

ENVIRONMENT

SMAA Developments Limited
Throckmorton Wider Site
Throckmorton
Air Quality and Odour Site Appraisal

February 2020

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1. INTRODUCTION

- 1.1 BWB Consulting Ltd were appointed by SMAA Developments Limited to provide an appraisal of the wider Throckmorton Site with regard to air quality and odour.
- 1.2 The appraisal was based on the draft masterplan (zeb1376) prepared by Zebra Architects.

Aims

- 1.3 The aim of this appraisal is to highlight the potential air quality and odour constraints to the Site based on the draft masterplan, advise of any further preliminary survey work that may be required to inform the ongoing development of the masterplan and identify the likely assessment work required to support any future planning applications.

Methodology

- 1.4 This report forms an initial assessment of potential air quality and odour constraints based on the following sources of information:
- A review of OS mapping and online aerial imagery;
 - A review of local air quality monitoring data;
 - A review of the local authority planning portal; and
 - A site walkover undertaken on 29/01/2020 to experience the odour environment present at the Site during the walkover.
- 1.5 No consultation was undertaken with Wychavon District Council (WDC), Worcestershire Regulatory Services (WRS) or other local stakeholders or authorities during the appraisal. The appraisal is based on the most recent, freely available information and one Site walkover.

2. SITE DESCRIPTION

- 2.1 The wider Throckmorton Site lies within the administrative area of WDC and is centred around the existing Throckmorton airfield with the red line boundary extending in all directions to cover a variety of existing land uses. The red line boundary and Site location are illustrated in **Figure 2.1**.
- 2.2 To the north of the Throckmorton airfield lies a poultry farm and commercial unit with agricultural land and a number of residential dwellings to the north of the wider Site boundary. To the east of the airfield lies the village of Throckmorton with agricultural land and a small number of residential dwellings to the east of the wider Site boundary.
- 2.3 The south of the airfield is bordered by parkland, the Hill and Moor Waste Management landfill facility and agricultural land with the A44 forming the southern boundary of the wider Site with agricultural land and the village of Wyre Piddle beyond.
- 2.4 To the west of the airfield lies Ridgeway Park Farm with the Vale Green Energy biomethane plant, agricultural land and residential dwellings including the village of Pinvin beyond the wider Site boundary.
- 2.5 The Site currently comprises a mix of agricultural, industrial, commercial and residential uses.

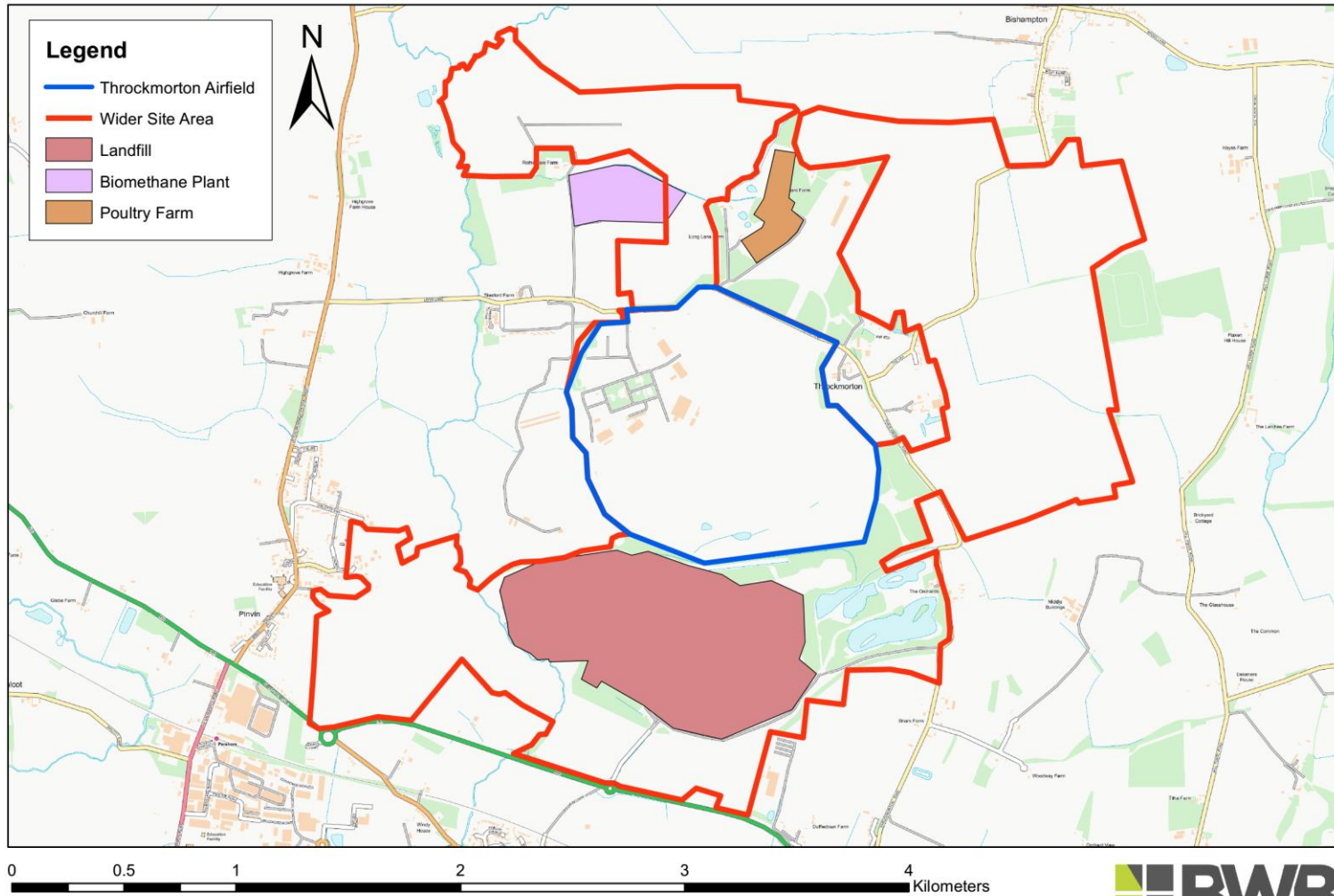


Figure 2.1: Site Location and Identified Odour Sources

Drawn by: FH Date: 06/02/2020

3. PRIMARY CONSTRAINTS

- 3.1 It is understood that the masterplan and land ownerships remain fluid and it was unknown at the time of writing whether or not any identified sources of pollutants or odour would remain as part of the proposed development. For the purpose of the Site appraisal, it was assumed that all existing sources could remain in the future.
- 3.2 The predominant source of pollutants in the vicinity of the Site is considered to be road traffic emissions, with a number of arterial A roads and B roads travelling through, and in close proximity to the Site. Emissions from road traffic travelling on these roads have the potential to influence pollutant concentrations within the Site.
- 3.3 The predominant sources of odour in the vicinity of the Site are considered to be the poultry farm, landfill and biomethane plant. The locations of these installations are illustrated in Figure 2.1.

Air Quality

Local Air Quality Management

- 3.4 The Site is not located within, or in close proximity to, an existing Air Quality Management Area (AQMA). The nearest AQMA to the Site is located approximately 8.6km northwest of the Site in Worcester. The Worcester City AQMA was declared by Worcester City Council for potential exceedances of the annual mean nitrogen dioxide (NO₂) objective.

Local Air Quality Monitoring

Nitrogen Dioxide (NO₂)

- 3.5 WDC undertake NO₂ monitoring within their administrative area. The closest monitoring to the Site is located in Pershore, approximately 2.6km southwest of the Site. **Table 3.1** details the results of NO₂ monitoring at the closest locations to the Site.

Table 3.1: WDC NO₂ Monitoring Data 2014 - 2018

Monitoring Location	Grid Reference		Site Type	Concentration (µg.m ⁻³)				
				2014	2015	2016	2017	2018
EPS8 – 40 High Street, Pershore	395048	245527	Roadside	26.3	26.3	28.6	22.9	26.9
EPS9 – St Andrews Road, Pershore	394571	245377	Suburban	15.6	11.9	13.3	10.5	12.0

- 3.6 The monitored annual mean NO₂ concentrations closest to the Site were well below the annual mean objective of 40µg.m⁻³ for the past five years.

Particulate Matter (PM₁₀ and PM_{2.5})

- 3.7 WDC do not monitor PM₁₀ or PM_{2.5} concentrations in their administrative area.

Masterplan Review

- 3.8 The draft masterplan prepared by Zebra Architects was reviewed with regard to air quality constraints. The draft masterplan includes a number of sensitive uses proposed across the wider Site including residential, educational and healthcare facilities. The residential, educational and healthcare uses are centred around Throckmorton airfield and the northeast and eastern areas of the wider Site, away from the main road network.
- 3.9 As the Site is not located in an existing area of poor air quality, and the sensitive uses are set away from the main road network, it is considered unlikely that air quality will significantly influence the design, based on the current masterplan. It is recommended that future masterplan revisions retain a good stand off distance between the main road network and any sensitive uses to reduce the exposure of future occupants of the Site to elevated pollutant concentrations as a result of road traffic.

Odour

- 3.10 There are a number of potential odour sources within, and in proximity to, the wider Site. A Site visit was undertaken, and a series of odour sniff tests carried out to experience the baseline odour environment near the identified odour sources.

Potential Sources of Odour

- 3.11 A summary of each potential odour source is detailed below.

Vale Green Energy Biomethane Plant

- 3.12 The Vale Green Energy biomethane plant is located to the west of the wider Site boundary, north of Long Lane. The biomethane plant utilises agricultural feedstock which is stored at the facility prior to processing. The delivery, storage and processing operations at the biomethane plant have the potential to give rise to odorous emissions which may influence amenity at proposed nearby sensitive uses.

Pershore Poultry Farm

- 3.13 The Pershore Poultry Farm is located to the north of Throckmorton airfield and enclosed by the wider Site boundary. The poultry farm has the potential to give rise to odorous emissions as a result of operations at the farm including the housing of more than 200,000 broiler chickens and the cleaning and maintenance of the poultry sheds.

Hill and Moor Waste Management Landfill

- 3.14 The Hill and Moor Waste Management landfill is located immediately south of Throckmorton airfield, within the wider Site boundary. Operations at the landfill,

including the storage and burial of waste, have the potential to give rise to odorous emissions.

Odour Survey Results

- 3.15 A total of 21 odour sniff tests were taken at publicly accessible locations close to the identified potential odour sources. The location of odour sniff tests is illustrated in **Figure 3.1**.

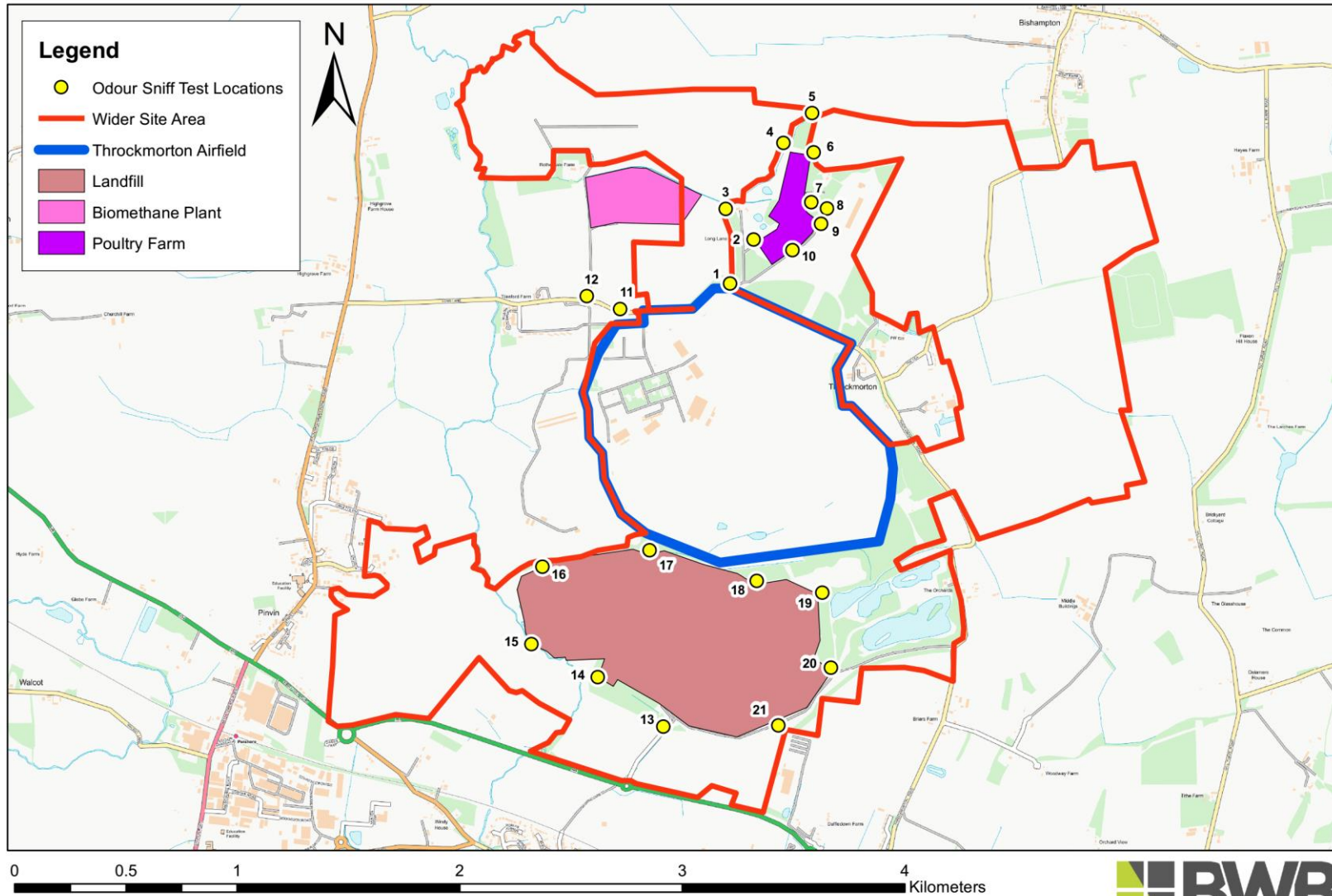


Figure 3.1: Odour Sniff Test Locations

Drawn by: FH Date: 05/02/2020

Vale Green Energy Biomethane Plant

- 3.16 Odour sniff testing in the vicinity of the biomethane plant identified a distinct manure-like smell at Location 3, approximately 150m east of the plant. It was considered that this smell was from the biomethane plant due to the nature of the odour detected and the westerly wind direction which placed the plant upwind of the sniff testing location.
- 3.17 No other odours were detected that were considered to be attributable to the plant during the odour survey.
- 3.18 Based on the nature of the odour and the distance from the source, it is considered possible that odours associated with the biomethane plant may influence amenity for future occupants of the Site. The draft masterplan includes employment uses in the vicinity of the biomethane plant, which are considered less sensitive to odours than residential uses and it is therefore advised that these uses remain where proposed. Highly sensitive uses such as residential, educational and healthcare uses should not be located in close proximity to the biomethane plant to reduce the risk of amenity issues as a result of odorous emissions from the biomethane plant.

Pershore Poultry Farm

- 3.19 Odour sniff testing in the vicinity of the poultry farm identified a very strong, offensive odour at Locations 6, 7, 8 and 9 which was attributed to the poultry farm due to the nature of the odour and the location of the poultry farm upwind of the sniff test locations.
- 3.20 A review of WDC's online planning portal identified that the poultry farm submitted a planning application for an extension in 2012. Representations from members of the local public objecting to the scheme included repeated references to odour complaints from the settlement of Bishampton. Bishampton is located approximately 1.2km northeast of the poultry farm.
- 3.21 A review of 2018 meteorological data from the Pershore recording station located at Throckmorton airfield identified a predominant south-westerly wind direction. The draft masterplan includes a large area of proposed residential use to the east and south of the poultry farm, closer to the poultry farm than Bishampton.
- 3.22 Taking into account the prevailing wind direction, the findings of the odour sniff tests and the odour complaints identified on the planning portal, it is considered that there is a significant risk that odorous emissions associated with the poultry farm may influence amenity in the proposed residential areas.
- 3.23 A reallocation of land uses to provide employment uses to the east and south of the poultry farm and residential uses to the south of the airfield, well away from the poultry farm, may reduce the potential for amenity issues. It should be noted that odour complaints data were not obtained from WDC or WRS and therefore, further odour complaints may exist in the vicinity of the Site. Additionally, the odour sniff testing was undertaken in January when temperatures are generally cooler than the summer

months and there is therefore a risk that odorous emissions are more prevalent in the warmer months which was able to be considered in this appraisal.

Hill and Moor Waster Management Landfill

- 3.24 Odour sniff testing in the vicinity of the landfill did not detect any odours. The odour survey was undertaken during January which is typically a less-odorous month due to cooler conditions reducing the potential for odours to be released. It is therefore possible that odours could arise from activities at the landfill in warmer months however, it is understood that the landfill will be fully restored prior to the development being occupied. It is therefore unlikely that odours from the landfill will significantly influence amenity within the Site.

4. RECOMMENDED MITIGATION

Air Quality

- 4.1 Based on the current draft masterplan and the identified sources of pollutants in the area around the Site, it is considered unlikely that air quality will significantly influence the Site. Where possible, sensitive uses such as residential dwellings, schools and healthcare facilities should be located away from main roads to reduce exposure to emissions associated with road traffic.

Odour

- 4.2 The Site is located close to a number of existing odour sources that have the potential to influence amenity at sensitive proposed receptors within the Site. The Pershore Poultry Farm is considered to be the most significant source of odours based on the odour sniff testing and evidence of local odour complaints. The biomethane plant also has the potential to influence amenity for future occupants of the Site.
- 4.3 It is recommended that employment or commercial uses are located closest to the poultry farm and biomethane plant as these uses are considered less sensitive to odours than residential uses. A stand off distance may still be required to reduce the frequency with which odours may affect neighbouring uses.
- 4.4 It is advised that the residential parcels to the south and east of the poultry farm are relocated to the southern portion of the Site to increase the distance from the source of odours and reduce the potential for significant amenity issues to arise as a result of odorous emissions.
- 4.5 It is also recommended that further odour survey work is undertaken between April and September when weather is typically drier and warmer and therefore odours are more prevalent. This should be undertaken to determine whether further odour issues are identified during the warmer months that may further influence the masterplan.
- 4.6 **Table 4.1** details a summary of the findings of the appraisal, recommended mitigation and further works required.

Table 4.1: Air Quality and Odour Constraints Summary

Key Potential Constraints	Potential Issue Identified	Potential Masterplan Considerations	Mitigation Required?	Further Works Required for Masterplan?	Works for Planning Application
Existing odour emissions	Yes	Yes	Yes	Yes	Yes – qualitative odour assessment including three site visits and odour impact assessment

Key Potential Constraints	Potential Issue Identified	Potential Masterplan Considerations	Mitigation Required?	Further Works Required for Masterplan?	Works Planning for Application
Road traffic emissions	No	Yes	No	No	Yes – quantitative operational phase road traffic emissions impact and exposure assessment