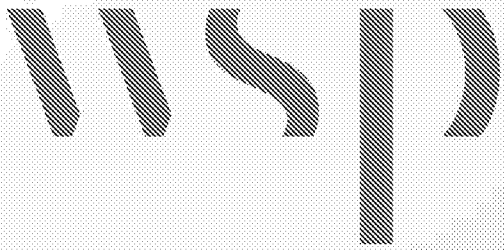


LAND AT BAYARDS, LEVEL MARE LANE,
EASTERGATE
ODOUR ASSESSMENT REPORT
AUGUST 2021



Reside Developments Ltd

LAND AT BAYARDS, LEVEL MARE LANE, EASTERGATE

Odour Assessment



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Odour Assessment

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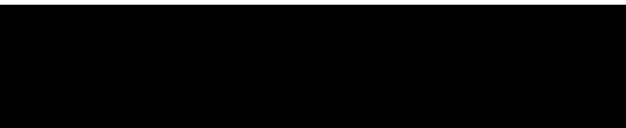
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WSP

Mountbatten House
Basing View
Basingstoke, Hampshire
RG21 4HJ





Reside Developments Ltd

LAND AT BAYARDS, LEVEL MARE LANE, EASTERGATE

Odour Assessment

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QUALITY CONTROL

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EXECUTIVE SUMMARY

WSP has been commissioned by Reside Developments Ltd to undertake an odour assessment to support the outline planning application for the development of land at Bayards Level Mare Lane, Eastergate. The proposals include up to 69 no. residential dwellings, a new access via land west of Fontwell Avenue and associated landscaping and works. The site forms a natural extension to the approved scheme at the land west of Fontwell Avenue, Phase 1 adjoining the site to the east and having been approved for development under application BN/50/20/PL.

A pre-app consultation with planning authority of the Arun District Council was carried out in March 2021. The 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 Council 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'.

This report presents the findings of the odour assessment, which considers the potential for odour from the riding school/manege to the west of the Site, to cause a risk of nuisance to future residents of the development.

Applying the survey outcomes to the odour criteria and matrix, WSP concluded that the risk of odour nuisance was considered to be negligible. Therefore, it is not considered necessary that odour mitigation is required for the proposed development at Level Mare Lane, Eastergate.

1. INTRODUCTION

- 1.1.1. WSP has been commissioned by Reside Developments Ltd to carry out an odour assessment for a Proposed Development at the land at Bayards, Level Mere Lane, Eastergate, hereafter referred to as the 'Proposed Development' or 'Application Site'.
- 1.1.2. The Application Site lies within the administrative boundary of Arun District Council (ADC). It is bordered to the north by Level Mare Lane and the total area of the Application Site is 2.52 hectares, the site is currently in agricultural pasture land use. It is proposed to develop the Application Site for up to 69 dwellings including new vehicular access via land west of Fontwell Avenue, with associated landscaping and works. The site forms a natural extension to the approved scheme at the land west of Fontwell Avenue, Phase 1 adjoining the site to the east and having been approved for development under application BN/50/20/PL.
- 1.1.3. The location of the Application Site is illustrated on Figure 1-1.



Figure 1-1 - Site Location Plan (29662C_10_Site Location Plan Rev F.pdf)

- 1.1.4. A pre-app discussion for the Proposed Development was undertaken in March 2021. 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'.

- 1.1.5. This report presents the findings of an odour assessment which considered the potential exposure of future residents of the Proposed Development to nearby odour sources.

2. LEGISLATION, POLICY & GUIDANCE

ENVIRONMENTAL PROTECTION ACT 1990

- 2.1.1. Section 79 of the Environmental Protection Act 1990 gives the following definitions of statutory nuisance relevant to odour:
- ‘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 ; and
- ‘Any accumulation or deposit which is prejudicial to health or a nuisance .
- 2.1.2. Following this, Section 80 says 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.
- 2.1.3. Currently in the UK there are no statutory standards for assessing odour nuisance. Even outside the UK, few standards exist owing to the difficulty in defining odour nuisance, in addition to problems associated with the measurement of odour and assessing compliance with any odour nuisance standards that may be applied.

National Planning Policy Framework

- 2.1.4. The Government’s overall planning policies for England are described in the National Planning Policy Framework¹. The core underpinning principle of the Framework is the presumption in favour of sustainable development, defined as:
- ‘... meeting the needs of the present without compromising the ability of future generations to meet their own needs’
- 2.1.5. One of the three overarching objectives of the NPPF is that planning should ‘to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.’
- 2.1.6. Odour can also be a planning concern, for example, because of the effect on local amenity.

Guidance on the Assessment of Odour for Planning

- 2.1.7. The IAQM Odour Guidance² provides guidance for assessing odour impacts for planning purposes. The guidance presents a range of methodologies, including sniff tests, that can be adopted for an odour assessment and highlights that some degree of professional judgement is required throughout the assessment.

¹ Ministry of Housing, Communities and Local Government (February 2019). National Planning Policy Framework.

² IAQM (2018) Guidance on the assessment of odour for planning version 1.1 [online]. Available at: <http://www.iaqm.co.uk/text/guidance/odour-guidance-2014.pdf> [Accessed April 2021].



Environment Agency H4 Odour Management

- 2.1.8. The Environment Agency's (EA) H4 guidance³ provides benchmarks against which predicted odour concentrations can be assessed and guidance for use in modelling emissions of odour from processes regulated by the EA, in addition to providing details of odour monitoring methodologies, which includes sniff tests.

National Planning Practice Guidance – Air Quality

- 2.1.9. This guidance⁴ provides a number of guiding principles on how the planning process can take into account the impact of new development on air quality and explains how much detail air quality assessments need to include for Proposed Developments, and how impacts on air quality can be mitigated. It also provides information on how air quality is taken into account by Local Authorities in both the wider planning context of Local Plans and neighbourhood planning, and in individual cases where air quality is a consideration in a planning decision.
- 2.1.10. Odour and dust should also be considered in the planning decision.

³ Environment Agency (2011). H4 Odour Management – How to comply with your environmental permit [online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/296737/geho0411btqm-e-e.pdf [Accessed April 2021].

⁴ Ministry of Housing, Communities & Local Government (March 2014). National Planning Practice Guidance



3. SCOPE & METHODOLOGY

3.1. SCOPE

3.1.1. The scope of the assessment has been determined in the following way:

- ☞ Consultation with the ADC's Environmental Health Officer (EHO) to request details of any odour complaints they received by existing local residents.
- ☞ Review the proposed masterplan to identify the location of relevant sensitive receptors.
- ☞ Review of wind-rose data for the last five years from a representative weather station, to determine the prevailing wind conditions (speed and direction) in the area of the Site.
- ☞ Undertake one site visit to complete sniff tests to determine the presence / absence of any odour and its strength. This will involve several sniff tests by an experienced WSP air quality team member. The site visit will be undertaken on suitable days when conditions are dry and there is low wind speed. The sniff tests will be carried out at locations within the Application Site itself and at additional locations downwind of the source, as appropriate and where access allows.

3.2. METHODOLOGY

ODOUR PERCEPTION

3.2.1. 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:

- ☞ an emission source - a means for the odour to get into the atmosphere;
- ☞ a pathway - for the odour to travel through the air to locations off site; and
- ☞ 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

3.2.2. 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)⁵, 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.

⁵ Environment Agency - A technical guidance note H4 Odour Management (2011).

Table 1 – Description of 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	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

- 3.2.5. 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 land⁶.
- 3.2.6. 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.
- 3.2.7. For the purposes of this assessment, the receptor locations have been chosen as the future occupants of the Level Mare Lane development site, and are represented by the site boundary in order to determine the potential for odour impact.

⁶ 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

3.2.8. The IAQM odour guidance⁷ provides classifications of receptor sensitivity to odour depending on the land use. This is summarised in Table 2 below. The proposed site at Level Mare Lane 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.

ODOUR INTENSITY SCALE

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

⁷ 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

Table 3 - VDI 3940 Odour Intensity Scale

Receptor Sensitivity	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

- 3.2.13. 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 - VDI 3940 Odour Intensity Scale

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

ODOUR DESKTOP ASSESSMENT

- 3.2.14. 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.
- 3.2.15. 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 the ADC Environmental Health department with respect to the riding school as a potential odour source.
- 3.2.16. 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, if detected, were recorded, using the FIDOR significance criteria.
- 3.2.17. 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 Level Mare Lane.
- 3.2.18. 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. Appendix A shows the wind rose of Thorney Island station.

SNIFF TESTING

- 3.2.19. Sniff testing is a common form of odour monitoring and assessment, which involves a competent individual recording the presence and nature of odour detected at various points in proximity to a potential source of odour. Sniff tests provide a snapshot of odour during the conditions prevailing at the time of the assessment, and due to the qualitative nature of the assessment, allows only an estimate of the odour impact to be made. There is currently no UK national standard method for undertaking sniff testing and therefore the procedure and odour reporting from given in Appendix 2 of the IAQM's Odour Guidance and the EA's publication :H4 Odour Management~have been used for this assessment.

ODOUR SNIFF TEST PROCEDURE

- 3.2.20. 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.

3.2.21. 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

3.2.22. In order to inform the assessment, site visit and odour sniff testing were undertaken in and around the Application Site on the 13th August 2021. Further details of the sniff tests and their findings are provided in Chapter 4.

LIMITATION OF THE ODOUR SURVEY

- 3.2.23. 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.
- 3.2.24. Monitoring was subject to the meteorological conditions occurring at the time of the survey.



4. ODOUR ASSESSMENT

4.1. DESKTOP ASSESSMENT

ODOUR SOURCE

- 4.1.1. The Proposed Development site is located within a rural setting and remote from any industrial or waste activities, the typical source of dour and odour nuisance.
- 4.1.2. Immediately to the west of the proposed site is a riding school/manege, it has been suggested this activity could represent a potential odour source. This activity and location, immediately to the west to the proposed site was the principle subject of this assessment.
- 4.1.3. From communications with EHO received on 24th August 2021, WSP were not made aware of any previous complaints made regarding odour from the adjacent riding school. Therefore, the riding school is considered to have a small source odour potential using the criteria given in the IAQM Odour Guidance.

SENSITIVE RECEPTORS

- 4.1.4. The Proposed Development includes the construction of up to 70 residential dwellings. Using the IAQM Odour Guidance criteria, occupants of the proposed residential dwellings are high sensitivity receptors.

METEOROLOGICAL CONDITIONS

- 4.1.5. It can be observed from Appendix A that for all of years of local meteorological data (2015 - 2019), the prevailing wind direction across the Level Mare Lane site appear to the south westerly. Therefore, any odour arising from the riding school to the west of the Site, is likely to impact upon occupants of the Proposed Development.

ODOUR PATHWAY EFFECTIVENESS

- 4.1.6. The closest proposed residential receptors to the riding school will be those located adjacent to the north-western boundary of the Application Site. Based on the prevailing wind direction (southwest), any odour from the riding school will blow towards the northern part of the proposed site for the majority of time.
- 4.1.7. Native hedgerow with trees to the edge of Level Mare Lane to the north and Bayards Stables to south-east will form a green corridor along the site boundary.
- 4.1.8. The overall odour pathway effectiveness is therefore considered to be moderately effective.

RISK OF ODOUR EXPOSURE AND EFFECTS

- 4.1.9. Using the IAQM Odour Guidance matrix, the risk of future residents being exposed to odour from the riding school is Negligible. The likely magnitude of odour effect at the Proposed Development is, therefore, negligible effect.

Table 5 - Summary of desktop assessment likely odour effect

Source Odour Potential	Pathway	Odour Exposure Risk	Receptor Sensitivity	Likely Odour Effect
Small	Moderate	Negligible	High	Negligible

4.2. SNIFF TEST FINDING

- 4.2.1. A member of the WSP air quality team undertook a boundary walk of the Application Site at Level Mare Lane as part of the odour survey sniff test on 13th August 2021. 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. The staff member repeated the perimeters walk four times to gain any variation that may occur on-site.



Figure 4-1 - Sniff Testing Locations

- 4.2.2. On the day of the site survey, the weather was sunny with light west-southwest winds, ambient temperature was around 20°C and the ground condition was dry. The sniff tests were conducted between the hours of 11:30 to 13:00.
- 4.2.3. Table 6 below summarises the observations and outcome of the odour survey sniff test. Site observations are shown in Appendix B.

Table 6 - Sniff Test Observations

Survey Location	Activity / Source / Odour Description	Odour Intensity
1	Straw and animal (horse)	2
2	Animal (horse)	2
3	Horse manure and warm rubber	4
4	Animal (horse)	3
5	Horse manure	4
6	Animal (horse)	3
7	Animal (horse)	2
8	Horse manure	2

- 4.2.4. During the site visit, and subsequent sniff test, few odour sources were detected, and those identified were between weak and strong strength, and odour character is easily recognisable. The odour was associated with the adjacent riding school (horse manure and warm rubber) and, in particular the animal (horses) present in the field located within the proposed development site. The maximum odour intensity observed during the site visits was 4, i.e. strong odour and the odour character was easily recognisable.
- 4.2.5. A proportion of odour detected was considered to originate from the presence of horses within the field located within the proposed development site, which will be removed, and therefore no longer a odour source, should the proposed development go ahead.
- 4.2.6. Applying the survey outcomes to the IAQM odour criteria and matrix, and removing the risk of odour from horses located within the proposed development site, it is concluded that the overall odour effect observed was considered to be negligible. Therefore, it is not considered necessary that odour mitigation is required for the Proposed Development at Level Mare Lane, Eastergate.



5. CONCLUSIONS

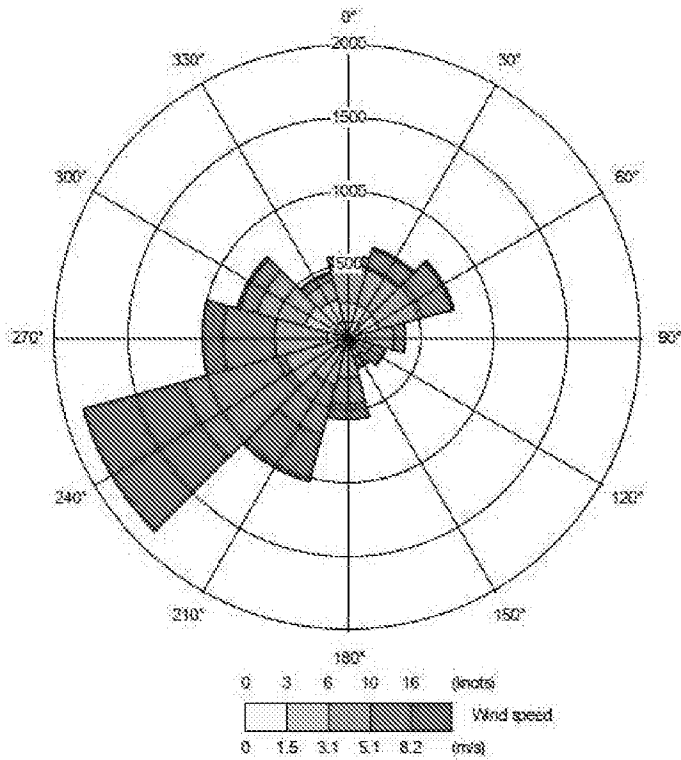
- 5.1.1. On behalf of Reside Developments, WSP have conducted an Odour Assessment of the Proposed Development at Level Mare Lane, Eastergate, Hampshire.
- 5.1.2. The assessment has set out to determine the potential of odour risk from the adjacent riding school and manege upon proposed residential properties at the Level Mare Lane. The Odour Assessment was qualitative and took the form of an odour survey and sniff test during a site visit.
- 5.1.3. The maximum odour intensity observed during the site visits was 4, i.e. strong odour and the odour character was easily recognisable, though largely originating from presence of horses which will be removed should the proposed development go ahead.
- 5.1.4. Using the IAQM Odour Guidance matrix, the risk of future residents being exposed to odour from the riding school is Negligible. The likely magnitude of odour effect at the Proposed Development is therefore, a negligible effect.
- 5.1.5. Applying the survey outcomes to the IAQM 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 Level Mare Lane, Eastergate.

Appendix A

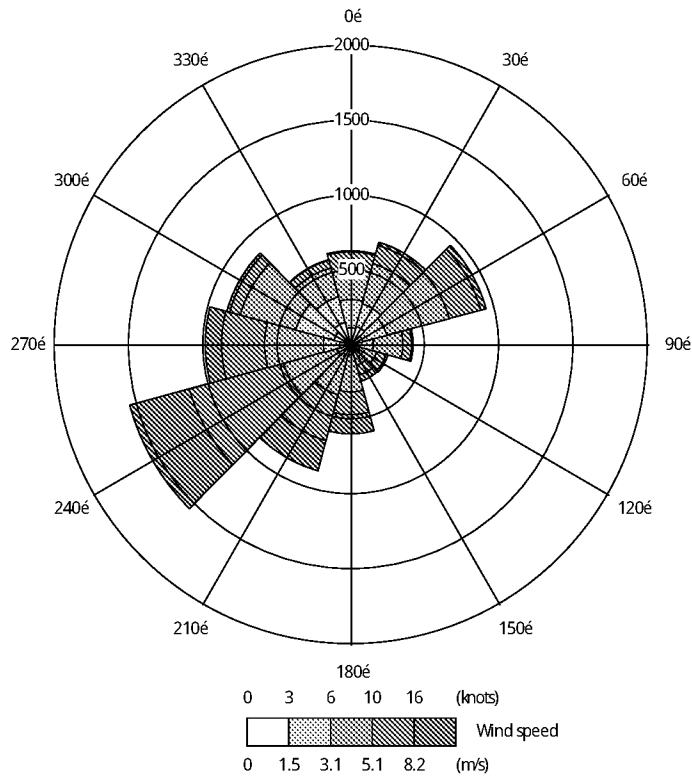
WIND ROSE



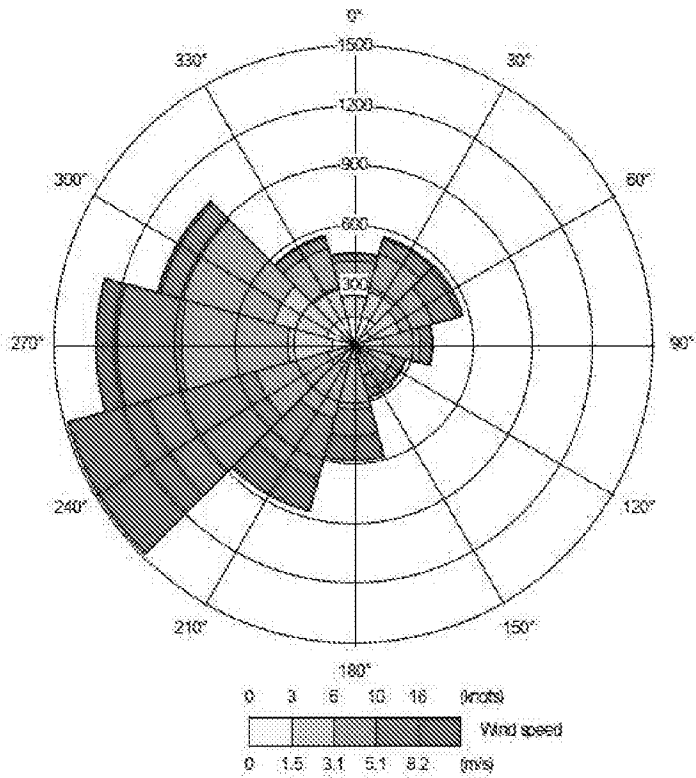
2015 Wind Rose



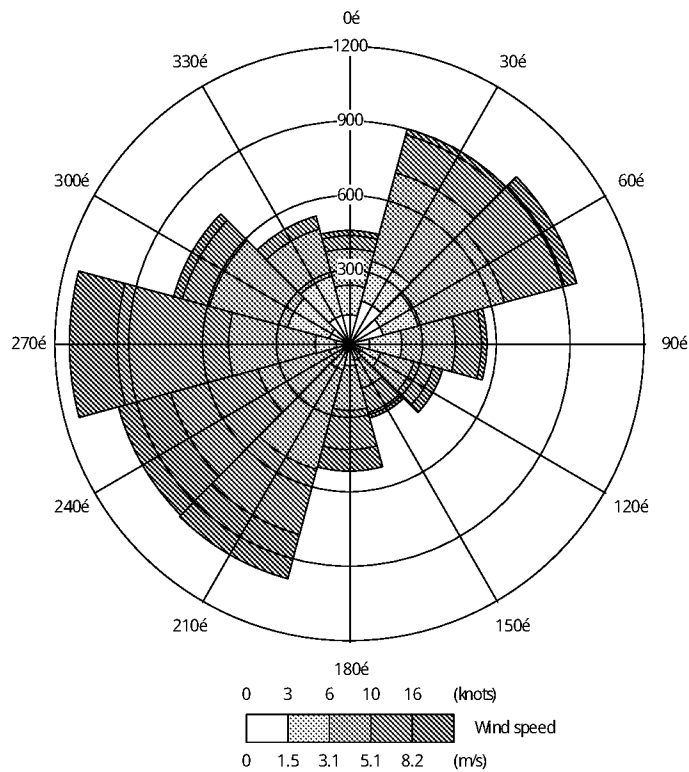
2016 Wind Rose



2017 Wind Rose

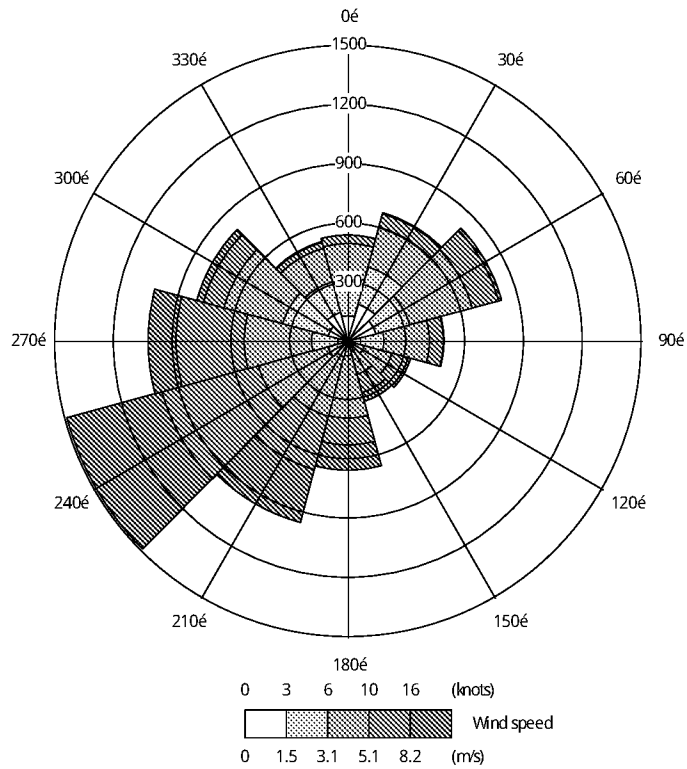


2018 Wind Rose





2019 Wind Rose



Appendix B

SITE OBSERVATION PICTURES

115/1



Figure B-1 - Stable cleaning



Figure B-2 - Horses in the field within the proposed development



Mountbatten House
Basing View
Basingstoke, Hampshire
RG21 4HJ



Report Presented by:

WSP

Mountbatten House,

Basing View,

Basingstoke,

Hampshire,

RG21 4HJ



Reside Developments Ltd
The Dutch House
132 - 134 High Street
Dorking
Surrey
RH4 1BG