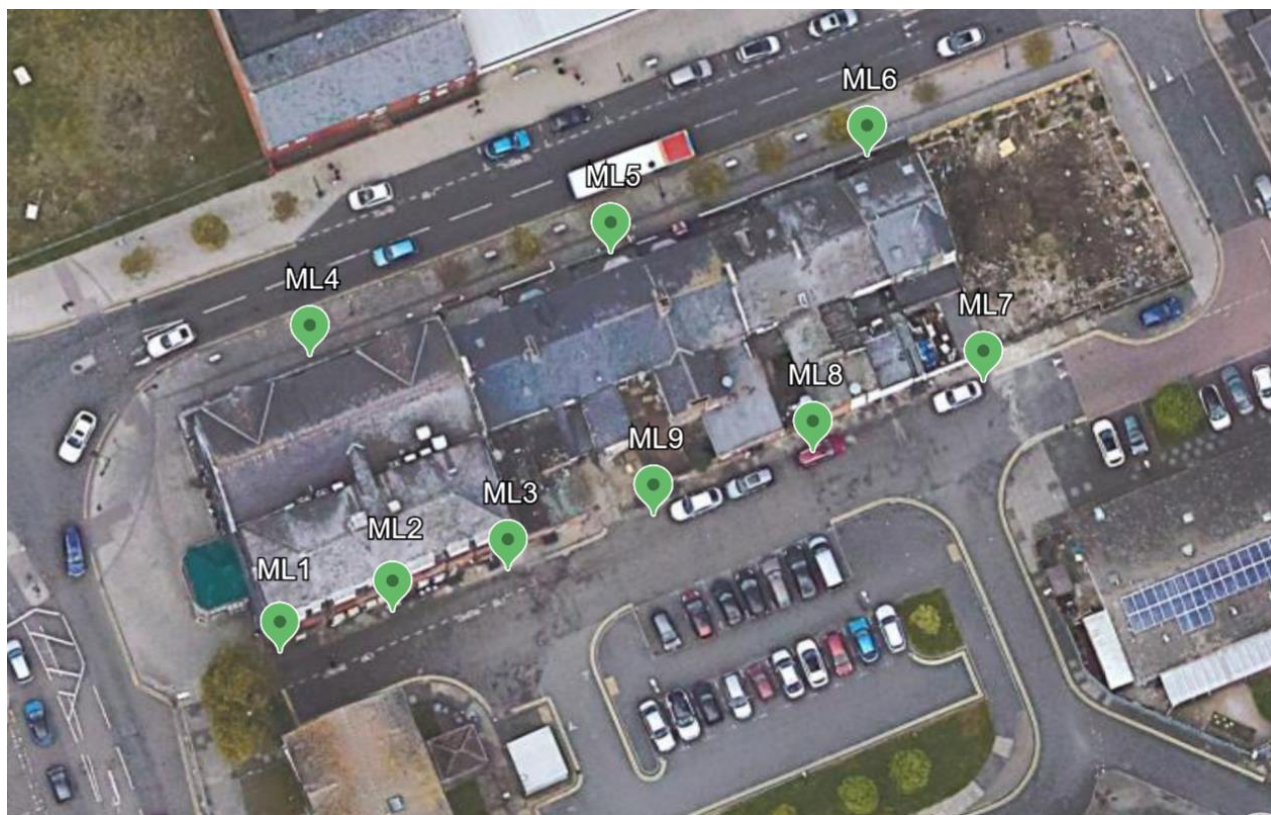
5.5.3 Taking into consideration all of the above the overall significance is deemed to be **not significant**.

6 CONCLUSION

- 6.1.1 NJD Environmental Associates Ltd was instructed by Regal Property JDD Ltd to prepare an Odour Risk Assessment, in order to inform a planning application for the change of use of an existing nightclub to student accommodation (the 'Proposed Development'), located at 58-68 Ocean Road in South Shields.
- 6.1.1 The Odour Risk Assessment considers the potential for odour associated with commercial kitchen extraction units to impact on residential amenity. Evidence collected as part of a multi tool approach in accordance with the IAQM guidance has been undertaken and presented within this report.
- 6.1.2 The assessment demonstrates that overall, there is a **not significant** effect, in accordance with the relevant guidance, based on the evidence provided and professional judgement.
- 6.1.3 It is concluded that odour should not be a prohibitive factor in the determination of this planning application.

FIGURES

Figure 1 – Monitoring Locations



APPENDICES

Appendix 1 - IAQM Qualitative Odour Assessment Criteria

Table A1.1 - Source Odour Potential

Source Odour Potential	Suggested Definition
Large	• Magnitude - larger permitted processes of odorous nature or large Sewage Treatment Works (STWs); materials usage hundreds of thousands of tonnes/m³ per year; area sources of thousands of m². • The compounds involved are very odorous (e.g. mercaptans), having very low Odour Detection Thresholds (ODTs) where known. • Unpleasantness - processes classed as 'Most offensive' in the EA H4 guidance; or (where known) compounds/odours having unpleasant (-2) to very unpleasant (-4) hedonic score. • Mitigation/control - open air operation with no containment, reliance solely on good management techniques and best practice.
Medium	• Magnitude - smaller permitted processes or small STWs; materials usage thousands of tonnes/m³ per year; area sources of hundreds of m². • The compounds involved are moderately odorous. • Unpleasantness - processes classed in H4 as 'Moderately offensive'; or (where known) odours having neutral (0) to unpleasant (-2) hedonic score. • Mitigation/control - some mitigation measures in place, but significant residual odour remains.
Small	• Magnitude - falls below Part B threshold; materials usage hundreds of tonnes/m³ per year; area sources of tens m². The compounds involved are only mildly odorous, having relatively high ODTs where known. • Unpleasantness - processes classed as 'Less offensive' in H4; or (where known) compounds/odours having neutral (0) to very pleasant (+4) hedonic score. • Mitigation/control - effective, tangible mitigation measures in place (e.g. BAT, BPM) leading to little or no residual odour.

Table A1.2 - Pathway Effectiveness

Pathway Effectiveness	Suggested Definition
Highly Effective	- Distance - receptor is adjacent to the source/site; distance well below any official set-back distances. - Direction - high frequency (%) of winds from source to receptor (or, qualitatively, receptors downwind of source with respect to prevailing wind). - Effectiveness of dispersion/dilution - open processes with low-level releases, e.g. lagoons, uncovered effluent treatment plant, landfilling of putrescible wastes.
Moderately Effective	- Distance - receptor is local to the source. - Where mitigation relies on dispersion/dilution - releases are elevated, but compromised by building effects.
Ineffective	- Distance - receptor is remote from the source; distance exceeds any official set-back distances. - Direction - low frequency (%) of winds from source to receptor (or, qualitatively, receptors upwind of source with respect to prevailing wind). - Where mitigation relies on dispersion/ dilution - releases are from high level (e.g. stacks, or roof vents > 3m above ridge height) and are not compromised by surrounding buildings.

Table A1.3 - Risk of Odour Exposure (Impact)

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

Table A1.4 - Descriptors for Magnitudes of Odour Effects

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

Appendix 2 - IAQM Sniff Testing Assessment Criteria

Table A2.1 - VDI 3940 Odour Intensity Scale

Odour Strength	Intensity Level	Comments
No odour/not perceptible	0	No odour when compared to the clean site
The Odour Detection Threshold (ODT) of 1 ouE/m ³ is somewhere between 0 and 1		
Slight/very weak	1	There is probably some doubt as to whether the odour is actually present
Slight/weak	2	The odour is present but cannot be described using precise words or terms
Distinct	3	The odour character is barely recognisable
VDI 3940 says that the recognition threshold intensity is generally 3-10 times higher than the ODT (i.e. 3-10 ouE/m ³)		
Strong	4	The odour character is easily recognisable
Very strong	5	The odour is offensive. Exposure to this level would be considered undesirable
Extremely strong	6	The odour is offensive. An instinctive reaction would be to mitigate against further exposure

Table A2.2 - Matrix to Assess the Odour Exposure at Time and Place of Sampling

Average Intensity (I _{mean})	Percentage Odour Time (t _{≥4}) during the Test					
		10%	11-20%	21-30%	31-40%	≥41%
	6	Large	Very Large	Very Large	Very Large	Very Large
	5	Medium	Large	Large	Very Large	Very Large
	4	Small	Medium	Medium	Large	Large
	3	Small	Medium	Medium	Medium	Medium
	2	Small	Small	Medium	Medium	Medium
	1	Small	Small	Small	N/A	N/A

Notes: I_{mean} should be rounded to the nearest whole number.

The following overriding considerations affect the scoring of the odour annoyance impact:

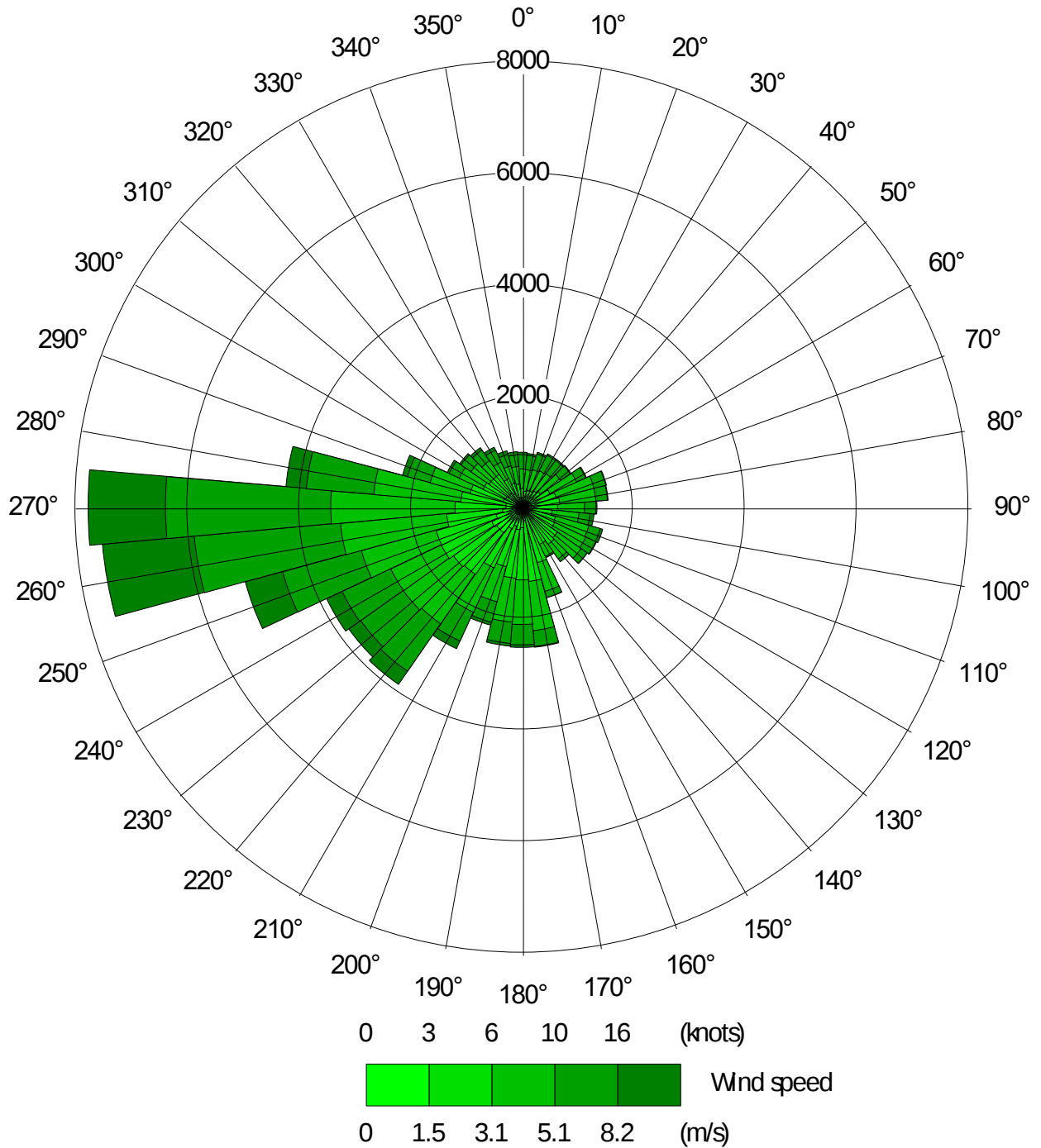
if I_{mean} = 0, then the odour effect can for practical purposes be considered **negligible**; and

if I_{mean} = 1 but t_{≥4} = 0%, then the odour effect can for practical purposes be considered **negligible**.

Table A2.3 - Matrix to Assess the Odour Effect at Individual Receptors

Overall Odour Exposure		Receptor Sensitivity		
		Low	Medium	High
	Very Large	Substantial Adverse	Substantial Adverse	Substantial Adverse
	Large	Moderate Adverse	Moderate Adverse	Substantial Adverse
	Medium	Slight Adverse	Slight Adverse	Moderate Adverse
	Small	Negligible	Negligible	Slight Adverse

Appendix 3 - Wind Rose for Newcastle Airport (2014-2023)



Appendix 4 - Site Photo



Kitchen Extraction Located on Southern Façade of Food Establishments

njd

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