Castle Buildings LLP

Castle Buildings, Hull

Odour Assessment

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Contents

Executive Summary

Castle Buildings LLP have commissioned WYG Environment Planning Transport (WYG) to prepare an Odour Screening Assessment to support a planning application for the kitchens associated with the development of a 150 bed hotel.

The assessment shows that the impact significance on the surrounding receptors from the proposed kitchen is considered to be 'high' following the assessment of potential odour risk following the appropriate mitigation implemented dependent on the dispersion scenario (the height of the discharge point). The odours from the kitchens can be mitigated using appropriate methods outlined in the document: "*Control of Odour and Noise from Commercial Kitchen Exhaust Systems, September 2018*". This document is an update from the previous, *Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems, DEFRA, January 2005*".

1. Introduction

Castle Buildings LLP commissioned WYG Environment Planning Transport (WYG) to prepare a Screening Odour Assessment to support a planning application for the kitchen associated with the development of a 150-bed hotel.

The site is bounded by commercial properties to the north, east and west, and to the south by the A63 and Railway Dock Marina. The site comprises of an existing car park. The site can be accessed from Waterhouse Lane.

The approximate United Kingdom National Grid Reference (NGR) of the site is 509502, 428478.

The following assessment stages have been undertaken as part of this assessment:

- Assessment of potential odour from the site,
- Identified mitigation measures.

The results of the assessment are detailed in the following sections of this report.

2. Assessment Methodology

2.1 Planning Policy Context

This assessment considers the potential for odour annoyance from the proposed application by investigating the location of proposed receptors in relation to the proposed kitchen and the potential effects of both prevailing and annual average wind conditions.

Odour can give rise to a statutory nuisance under Part III of the EPA 1990. A statutory nuisance from odour is an odour that has been assessed by an Environmental Health Officer (EHO) as being 'prejudicial to health or a nuisance'.

2.2 Odour Assessment Methodology

There are no mandatory numerical standards in the UK for assessing odour levels, although some guideline values can be used for assessing potential odour impacts. Although odours can be due to a single chemical, they are typically due to a complex mixture of compounds making reliable 'chemical' analysis or measurement at source difficult. As such, there is no single method for reliably measuring or assessing odour pollution and the potential for an odour nuisance, and any conclusion is best based on a number of pieces of evidence.

The odour quality, hedonic tone (pleasantness or unpleasantness) and concentration can influence the potential for annoyance and perception leading to complaint. Hedonic tones may vary from +4 for very pleasant odours (e.g. bakeries) to -4 for foul ones (e.g. rotting flesh).

However, even relatively pleasant odours may become objectionable, if not offensive, by virtue of persistence and intensity. To establish the presence of a statutory nuisance the significance of an odour can be assessed based on the FIDOL factors detailed below:

- Frequency: how often an individual is exposed to odour
- Intensity: the perceived strength of the odour proportional to concentration; level of odour
- Duration: duration of exposure to the odour
- Offensiveness: type of odour; some odours are generally regarded as more unpleasant than others
- Location: type of land use / sensitivity of the complainant

3. Odour Risk Assessment

3.1 Key Odour Sources

The key potential odour sources associated with the proposed kitchen associated with the development have been identified to be the kitchen facilities. The extract flue is located to the north of the site.

3.2 Odour Risk Assessment

The "Control of Odour and Noise from Commercial Kitchen Exhaust Systems, September 2018" contains a methodology for the assessment of odour from kitchen extract as outlined below.

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. The assessment method is outlined in Tables 3.1 and 3.2 below.

Table 3.1 Odour Impact Risk

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:

Table 3.2 Odour Assessment 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 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.
Size of kitchen	Large	5	More than 100 covers or large sized take away.

Criteria	Score	Score	Details
	Medium	3	Between 30 and 100 covers or medium sized take away.
	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, Steakhouse
	Medium	4	Cantonese, Italian, French, Pizza (gas fired)
	Low	1	Most pubs (no fired food, mainly reheating and sandwiches etc), Tea Rooms

Based on the criteria above and the layouts of the proposed kitchens, the following assessments have been undertaken as shown in Table 3.3 below.

It is assumed that the development kitchen extract will discharge 1m above ridge at 15 m/s.

Table 3.3 Assessment of Potential Odour Risks

Scenario	Unit	Dispersion	Proximity of Receptors	Size of Kitchen	Cooking Type	Total Score
1	Kitchen Associated with Proposed Hotel Development	5	5	3	1	14

As shown in Table 3.3, odour from the kitchen falls into the 'low to medium' risk category. Control measures presented within the "Control of Odour and Noise from Commercial Kitchen Exhaust Systems, September 2018" to control odour at the site will include:

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

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

4. Conclusion

WYG have completed a qualitative odour assessment to support a planning application for the kitchen associated with the development of a 150-bed hotel.

As a result of the above assessment, the impact significance on the surrounding receptors from the proposed kitchen is considered to be 'low to medium' following the assessment of potential odour risk following the appropriate mitigation implemented dependent on the dispersion scenario (the height of the discharge point). The proposed ventilation and extract system will employ in-line 'active' carbon filtration system. The filtration system comprises a primary (or pre) filter and the main (or secondary) filter with a maximum dwell time of 0.1 seconds system. This is therefore considered appropriate to manage odour from the site.

Appendix A Report Terms and Conditions

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