Air Quality Assessment

High Street, Hauxton

Report Reference: CE-HC-1628-RP01-Final

Date: 11th October 2019

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1 INTRODUCTION

1.1 BACKGROUND

1.1.1 Redrow Homes Limited commissioned Crestwood Environmental Ltd to undertake an Air Quality Assessment in support of the allocation of a parcel of land off High Street, Hauxton, for residential use through the development plan process.

1.1.2 The proposals have the potential to expose future residents to elevated pollution levels. As such, an Air Quality Assessment was undertaken in order to define baseline conditions, identify any potential constraints to residential land use and support the site allocation within the forthcoming development plan.

1.2 SITE LOCATION AND CONTEXT

1.2.1 The site is located on land off High Street, Hauxton, at approximate National Grid Reference (NGR): 544318, 251702. Reference should be made to Figure 1 for a map of the site and surrounding area.

1.2.2 Subject to allocation, it is proposed to develop the site for residential land use with associated infrastructure.

1.2.3 The site is located to the west of the M11 motorway and associated vehicle exhaust emissions. Additionally, there is a railway line to the south. These sources may result in poor air quality at any future development and subsequent exposure of occupants to elevated pollutant concentrations. As such, an Air Quality Assessment was undertaken in order to determine baseline conditions, consider site suitability for the proposed end use and assess potential impacts as a result of the scheme. This is detailed in the following sections.

2 LEGISLATION AND POLICY

2.1 EUROPEAN DIRECTIVES

2.1.1 European Union (EU) air quality legislation is provided within Directive 2008/50/EC, which came into force on 11th June 2008. This Directive consolidated previous legislation which was designed to deal with specific pollutants in a consistent manner and provided new Air Quality Limit Values (AQLVs) for particulate matter with an aerodynamic diameter of less than 2.5µm. The consolidated Directives include:

- Directive 1999/30/EC - the First Air Quality "Daughter" Directive - sets ambient AQLVs for nitrogen dioxide (NO_2), oxides of nitrogen (NO_x), sulphur dioxide, lead and particulate matter with an aerodynamic diameter of less than 10µm (PM_{10});
- Directive 2000/69/EC - the Second Air Quality "Daughter" Directive - sets ambient AQLVs for benzene and carbon monoxide; and,
- Directive 2002/3/EC - the Third Air Quality "Daughter" Directive - seeks to establish long-term objectives, target values, an alert threshold and an information threshold for concentrations of ozone in ambient air.

2.1.2 The fourth daughter Directive was not included within the consolidation and is described as:

- Directive 2004/107/EC - sets health-based limits on polycyclic aromatic hydrocarbons, cadmium, arsenic, nickel and mercury, for which there is a requirement to reduce exposure to as low as reasonably achievable.

2.2 UK LEGISLATION

2.2.1 The Air Quality Standards Regulations (2010) came into force on 11th June 2010 and transpose EU Directive 2008/50/EC into UK law. AQLVs were published in these regulations for 7 pollutants, as well as Target Values for an additional 5 pollutants.

2.2.2 Part IV of the Environment Act (1995) requires UK government to produce a national Air Quality Strategy (AQS) which contains standards, objectives and measures for improving ambient air quality. The most recent AQS was produced by the Department for Environment, Food and Rural Affairs (DEFRA) and published in July 2007[1]. The AQS sets out Air Quality Objectives (AQOs) that are maximum ambient pollutant concentrations that are not to be exceeded either without exception or with a permitted number of exceedences over a specified timescale. These are generally in line with the AQLVs, although the requirements for the determination of compliance vary.

2.2.3 Table 1 presents the AQOs for pollutants considered within this assessment.

[1] The AQS for England, Scotland, Wales and Northern Ireland, DEFRA, 2007.

Table 1 Air Quality Objectives

Pollutant	Air Quality Objective	
	Concentration (µg/m^3)	Averaging Period
NO_2	40	Annual mean
	200	1-hour mean, not to be exceeded on more than 18 occasions per annum
PM_{10}	40	Annual mean
	50	24-hour mean, not to be exceeded on more than 35 occasions per annum

2.2.4 Table 2 summarises the advice provided in DEFRA guidance[2] on where the AQOs for pollutants considered within this report apply.

Table 2 Examples of Where the Air Quality Objectives Apply

Averaging Period	Objective Should Apply At	Objective Should Not Apply At
Annual mean	All locations where members of the public might be regularly exposed Building façades of residential properties, schools, hospitals, care homes etc	Building façades of offices or other places of work where members of the public do not have regular access Hotels, unless people live there as their permanent residence Gardens of residential properties Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term
24-hour mean	All locations where the annual mean objective would apply, together with hotels Gardens of residential properties	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term
1-hour mean	All locations where the annual mean and 24 and 8-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets) Those parts of car parks, bus stations and railway stations etc which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer	Kerbside sites where the public would not be expected to have regular access

2.3 LOCAL AIR QUALITY MANAGEMENT

2.3.1 Under Section 82 of the Environment Act (1995) (Part IV) Local Authorities (LAs) are required to periodically review and assess air quality within their area of jurisdiction under the system of Local Air Quality Management (LAQM). This review and assessment of air quality involves comparing

[2] Local Air Quality Management Technical Guidance (TG16), DEFRA, 2018.

present and likely future pollutant concentrations against the AQOs. If it is predicted that levels at locations of relevant exposure, as summarised in Table 2, are likely to be exceeded, the LA is required to declare an Air Quality Management Area (AQMA). For each AQMA the LA is required to produce an Air Quality Action Plan (AQAP), the objective of which is to reduce pollutant concentrations in pursuit of the AQOs.

2.4 NATIONAL PLANNING POLICY

2.4.1 The National Planning Policy Framework[3] (NPPF) was published in February 2019 and sets out the Government's planning policies for England and how these are expected to be applied.

2.4.2 The purpose of the planning system is to contribute to the achievement of sustainable development. In order to ensure this, the NPPF recognises three overarching objectives, including the following of relevance to air quality:

"c. An environmental objective - 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."

2.4.3 Chapter 15 of the NPPF details objectives in relation to conserving and enhancing the natural environment. It states that:

"Planning policies and decisions should contribute to and enhance the natural and local environment by:

[…]

e) 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. Development should, wherever possible, help to improve local environmental conditions such as air and water quality […]"

2.4.4 The NPPF specifically recognises air quality as part of delivering sustainable development and states that:

"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."

2.4.5 The implications of the NPPF have been considered throughout this assessment.

[3] NPPF, Ministry of Housing, Communities and Local Government, 2019.

2.5 NATIONAL PLANNING PRACTICE GUIDANCE

2.5.1 The National Planning Practice Guidance[4] (NPPG) web-based resource was launched by the Department for Communities and Local Government on 6th March 2014 to support the NPPF and make it more accessible. The air quality pages are summarised under the following headings:

1. Why should planning be concerned about air quality?
2. What is the role of Local Plans with regard to air quality?
3. Are air quality concerns relevant to neighbourhood planning?
4. What information is available about air quality?
5. When could air quality be relevant to a planning decision?
6. Where to start if bringing forward a proposal where air quality could be a concern?
7. How detailed does an air quality assessment need to be?
8. How can an impact on air quality be mitigated?
9. How do considerations about air quality fit into the development management process?

2.5.2 These were reviewed and the relevant guidance considered as necessary throughout the undertaking of this assessment.

2.6 LOCAL PLANNING POLICY

2.6.1 The South Cambridgeshire Local Plan[5] (SCLP) was adopted by South Cambridgeshire District Council (SCDC) in September 2018. The SCLP sets out the planning policies and land allocations to guide the future development of the district up to 2031.

2.6.2 A review of the SCLP indicated the following policy in relation to air quality that is relevant to this assessment:

"Policy SC/12: Air Quality

1. Where development proposals would be subject to unacceptable air quality standards or would have an unacceptable impact on air quality standards they will be refused.

[…]

5. Development will be permitted where:

a. it can be demonstrated that it does not lead to significant adverse effects on health, environment or amenity from emissions to air; or

b. Where a development is a sensitive end use, that there will not be any significant adverse effects on health, the environment or amenity arising from existing poor air quality.

[…]

4 http://planningguidance.planningportal.gov.uk.
5 SCLP, SCDC, 2018.

7. Applicants shall, where appropriate, prepare and submit with their application, a relevant assessment, taking into account guidance current at the time of the application."

2.6.3 The above policy was taken into consideration as necessary throughout the undertaking of the assessment.

3 BASELINE

3.1 INTRODUCTION

3.1.1 Existing air quality conditions in the vicinity of the proposed site were identified in order to provide a baseline for assessment. These are detailed in the following Sections.

3.2 LOCAL AIR QUALITY MANAGEMENT

3.2.1 As required by the Environment Act (1995), South Cambridgeshire District Council (SCDC) has undertaken Review and Assessment of air quality within their area of jurisdiction. This process has indicated that annual mean concentrations of NO_2 and 24-hour mean concentrations of PM_{10} are above the AQOs within the district. As such, one AQMA has been declared. This is described as follows:

"An area along the A14 between Bar Hill and Milton"

3.2.2 The AQMA is located approximately 9km north of the site. It is considered unlikely the proposals would cause air quality impacts over a distance of this magnitude. As such the AQMA has not been considered further in the context of the assessment.

3.2.3 SCDC has concluded that concentrations of all other pollutants considered within the AQS are currently below the relevant AQOs. As such, no further AQMAs have been designated.

3.3 AIR QUALITY MONITORING

3.3.1 Monitoring of pollutant concentrations is undertaken by SCDC throughout their area of jurisdiction. Recent results from sites in the vicinity of the development are shown in Table 3.

Table 3 Monitoring Results - NO_2

Monitoring Site		Monitored NO_2 Concentration (µg/m^3)		
		2016	2017	2018
DT8	20 High Street, Tadlow	28.6	27.3	-
DT-8N	47 High Street, Hauxton	-	-	17.3

3.3.2 As shown in Table 3, annual mean NO_2 concentrations were below the relevant AQO at both monitoring locations during recent years. Reference should be made to Figure 2 for a map of the survey positions.

3.3.3 SCDC does not undertake monitoring of PM_{10} concentrations within the vicinity of the site.

3.4 BACKGROUND POLLUTANT CONCENTRATIONS

3.4.1 Predictions of background pollutant concentrations on a 1km by 1km grid basis have been produced by DEFRA for the entire of the UK to assist LAs in their Review and Assessment of air quality. The proposed site is located in grid square NGR: 544500, 251500. Data for this location was

downloaded from the DEFRA website[6] for the purpose of this assessment and is summarised in Table 4.

Table 4 Background Pollutant Concentrations

Monitoring Site	Predicted Background Concentration (µg/m^3)		
	2018	**2019**	**2021**
NO_2	12.42	11.86	10.78
PM_{10}	17.26	17.06	16.70

3.4.2 As shown in Table 4, predicted background NO_2 and PM_{10} concentrations are below the relevant AQOs at the development site.

3.5 RAIL EMISSIONS

3.5.1 The development site is bound to the south by the Cambridge-London Rail Line. Diesel locomotives are a source of atmospheric emissions and research has shown that NO_2 concentrations can be elevated alongside rail lines with a large number of movements[7]. DEFRA has therefore issued guidance on the assessment of potential impacts for use in the LAQM process. This is a staged approach, which aims to screen out low risk locations from further works.

3.5.2 The first stage in the process is to determine whether the relevant rail line has been identified by DEFRA as having a heavy traffic of diesel trains. Review of the DEFRA guidance[8] indicated the Cambridge-London Rail Line has not been identified as high risk. As such, it is considered locomotive emissions are unlikely to significantly affect air quality conditions at the proposed development site and the rail line has not been considered further in the context of this assessment.

6 http://uk-air.defra.gov.uk/data/laqm-background-maps?year=2017.
7 Local Air Quality Management Technical Guidance (TG16), DEFRA, 2018.
8 Local Air Quality Management Technical Guidance (TG16), DEFRA, 2018.

4 METHODOLOGY

4.1 INTRODUCTION

4.1.1 The proposals have the potential to expose future residents to poor air quality. Pollutant concentrations were therefore quantified across the site using dispersion modelling. The results were subsequently compared with the relevant AQOs to determine the potential for any exceedence.

4.2 DISPERSION MODEL

4.2.1 Dispersion modelling was undertaken using the ADMS-Roads dispersion model (version 4.1.1.0). ADMS-Roads is developed by Cambridge Environmental Research Consultants (CERC) and is routinely used throughout the world for the prediction of pollutant dispersion from road sources. Modelling predictions from this software package are accepted within the UK by the Environment Agency and DEFRA.

4.2.2 Modelling was undertaken for 2018 to allow verification against recent monitoring results and 2021 to represent the potential occupation year of the development.

4.2.3 The model requires input data that details the following parameters:

- Assessment area;
- Traffic flow data;
- Vehicle emission factors;
- Spatial co-ordinates of emissions;
- Street width;
- Meteorological data;
- Roughness length (z_0); and,
- Monin-Obukhov length.

4.2.4 These are detailed in the following Sections.

4.3 ASSESSMENT AREA

4.3.1 Ambient concentrations were predicted over the area NGR: 543810, 251360 to 544650, 252200. One Cartesian grid was used within the model to produce data suitable for contour plotting using the Surfer software package.

4.3.2 It should be noted that although the grid only covered the proposed site, road links were extended in order to ensure the impact of all relevant vehicle emissions in the vicinity of the development were considered.

4.3.3 Reference should be made to Figure 3 for a graphical representation of the assessment grid

extents.

4.4 TRAFFIC FLOW DATA

4.4.1 Traffic data for use in the assessment, including 24-hour Annual Average Daily Traffic (AADT) flows and fleet composition as Heavy Duty Vehicle (HDV) proportion, was obtained from the Department for Transport (DfT)[9]. The DfT web tool enables the user to view and download traffic flows on every link of the 'A' road and motorway network, as well as selected minor roads in Great Britain for the years 1999 to 2018. It should be noted that the DfT is referenced in DEFRA guidance[10] as being a suitable source of data for air quality assessments and it is therefore considered to provide a reasonable estimate of traffic flows in the vicinity of the site.

4.4.2 Traffic data was not available from the DfT for Church Road/High Street. Flows from Long Lane were therefore applied to this link in order to ensure all roads in the vicinity of the site were included in the model. Church Road/High Street and Long Lane are both unclassified roads situated within SCDC's administrative extents. As such, similar vehicle movements would be anticipated. The data was therefore considered an appropriate representation of traffic flow in lieu of other sources.

4.4.3 Baseline traffic data was converted to 2021 flows utilising a factor obtained from TEMPro (version 7.2). This software package has been developed by the DfT to calculate traffic growth throughout the UK.

4.4.4 Road widths were estimated from aerial photography and UK highway design standards. A summary of the traffic data is provided in Table 5.

Table 5 Traffic Data

Link		24-hour AADT Flow		HDV Prop. of Fleet (%)	Road Width (m)	Avg. Vehicle Speed (km/h)
		2018	2021			
L1	A10 Royston Road	15,977	16,841	3.00	7.7	45
L2	A10 Cambridge Road	15,977	16,841	3.00	7.5	65
L3	Church Road/ High Street	2,614	2,783	2.84	7.5	45
L4	M11 Northbound	28,584	30,130	15.41	7.8	95
L5	M11 Southbound	29,208	30,788	13.39	7.8	95

4.4.5 Reference should be made to Figure 3 for a graphical representation of the road link locations.

4.5 EMISSION FACTORS

4.5.1 Emission factors for each link were calculated using the relevant traffic flows and the Emissions Factor Toolkit (version 9.1). This has been produced by DEFRA and incorporates updated COPERT5 vehicle emission factors and fleet information.

4.5.2 There is current uncertainty over NO_2 concentrations within the UK, with the implementation of

9 https://roadtraffic.dft.gov.uk/manualcountpoints.
10 Local Air Quality Management Technical Guidance (TG16), DEFRA, 2018.

new vehicle emission standards not resulting in the previously expected reduction in roadside levels. Therefore, 2018 emission factors were utilised in preference to 2021 in order to provide robust concentration predictions. As predictions for 2018 were verified, it is considered the results are an indication of worst case concentrations during the operation of the proposals.

4.6 METEOROLOGICAL DATA

4.6.1 Meteorological data used in the assessment was taken from Cambridge International Airport meteorological station over the period 1st January 2018 to 31st December 2018 (inclusive). Cambridge International Airport is located at NGR: 549096, 258866, which is approximately 8.5km north-east of the site. It is anticipated that conditions would be reasonably similar over a distance of this magnitude. The data was therefore considered suitable for an assessment of this nature.

4.6.2 All meteorological records used in the assessment were provided by Atmospheric Dispersion Modelling (ADM) Ltd, which is an established distributor of data within the UK. Reference should be made to Figure 4 for a wind rose of utilised meteorological data.

4.7 ROUGHNESS LENGTH

4.7.1 The z_0 is a modelling parameter applied to allow consideration of surface height roughness elements. A z_0 of 0.3m was used to describe the modelling extents. This value of z_0 is considered appropriate for the morphology of the area and is suggested within ADMS-Roads as being suitable for 'agricultural areas (max)'.

4.7.2 A z_0 of 0.1m was used to describe the meteorological site. This value of z_0 is considered appropriate for the morphology of the area and is suggested within ADMS-Roads as being suitable for 'root crops'.

4.8 MONIN-OBUKHOV LENGTH

4.8.1 The Monin-Obukhov length provides a measure of the stability of the atmosphere. A minimum Monin-Obukhov length of 10m was used to describe the modelling extents. This value is considered appropriate for the nature of the area and is suggested within ADMS-Roads as being suitable for 'small towns <50,000'.

4.8.2 A minimum Monin-Obukhov length of 30m was used to describe the modelling extents. This value is considered appropriate for the nature of the area and is suggested within ADMS-Roads as being suitable for 'cities and large towns'.

4.9 BACKGROUND CONCENTRATIONS

4.9.1 Background NO_2 and PM_{10} concentrations for use in the assessment were obtained from the DEFRA mapping study for the grid square containing the development site, as shown in Table 4.

4.9.2 In order to avoid 'double-counting' of NO_2 and PM_{10} road vehicle emissions, the proportion of relevant background concentrations from motorways, primary A roads and minor roads within the

grid square were removed in accordance with the methodology outlined in the DEFRA guidance[11]. These sectors were considered to be most representative of those being modelled within ADMS-Roads. Background concentrations before and after adjustment are shown in Table 6.

Table 6 Background Pollutant Concentrations - Modelling Extents

Pollutant	Predicted Background Concentration (µg/m^3)	
	Total Predicted 2018 Background	Predicted Background with Sectors Removed
NO_2	12.42	9.15
PM_{10}	17.26	12.51

4.9.3 Similarly to emission factors, background concentrations from 2018 were utilised in preference to 2021. This provided a robust assessment and is likely to overestimate pollutant concentrations during the operation of the proposal.

4.10 NO_X TO NO_2 CONVERSION

4.10.1 Predicted annual mean NO_x concentrations were converted to NO_2 concentrations using the spreadsheet (version 7.1) provided by DEFRA, which is the method detailed within DEFRA guidance[12].

4.11 VERIFICATION

4.11.1 The predicted results from a dispersion model may differ from measured concentrations for a large number of reasons, including:

- Estimates of background concentrations;
- Uncertainties in source activity data such as traffic flows and emission factors;
- Variations in meteorological conditions;
- Overall model limitations; and,
- Uncertainties associated with monitoring data, including locations.

4.11.2 Model verification is the process by which these and other uncertainties are investigated and where possible minimised. In reality, the differences between modelled and monitored results are likely to be a combination of all of these aspects.

4.11.3 For the purpose of the assessment, model verification was undertaken for 2018 using traffic data, meteorological data and monitoring results from this year.

4.11.4 Diffusion tube monitoring of NO_2 concentrations was undertaken by SCDC at one location within the vicinity of the roads included within the model during 2018. The result was obtained and the road contribution to total NO_x concentration calculated following the methodology contained

11 Local Air Quality Management Technical Guidance (TG16), DEFRA, 2018.
12 Local Air Quality Management Technical Guidance (TG16), DEFRA, 2018.

within the DEFRA guidance[13]. The monitored annual mean NO_2 concentration and calculated road NO_x concentration are summarised in Table 7.

Table 7 NO_x Verification - Monitoring Results

Monitoring Location		Monitored NO_2 Concentration ($\mu g/m^3$)	Calculated Road NO_x Concentration ($\mu g/m^3$)
DT-8N	47 High Street, Harston	17.30	15.47

4.11.5 The annual mean road NO_x concentration predicted from the dispersion model and the road NO_x concentration calculated from the 2018 monitoring results are summarised in Table 8.

Table 8 NO_x Verification - Modelling Results

Monitoring Location		Calculated Road NO_x Concentration ($\mu g/m^3$)	Modelled Road NO_x Concentration ($\mu g/m^3$)
DT-8N	47 High Street, Harston	15.47	15.65

4.11.6 The monitored and modelled road NO_x contribution concentrations were compared to calculate the associated ratio. This indicated that a verification factor of 0.9884 was required to be applied to all modelling results.

4.11.7 Monitoring of PM_{10} is not undertaken within the assessment extents. The NO_x verification factor was therefore used to adjust PM_{10} model predictions in lieu of more accurate data in accordance with DEFRA guidance[14].

13 Local Air Quality Management Technical Guidance (TG16), DEFRA, 2018.
14 Local Air Quality Management Technical Guidance (TG16), DEFRA, 2018.

5 ASSESSMENT

5.1.1 Development of the proposed site has the potential to cause the exposure of future residents to elevated pollution levels. Dispersion modelling was therefore undertaken with the inputs described in Section 4 to quantify air quality conditions at the site. Reference should be made to Figures 5 and 6 for graphical representations of the results.

5.1.2 As shown in Figure 5, annual mean NO_2 concentrations were below the AQO of 40µg/m^3 at all locations across the site. The maximum concentration at the boundary was 28.33µg/m^3.

5.1.3 As shown in Figure 6, annual mean PM_{10} concentrations were predicted to be below the AQO of 40µg/m^3 at all locations across the site. The maximum level at the boundary was 21.05µg/m^3.

5.1.4 Based on the assessment results, future residents are not predicted to be exposed to NO_2 and PM_{10} concentrations in exceedance of the relevant criteria. As such, the site is considered suitable for the proposed land use.

6 CONCLUSION

6.1.1 An Air Quality Assessment has been undertaken in support of the allocation of land off High Street, Hauxton, for residential use through the development plan process.

6.1.2 The development has the potential to expose future residents to elevated pollution levels. As such, an Air Quality Assessment was undertaken in order to define baseline conditions, identify any potential constraints to residential land use and support its allocation within the forthcoming development plan.

6.1.3 Dispersion modelling was undertaken using ADMS-Roads in order to predict pollutant concentrations as a result of emissions from the local highway network. Outputs were subsequently verified using local monitoring data obtained from SCDC.

6.1.4 The results of the dispersion modelling assessment indicated that predicted annual mean NO_2 and PM_{10} concentrations were below the AQO across the proposed location. As such, the site is considered suitable for residential land use.

6.1.5 Based on the assessment results, air quality issues are not considered a constraint to the allocation of the proposed site for residential use.

Legend

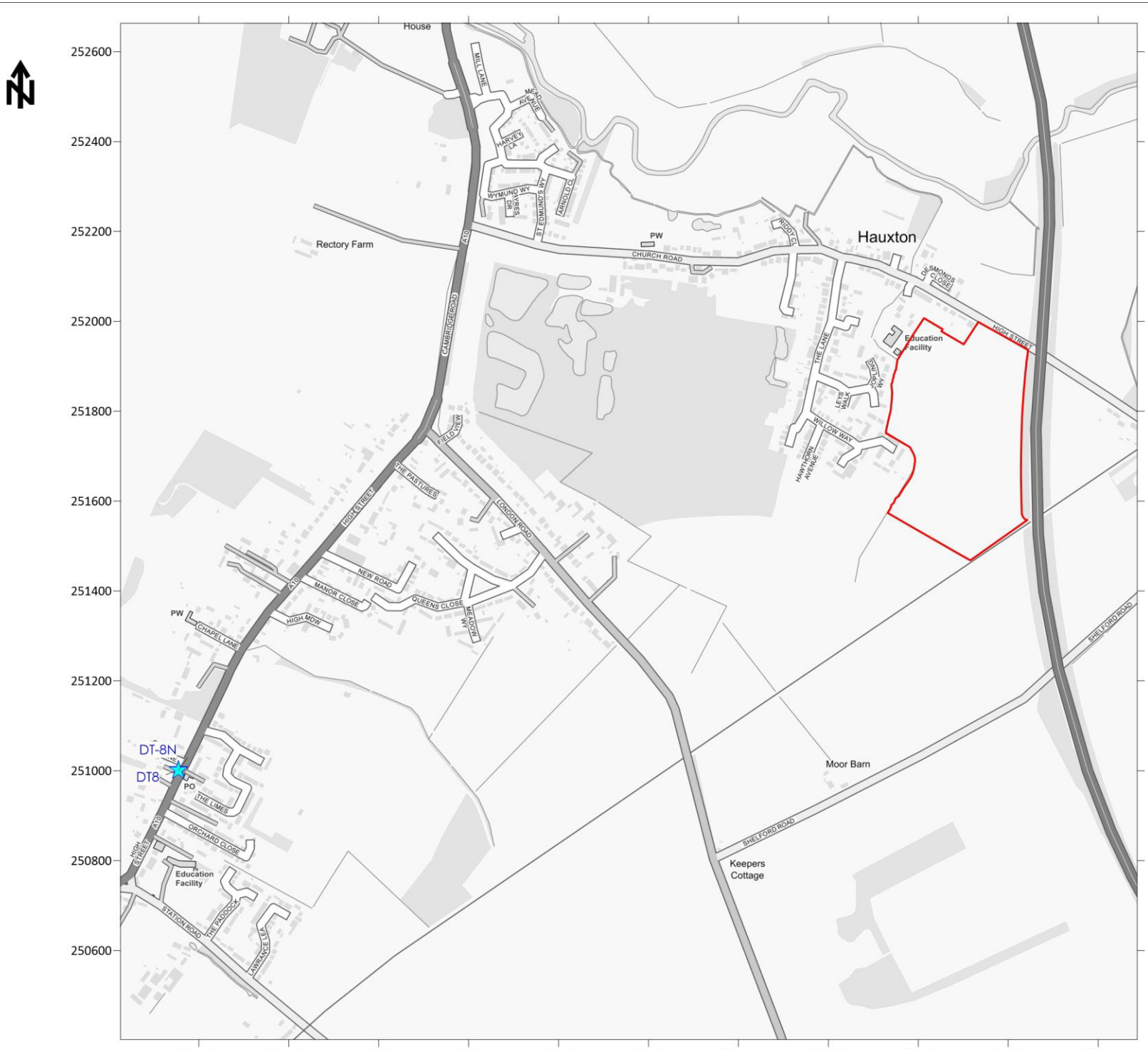
Site Boundary

Title

Figure 1 - Site Location Plan

Project

Air Quality Assessment
High Street, Hauxton



Legend

Site Boundary

Monitor

Title

Figure 2 - Monitoring Locations

Project

Air Quality Assessment
High Street, Hauxton

Legend

Site Boundary

Output Grid

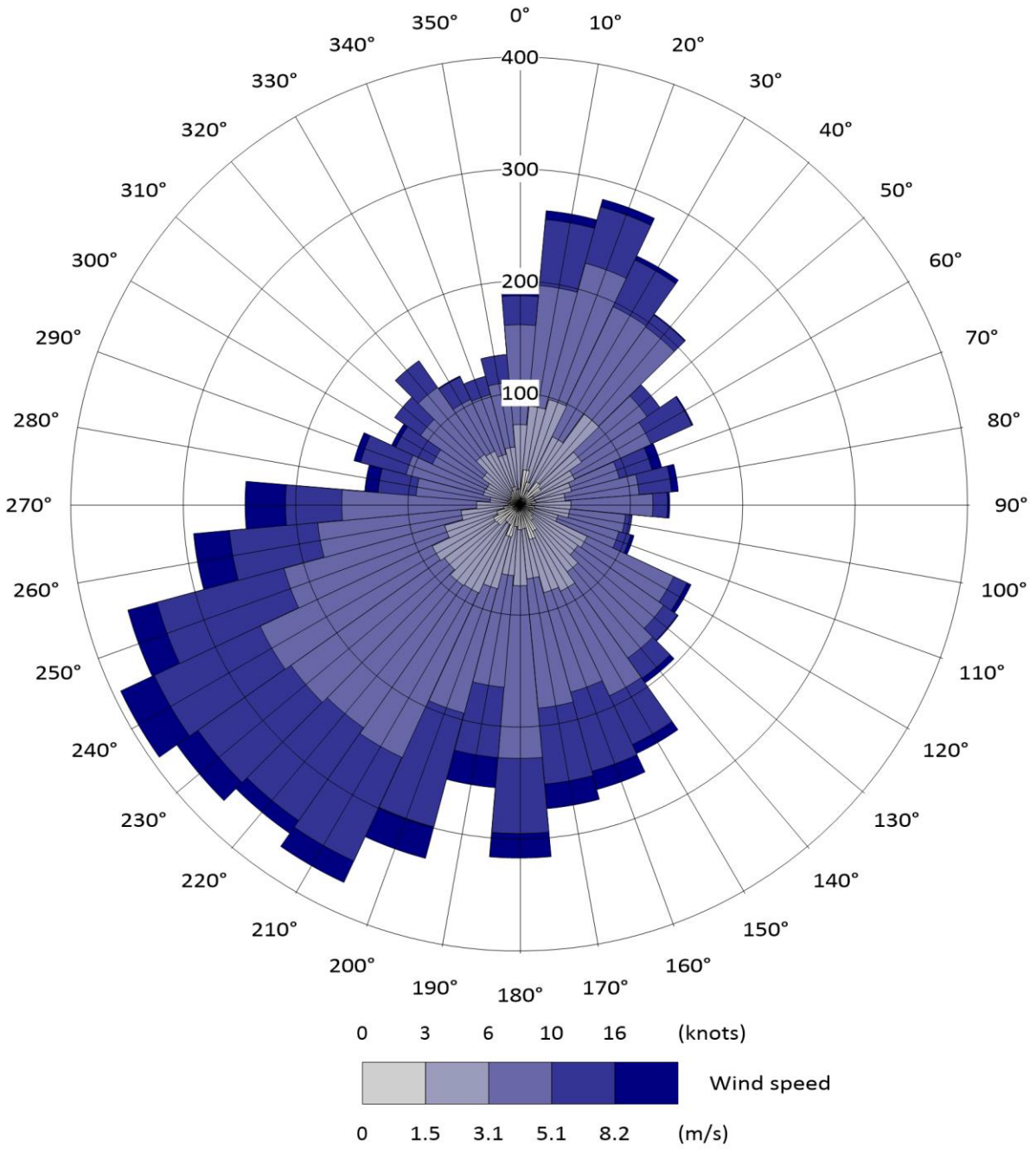
Road Link

Title

Figure 3 - ADMS-Roads Inputs

Project

Air Quality Assessment
High Street, Hauxton



Legend

Title

Figure 4 - Wind Rose of 2018
Cambridge International Airport
Meteorological Data

Project

Air Quality Assessment
High Street, Hauxton


Legend
Site Boundary
Predicted Annual Mean NO2 Concentrations (µg/m3)
52
48
44
40
36
32
28
24
20
16
12
Education Facility
DESMONDS CLOSE
HIGH STREET
THE LANE
JOPLING AVENUE
LEYS WALK
WILLOW WAY
HAWTHORN AVENUE
Title
Figure 5 - Predicted Annual Mean NO2 Concentrations (µg/m3)
Project
Air Quality Assessment
High Street, Hauxton
Contains Ordnance Survey Data


DESMONDS CLOSE
HIGH STREET
THE LANE
JOPLING WAY
LEYS WALK
WILLOW WAY
HAWTHORN AVENUE
Education Facility
252150
252100
252050
252000
251950
251900
251850
251800
251750
251700
251650
251600
251550
251500
251450
251400
543900
543950
544000
544050
544100
544150
544200
544250
544300
544350
544400
544450
544500
544550
544600
Legend
Site Boundary
Predicted Annual Mean PM10 Concentrations (µg/m3)
27
26
25
24
23
22
21
20
19
18
Title
Figure 6 - Predicted Annual Mean PM10 Concentrations (µg/m3)
Project
Air Quality Assessment
High Street, Hauxton
Contains Ordnance Survey Data