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Your Ref: Fontwell Avenue/ Eastergate

Our Ref: 70079493

4 December 2020

Dear Andrew Munton,

Planning and Odour Nuisance – Development at Fontwell Avenue, Eastergate

Background

WSP were instructed to undertake an Odour Impact Assessment upon the proposed development at Fontwell Avenue (BN/50/20/PL). Planning application BN/50/20/PL which is comprised of the construction of 42 dwellings with access, parking, landscaping, demolition of existing structures on-site and associated works.

Arun District Council - Odour Nuisance Condition

This requirement for an odour assessment has come about as a result of discussions with Arun District Council regarding potential odour nuisance at the proposed site.

In order to secure Arun District Councils approval, the odour assessment was conducted by a suitably qualified odour assessor and was carried out in line with the Institute of Air Quality Managements 'Guidance on the assessment of odour for planning'.

Odour Sources Local to the Proposed Site

The proposed development site is located within a rural setting and remote from any industrial or waste activities, the typical sources of odour and odour nuisance.

Immediately to the west of the proposed site is a riding school/ manege, and it has been suggested this activity could represent a potential odour source. This activity and location, immediately to the west of the proposed site was the principle subject of this

The Forum
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Odour Perception

Most odours are a mixture of many chemicals that interact to produce what we detect as a smell. Human perception of an odour and whether it is found to be acceptable, objectionable or offensive is subjective to the individual and can depend on a range of reasons such as age, health, historic association with the odour, frequency of exposure etc. Before odour can have an adverse effect (such as loss of amenity, annoyance, or complaints), there must be odour exposure. For odour exposure to occur all three links in the source-pathway receptor chain must be present. Those links are:

- a) an emission source - a means for the odour to get into the atmosphere;
- b) a pathway - for the odour to travel through the air to locations off site; and
- c) receptors - the presence of receptors (people) that could experience an adverse effect, noting that people vary in their sensitivities to odour.

Odour Guidance and Standards

The scale of odour exposure (the impact) is determined by the parameters collectively known as the FIDOR factors (Frequency, Intensity, Duration, Offensiveness and Receptor Sensitivity)¹, which are described in Table 1. The term FIDOL is sometimes used instead, in which the L stands for Location (of receptors). The magnitude of the effect experienced is determined by the scale and sensitivity of exposure.

Table 1 Description of the FIDOR factors

Factor	Description
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
Offensiveness	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. Offensiveness takes account of exposure and the attributes that determine nuisance sensitivity whereas hedonic tone is measured in a laboratory situation aimed simply at "like" or "dislike"
Receptor Sensitivity	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

Odour can be an important issue for industrial processes and the relevant Planning Authority must consider whether a proposed development (an odour source itself or nearby new receptors such as residential dwellings) will be a suitable use of the land².

¹ Environment Agency - A technical guidance note H4 Odour Management (2011)

The potential for the occurrence of odour incidents is highly dependent upon local meteorology and topography. For example, extended periods of dry weather with calm or light winds blowing predominantly from the odour source to a sensitive receptor e.g. residential dwelling, are conditions during which significant odour related impacts are most likely to occur. For the same source-receptor distance, a higher wind speed will dilute and disperse an odour more rapidly and rainfall can “washout” an odour which may result in no odour detection at the same source in those circumstances.

For the purposes of this assessment, the receptor locations have been chosen as the future occupants of the Fontwell Avenue development site, and are represented by the site boundary in order to determine the potential for odour impact.

The IAQM guidance² provides classifications of receptor sensitivity to odour depending on the land use. This is summarised in Table 2 below. The proposed site at Fontwell Avenue was classified as having high sensitivity, representing a worse case assessment.

Table 2 Receptor sensitivity classification to odour

Receptor Sensitivity	Example
High	Surrounding land where: Users can reasonably expect enjoyment of a high level of amenity; and People would reasonably be expected to be present here continuously, or at least regularly for extended period, as part of the normal pattern of use of the land. Examples may include residential dwellings, hospitals, schools/education and tourist/cultural.
Medium	Surrounding land where: Users can reasonably expect enjoyment of a reasonable level of amenity but wouldn't reasonably expect enjoy the same level of amenity as in their home; or People wouldn't be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land. Examples may include places of work, commercial/retail premises and playing/recreation fields.
Low	Surrounding land where: The enjoyment of amenity would not reasonably be expected; or There is transient exposure, where the people would be expected to be present for limited periods of time as part of the normal use of the land. Examples may include industrial use, farms, footpaths and roads.

² Bull et al (2018). IAQM Guidance on the assessment of odour for planning – version 1.1, Institute of Air Quality Management, London. www.iaqm.co.uk/text/guidance/odour-guidance-2018

Odour Intensity Scale

The intensity of odour detected was classified using the VDI 3940 odour intensity scale as recommended in IAQM Guidance² as shown in Table 3.

Table 3 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) 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 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

The odour exposure output at a location from the table above was combined for survey results and then compared against the sensitivity of that receptor to establish the potential odour effect there, as set out in Table 4.

Table 4 Matrix to Assess Odour Effect at Individual Receptor Locations

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

For this assessment, the sensitivity of the proposed development site was classified as high due to its consisting of residential dwellings.

Odour Survey Methodology

WSP undertook an IAQM Odour Guidance compliant odour survey and assessment of the potential odour impact upon the proposed development. Due to the small-scale of the development, and the fugitive nature of the odour source, the odour assessment, was a semi-quantitative odour assessment.

WSP undertook an initial desktop assessment of the location and nature of any existing odour complaints associated with the immediate area, and riding school activities, reviewed

meteorological conditions, and consulted with Arun District Council Environmental Health department with respect to the riding school as a potential odour source.

WSP undertook a site visit, during which multiple 'sniff tests' were undertaken by an experienced WSP air quality team member, over several hours, at varying locations.

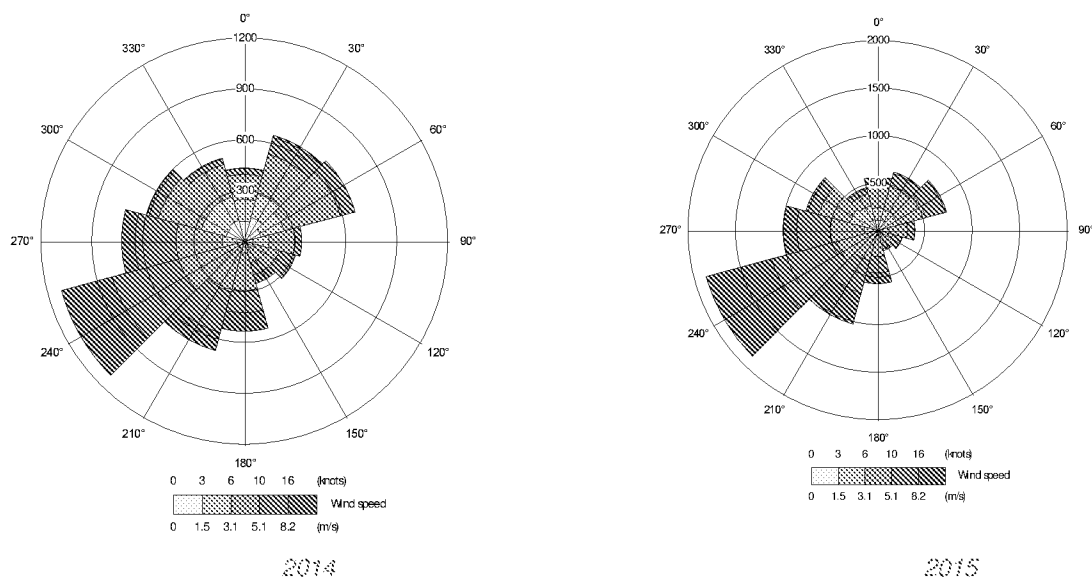
Odours were recorded, using the FIDOR significance criteria (Frequency, Intensity, Duration, Offensiveness and Repeatability).

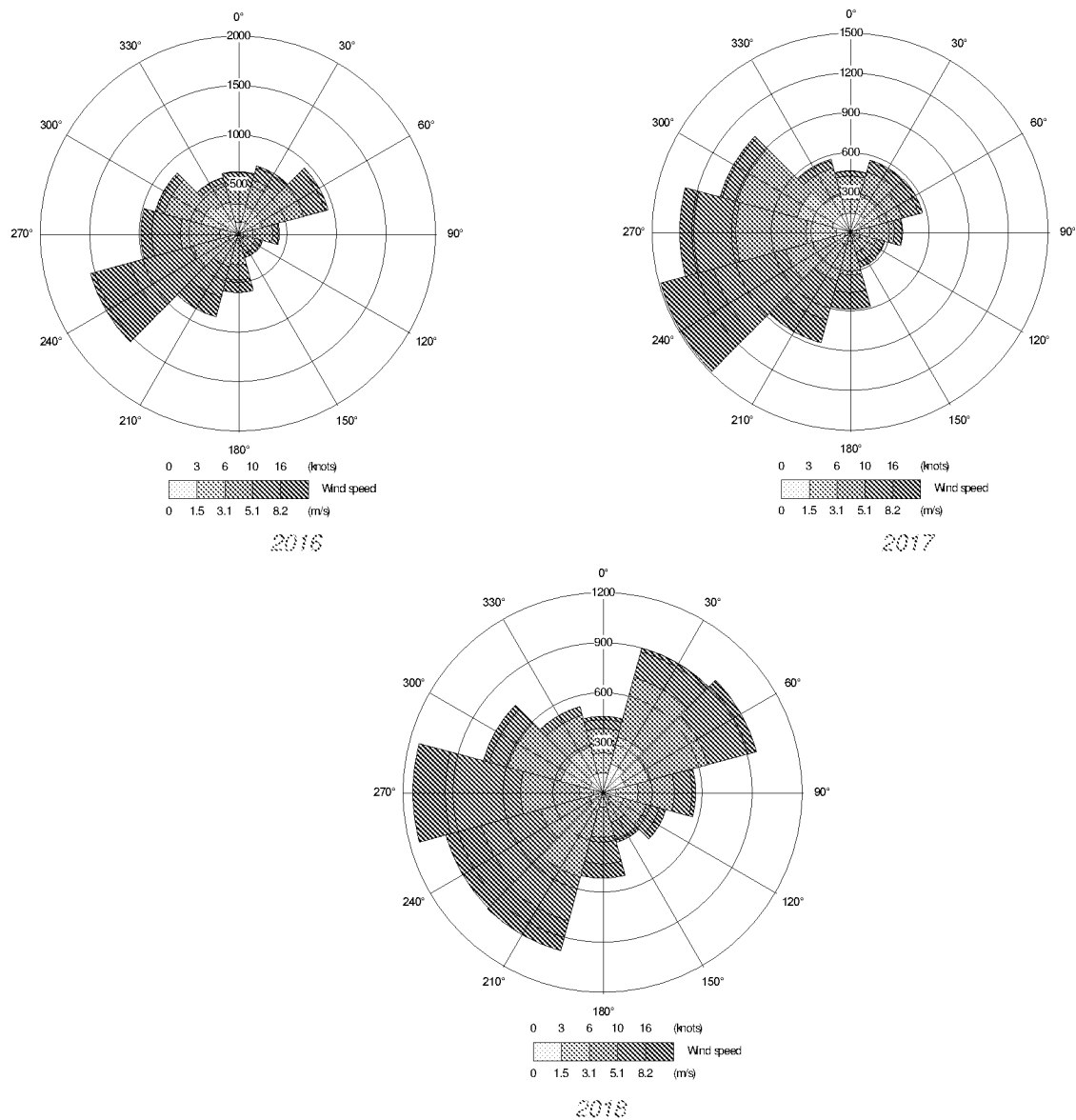
The focus of this odour survey and assessment was to determine whether any noticeable odour was emitted from the adjacent riding school, and if detected the nature and character of that odour, as well as its anticipated intensity, and the extent that the odour, if detected, could represent a nuisance to any adjacent occupants of the proposed development at Fontwell Avenue.

Desktop Odour Assessment

Five years of recent calendar years local wind speed and direction were analysed to determine the frequency and intensity of local prevailing winds that may blow any odour from the riding school towards the property (Figure 1).

Figure 1 Wind Rose - Thorney Island Meteorological Station 2014 -2018





It can be observed from Figure 1 above that for all of years of local meteorological data (2014 – 2018), the prevailing wind direction across the Fontwell Avenue site appear to the south westerly. Therefore any odour arising from the riding school to the west of the Fontwell Avenue site, is likely to impact upon occupants of the proposed development at the Fontwell Avenue site.

Consultation with Environmental Health Officer (EHO) at Arun District Council (ADC)

Communications with EHO received on 13th November 2020 detailed no previous complaints made regarding odour from the adjacent riding school.



Odour Sniff Test Procedure

During the odour monitoring survey, the surveyor took all precautions not to influence the perception of odour during the survey. These included making sure that the Odour Assessor did not:

- ⌘ have a cold, sinus trouble etc;
- ⌘ work while hungry or thirsty;
- ⌘ work within 30 minutes of last meal;
- ⌘ smoke or consume strongly flavoured drink (e.g. coffee) or food at least half an hour before carrying out the survey;
- ⌘ consume confectionary or soft drinks at least half an hour before carrying out the survey;
- ⌘ use scented toiletries/perfumes/deodorants on the day of field survey;
- ⌘ use a vehicle containing scented air fresheners; or
- ⌘ undertake the on-site visit to an odorous source before undertaking the field survey.

On each occasion, the odour assessor started the survey at a 'clean' location, and then gradually worked closer to the site boundary of the odour source. The following parameters were noted at each sampling location:

- ⌘ Date and time test was conducted;
- ⌘ Weather conditions, including temperature and wind strength and direction;
- ⌘ Odour intensity;
- ⌘ Odour offensiveness;
- ⌘ Odour duration i.e. constant or intermittent during monitoring period;
- ⌘ Receptor sensitivity

Odour Survey Site Visit

A member of the WSP air quality team visited the Fontwell Avenue, Eastergate site on Thursday 26th November 2020.

During the site visit, the air quality team member noted weather conditions and logged any activity or odour source at/ or close to the site likely to result in odour nuisance.

The air quality team member undertook a boundary walk of the Fontwell Avenue site as part of the odour survey sniff test. During the boundary walk, the air quality team member made observations of odour detected, its characteristics and intensity and well as the likely odour source (Figure 2).

The staff member repeated the perimeter walk four times, to gain any variation that may occur over the 3 hrs spent on-site.

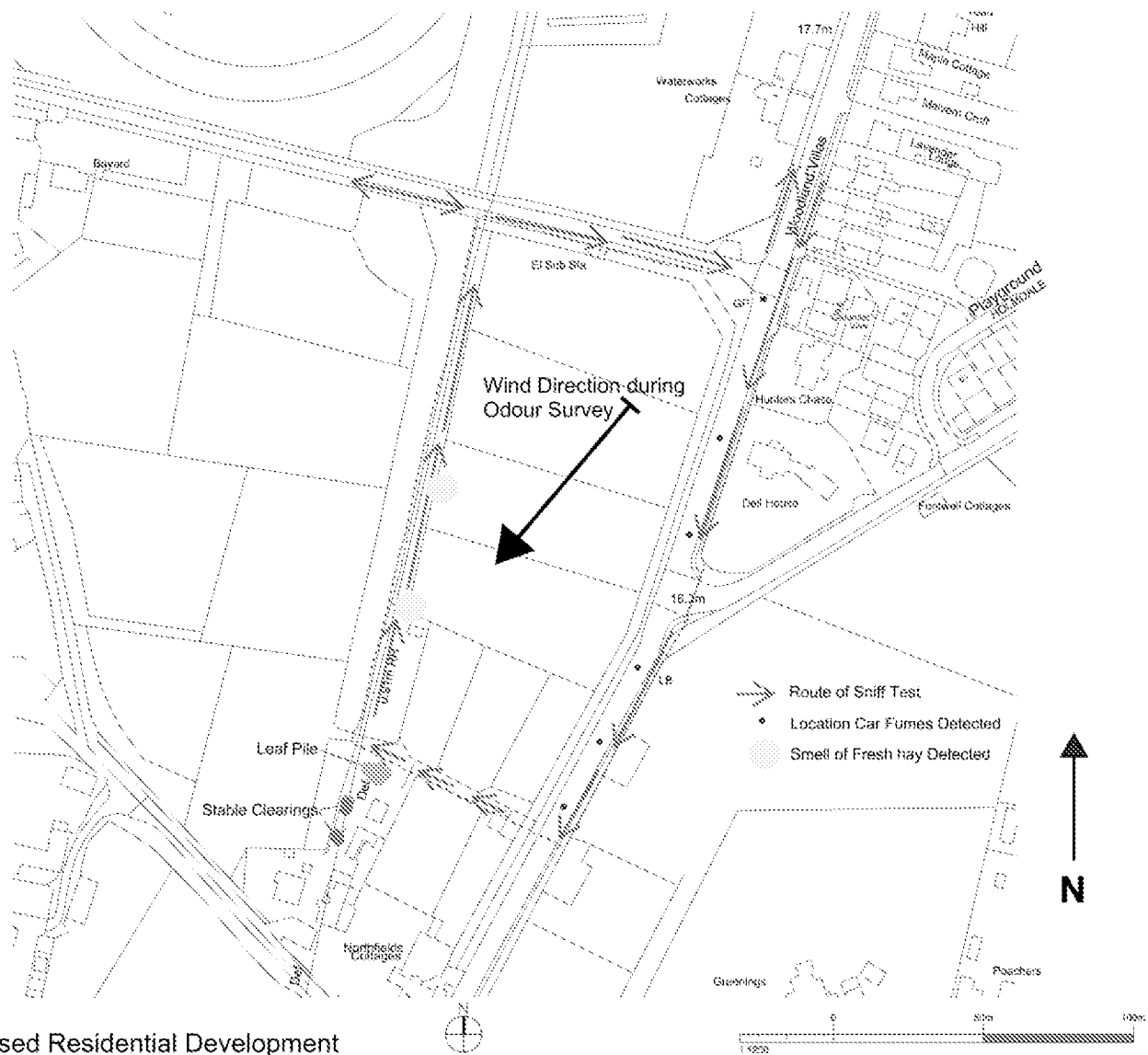


Figure 2 Summary of Sniff Test undertaken at Fortwell Avenue Proposed Development site -- 26th November 2020

Odour Survey and Sniff Test Findings

During the site visit, and subsequent sniff test, few odour sources were detected, and those identified were of low intensity, and not of an offensive nature.

Table 5 below summarises the observations and outcome of the odour survey sniff test.

Table 5 Date, Time Conditions and Observations of the Odour Survey Undertaken

Date of Odour Survey	Time Weather conditions	Present Activity of Odour Source	Odour Detection/ Intensity	Comments
26 th November 2020 08:45 – 10:00hr	Weather conditions - 6°C, very light North easterly breeze, with a misty drizzle.	Three horses in field of the site being monitored. Small piles of stable clearings (Fig's 3 & 4), including manure, small pile of leaves (Fig 5), traffic on nearby roads (Fig 6). Presence of fresh hay.	Fresh hay odour intermittently observed at two locations on western site boundary, odour intensity of 2 i.e. low intensity. Slight odour of cut grass, odour intensity of 1 i.e. barely detectable. Diesel car fumes along road to the east of the site boundary (Fig 6), with a maximum odour intensity of 3 i.e. medium intensity.	Dominant odour was derived from traffic fumes on adjacent roads.
26 th November 2019 10:00 – 11:45hr	Weather conditions – temperature dropped to 4°C, very light north easterly south-westerly breeze, mist cleared.		Fresh hay odour intermittently observed at two locations on western site boundary. Diesel car fumes along road to the east of the site boundary, with a maximum odour intensity of 3 i.e. medium intensity.	



Figure 3 Stable Clearing 1



Figure 4 Stable Clearing 2



Figure 5 Leaf Pile



Figure 6 Traffic on Adjacent Boundary Road (A20)



Limitation of the Odour Survey

The perception of an odour is highly subjective, with intensity varying from person to person with their relative olfactory sensitivity and the rating of unpleasantness varying with their personal taste. The monitoring that has been described in this report was undertaken by a single individual. There is no guarantee that should another individual have undertaking the same survey at the same time would report the same results.

Monitoring was subject to the meteorological conditions occurring at the time of the survey.

Conclusion

On behalf of Reside Developments, WSP have conducted an Odour Assessment of the proposed development at Fontwell Avenue, Eastergate, Hampshire.

The assessment has set-out to determine the potential of odour risk from adjacent site and its activities, a riding school and manege upon proposed residential properties to be sites at the Fontwell Avenue Site. The Odour Assessment was qualitative and took the form of an odour survey and sniff test during a site visit.

The maximum odour intensity observed during the site visits was 3, i.e. distinct odour, which was of diesel fumes emerging from traffic on an adjacent road. Odour associated with the adjacent riding school and manege was detected, however, it was a barely detectable odour of fresh cut grass (odour intensity detected was 1, i.e. barely faint odour), and a low intensity of fresh hay (odour intensity detected was 2), both pleasant odours, and could be considered to be far from an odour nuisance.

Applying the survey outcomes to the odour criteria and matrix, concluded that the odour effect observed was considered to be negligible. Therefore, it is not considered necessary that odour mitigation is required for the proposed development at Fontwell Avenue, Eastergate.

Yours sincerely

Peter Walsh
Technical Director

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WSP