



Maynard
Place,
Cuffley,
EN6 4JA

Air Quality Assessment

March 2020



Ref: 20-6687

Quality Standards Control

The signatories below verify that this document has been prepared in accordance with our quality control requirements. These procedures do not affect the content and views expressed by the originator.

This document must only be treated as a draft unless it has been signed by the originators and approved by a director.

Revision	-	A
Date	20/03/2020	31/03/2020
Prepared by	E. Bell (on behalf of Syntegra Consulting Ltd)	E. Bell (on behalf of Syntegra Consulting Ltd)
Checked by	M. Buck	M. Buck
Authorised by	F. Bolton	F. Bolton

Limitations

Syntegra Consulting Ltd (“SC”) has prepared this report for the sole use of the client in accordance with the agreement under which our services were performed. No other warranty, expressed or implied, is made as to the professional advice included in this report or any other services provided by SC.

The conclusions and recommendations contained in this report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by SC has not been independently verified by SC, unless otherwise stated in the report.

The methodology adopted and the sources of information used by SC in providing its services are outlined in this report. The work described in this report was undertaken in March 2020 and is based on the conditions encountered and the information available during the said period of time. The scope of this report and the services are accordingly factually limited by these circumstances.

This renewable report and SAP pre-assessment modelling were generated based on the provided drawings and building information assumptions. Although every effort has been made to provide accurate content within this report, SC makes no warranty or assumes no legal liability or responsibility for the accuracy or completeness of information contained in this report.

SC also wishes to make aware that this document is guidance only on energy strategy and should not be seen as a building design document. It is the responsibility of the APPOINTED BUILDING SERVICES / Design Team to develop, select and implement appropriate energy efficiency measures to ensure compliance.

Where assessments of works or costs identified in this report are made, such assessments are based upon the information available at the time and where appropriate are subject to further investigations or information which may become available.

SC disclaim any undertaking or obligation to advise any person of any change in any matter affecting the report, which may come or be brought to SC’s attention after the date of the report.

Certain statements made in the report that are not historical facts may constitute estimates, projections or other forward-looking statements and even though they are based on reasonable assumptions as of the date of the report, such forward-looking statements by their nature involve risks and uncertainties that could cause actual results to differ materially from the results predicted. SC specifically does not guarantee or warrant any estimate or projections contained in this report.

Costs may vary outside the ranges quoted. Whilst cost estimates are provided for individual issues in this report these are based upon information at the time which can be incomplete. Cost estimates for such issues may therefore vary from those provided. Where costs are supplied, these estimates should be considered in aggregate only. No reliance should be made in relation to any division of aggregate costs, including in relation to any issue, site or other subdivision.

No allowance has been made for changes in prices or exchange rates or changes in any other conditions which may result in price fluctuations in the future. Where assessments of works or costs necessary to achieve compliance have been made, these are based upon measures which, in SC’s experience, could normally be negotiated with the relevant authorities under present legislation and enforcement practice, assuming a pro-active and reasonable approach by site management.

Forecast cost estimates do not include such costs associated with any negotiations, appeals or other non-technical actions associated with the agreement on measures to meet the requirements of the authorities, nor are potential business loss and interruption costs considered that may be incurred as part of any technical measures.

Copyright

© This report is the copyright of SC. Any unauthorised reproduction or usage by any person other than the addressee is strictly prohibited.

1. INTRODUCTION..... 4

 Background..... 4

 Site Location and Context 4

2. LEGISLATION AND POLICY 5

 Legislation..... 5

 Local Air Quality Management..... 7

 Dust Legislation..... 7

 National Planning Policy 7

 National Planning Practice Guidance 8

 Local Planning Policy..... 9

3. METHODOLOGY 10

 Introduction..... 10

 Construction Phase Fugitive Dust Emissions 10

 Step 110

 Step 2.....11

 Step 3.....15

 Step 4.....15

 Operational Phase Road Vehicle Exhaust Emissions 15

4. BASELINE..... 16

 Local Air Quality Management..... 16

 Air Quality Monitoring..... 16

 Background Pollutant Concentrations 16

 Sensitive Receptors..... 17

5. ASSESSMENT..... 19

 Construction Phase Fugitive Dust Emissions 19

 Step 119

 Step 2.....19

 Step 3.....20

 Step 4.....22

 Operational Phase Road Vehicle Exhaust Emissions 22

6. CONCLUSION..... 23

1. Introduction

Background

This report has been prepared to support the planning application for a residential development on land off Maynard Place, Cuffley.

The proposed development has the potential to cause air quality impacts at sensitive locations during the construction and operational phases. As such, an Air Quality Assessment was required in order to determine baseline conditions and assess potential effects associated with the scheme.

Site Location and Context

The site is located on land off Maynard Place, Cuffley, at approximate National Grid Reference (NGR): 530472, 202733. Reference should be made to Figure 1 for a map of the site and surrounding area.

The site currently comprises a three-storey building. The proposals include the construction of an additional floor to provide circa 6 residential units.

The development has the potential to cause air quality impacts at sensitive locations. These may include fugitive dust emissions associated with construction works and road traffic exhaust emissions from vehicles travelling to and from the site during the operational phase. An Air Quality Assessment was therefore undertaken in order to determine baseline conditions and consider potential effects as a result of the proposals. This is detailed in the following report.

2. Legislation and Policy

Legislation

The Air Quality Standards Regulations (2010) came into force on 11th June 2010 and include Air Quality Limit Values (AQLVs) for the following pollutants:

- Nitrogen dioxide (NO₂);
- Sulphur dioxide;
- Lead;
- Particulate matter with an aerodynamic diameter of less than 10µm (PM₁₀);
- Particulate matter with an aerodynamic diameter of less than 2.5µm;
- Benzene; and,
- Carbon monoxide.

Target Values were also provided for an additional 5 pollutants. These include:

- Ozone;
- Arsenic;
- Cadmium;
- Nickel; and,
- Benzo(a)pyrene.

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 2007¹. 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.

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

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

¹ The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, DEFRA, 2007.

Pollutant	Air Quality Objective	
	Concentration ($\mu\text{g}/\text{m}^3$)	Averaging Period
	50	24-hour mean, not to be exceeded on more than 35 occasions per annum

Table 2 summarises the advice provided in DEFRA guidance² 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 Local Air Quality Management Technical Guidance (TG16), DEFRA, 2018.

Local Air Quality Management

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 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, the objective of which is to reduce pollutant concentrations in pursuit of the AQOs.

Dust Legislation

The main requirements with respect to dust control from industrial or trade premises not regulated under the Environmental Permitting (England and Wales) Regulations (2016) and subsequent amendments, such as construction sites, is that provided in Section 79 of Part III of the Environmental Protection Act (1990). The Act defines nuisance as:

"any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance."

Enforcement of the Act, in regard to nuisance, is currently under the jurisdiction of the local Environmental Health Department, whose officers are deemed to provide an independent evaluation of nuisance. If the LA is satisfied that a statutory nuisance exists, or is likely to occur or happen again, it must serve an Abatement Notice under Part III of the Environmental Protection Act (1990). The only defence is to show that the process to which the nuisance has been attributed and its operation are being controlled according to best practicable means.

National Planning Policy

The National Planning Policy Framework³ (NPPF) was published on February 2019 and sets out the Government's planning policies for England and how these are expected to be applied.

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."

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:

³ NPPF, Department for Communities and Local Government, 2019.

[...]

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 [...]"

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."

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

National Planning Practice Guidance

The National Planning Practice Guidance⁴ (NPPG) web-based resource was launched by the Department for Communities and Local Government on 6th March 2014 and updated on 1st November 2019 to support the NPPF and make it more accessible. The air quality pages are summarised under the following headings:

1. What air quality considerations does planning need to address?
2. What is the role of plan-making 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 considerations be relevant to the development management process?
6. What specific issues may need to be considered when assessing air quality impacts?
7. How detailed does an air quality assessment need to be?
8. How can an impact on air quality be mitigated?

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

⁴ <https://www.gov.uk/guidance/air-quality--3>.

Local Planning Policy

The Welwyn Hatfield District Plan⁵ was adopted by Welwyn Hatfield Borough Council (WHBC) in 2005 and contains the local planning policies which are designed to guide the development and use of land in the district. Review of the Welwyn Hatfield District Plan Written Statement revealed the following policy of relevance to this assessment:

"Policy R18 - Air Quality

The Council will have regard to the potential effects of a development on local air quality when determining planning applications. Consideration will be given to both the operational characteristics of the development and to the traffic generated by it. Any development within areas designated as Air Quality Management Areas must have regard to guidelines for ensuring air quality is maintained at acceptable levels as set out in the Air Quality Strategy."

The implications of this policy were taken into consideration throughout the undertaking of the assessment.

⁵ Welwyn Hatfield District Plan Written Statement, Local Development Framework, WHBC, 2005.

3. Methodology

Introduction

The proposed development has the potential to cause air quality impacts during the construction and operational phases. These issues have been assessed in accordance with the following methodology.

Construction Phase Fugitive Dust Emissions

There is the potential for fugitive dust emissions to occur as a result of construction phase activities. These have been assessed in accordance with the methodology outlined within the Institute of Air Quality Management (IAQM) document 'Guidance on the Assessment of Dust from Demolition and Construction V1.1'⁶.

Activities on the proposed construction site have been divided into two types to reflect their different potential impacts. These are:

- Construction; and,
- Trackout.

It should be noted that as the proposals only include an upward extension to an existing building, demolition and earthworks will not be undertaken on site. As such, these activities were not considered further in the context of the assessment.

The potential for dust emissions was assessed for each activity that is likely to take place and considered three separate dust effects:

- Annoyance due to dust soiling;
- Harm to ecological receptors; and,
- The risk of health effects due to a significant increase in exposure to PM₁₀.

The assessment steps are detailed below.

Step 1

Step 1 screens the requirement for a more detailed assessment. Should human receptors be identified within 350m of the boundary or 50m from the construction vehicle route up to 500m from the site entrance, then the assessment proceeds to Step 2. Additionally, should ecological receptors be identified within 50m of the site or the construction vehicle route, then the assessment also proceeds to Step 2.

Should sensitive receptors not be present within the relevant distances then **negligible** impacts would be expected and further assessment is not necessary.

⁶ Guidance on the Assessment of Dust from Demolition and Construction V1.1, IAQM, 2016.

Step 2

Step 2 assesses the risk of potential dust impacts. A site is allocated a risk category based on two factors:

- The scale and nature of the works, which determines the magnitude of dust arising as: small, medium or large (Step 2A); and,
- The sensitivity of the area to dust impacts, which can be defined as low, medium or high sensitivity (Step 2B).

The two factors are combined in Step 2C to determine the risk of dust impacts without mitigation applied.

Step 2A defines the potential magnitude of dust emission through the construction phase. The relevant criteria are summarised in Table 3.

Table 3 Construction Dust - Magnitude of Emission

Magnitude	Activity	Criteria
Large	Construction	Total building volume greater than 100,000m ³ On site concrete batching Sandblasting
	Trackout	More than 50 Heavy Duty Vehicle (HDV) trips per day Potentially dusty surface material (e.g. high clay content) Unpaved road length greater than 100m
Medium	Construction	Total building volume 25,000m ³ to 100,000m ³ Potentially dusty construction material (e.g. concrete) On site concrete batching
	Trackout	10 to 50 HDV trips per day Moderately dusty surface material (e.g. high clay content) Unpaved road length 50m to 100m
Small	Construction	Total building volume less than 25,000m ³ Construction material with low potential for dust release (e.g. metal cladding or timber)
	Trackout	Less than 10 HDV trips per day Surface material with low potential for dust release Unpaved road length less than 50m

Step 2B defines the sensitivity of the area around the development to potential dust impacts. The influencing factors are shown in Table 4.

Table 4 Construction Dust - Factors Defining Sensitivity of an Area

Receptor Sensitivity	Examples	
	Human Receptors	Ecological Receptors
High	<p>Users expect of high levels of amenity</p> <p>High aesthetic or value property</p> <p>People expected to be present continuously for extended periods of time</p> <p>Locations where members of the public are exposed over a time period relevant to the AQO for PM₁₀. e.g. residential properties, hospitals, schools and residential care homes</p>	<p>Internationally or nationally designated site e.g. Special Area of Conservation</p>
Medium	<p>Users would expect to enjoy a reasonable level of amenity</p> <p>Aesthetics or value of their property could be diminished by soiling</p> <p>People or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land e.g. parks and places of work</p>	<p>Nationally designated site e.g. Sites of Special Scientific Interest</p>
Low	<p>Enjoyment of amenity would not reasonably be expected</p> <p>Property would not be expected to be diminished in appearance</p> <p>Transient exposure, where people would only be expected to be present for limited periods. e.g. public footpaths, playing fields, shopping streets, farmland, short term car parks and roads</p>	<p>Locally designated site e.g. Local Nature Reserve</p>

The guidance also provides the following factors to consider when determining the sensitivity of an area to potential dust impacts:

- Any history of dust generating activities in the area;
- The likelihood of concurrent dust generating activity on nearby sites;
- Any pre-existing screening between the source and receptors;
- Any conclusions drawn from analysing local meteorological data which accurately represent the area; and if relevant the season during which works will take place;
- Any conclusions drawn from local topography;
- Duration of the potential impact, as a receptor may become more sensitive over time; and,
- Any known specific receptor sensitivities which go beyond the classifications given in the document.

These factors were considered during the undertaking of the assessment.

The criteria for determining the sensitivity of the area to dust soiling effects on people and property is summarised in Table 5.

Table 5 Construction Dust - Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		Less than 20	Less than 50	Less than 100	Less than 350
High	More than 100	High	High	Medium	Low
	10 - 100	High	Medium	Low	Low
	1 - 10	Medium	Low	Low	Low
Medium	More than 1	Medium	Low	Low	Low
Low	More than 1	Low	Low	Low	Low

Table 6 outlines the criteria for determining the sensitivity of the area to human health impacts.

Table 6 Construction Dust - Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Background Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance from the Source (m)				
			Less than 20	Less than 50	Less than 100	Less than 200	Less than 350
High	Greater than 32µg/m ³	More than 100	High	High	High	Medium	Low
		10 - 100	High	High	Medium	Low	Low
		1 - 10	High	Medium	Low	Low	Low
	28 - 32µg/m ³	More than 100	High	High	Medium	Low	Low
		10 - 100	High	Medium	Low	Low	Low
		1 - 10	High	Medium	Low	Low	Low
	24 - 28µg/m ³	More than 100	High	Medium	Low	Low	Low
		10 - 100	High	Medium	Low	Low	Low
		1 - 10	Medium	Low	Low	Low	Low
	Less than 24µg/m ³	More than 100	Medium	Low	Low	Low	Low
		10 - 100	Low	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low	Low
Medium	-	More than 10	High	Medium	Low	Low	Low
		1 - 10	Medium	Low	Low	Low	Low
Low	-	More than 1	Low	Low	Low	Low	Low

Table 7 outlines the criteria for determining the sensitivity of the area to ecological impacts.

Table 7 Construction Dust - Sensitivity of the Area to Ecological Impacts

Receptor Sensitivity	Distance from the Source (m)	
	Less than 20	Less than 50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Step 2C combines the dust emission magnitude with the sensitivity of the area to determine the risk of unmitigated impacts.

Table 8 outlines the risk category from construction activities.

Table 8 Construction Dust - Dust Risk Category from Construction Activities

Receptor Sensitivity	Dust Emission Magnitude		
	Large	Medium	Small
High	High	Medium	Low
Medium	Medium	Medium	Low
Low	Low	Low	Negligible

Table 9 outlines the risk category from trackout activities.

Table 9 Construction Dust - Dust Risk Category from Trackout Activities

Receptor Sensitivity	Dust Emission Magnitude		
	Large	Medium	Small
High	High	Medium	Low
Medium	Medium	Low	Negligible
Low	Low	Low	Negligible

Step 3

Step 3 requires the identification of site specific mitigation measures within the IAQM guidance⁷ to reduce potential dust impacts based upon the relevant risk categories identified in Step 2. For sites with **negligible** risk, mitigation measures beyond those required by legislation are not required. However, additional controls may be applied as part of good practice.

Step 4

Once the risk of dust impacts has been determined and the appropriate mitigation measures identified, the final step is to determine the significance of any residual impacts. For almost all construction activity, the aim should be to control effects through the use of effective mitigation. Experience shows that this is normally possible. Hence the residual effect will normally be **not significant**.

Operational Phase Road Vehicle Exhaust Emissions

The development has the potential to increase concentrations of NO₂ and PM₁₀ as a result of road traffic exhaust emissions associated with vehicles travelling to and from the site during the operational phase. A screening assessment was therefore undertaken using the criteria contained within the IAQM 'Land-Use Planning & Development Control: Planning for Air Quality'⁸ guidance to determine the potential for trips generated by the development to affect local air quality.

The following criteria are provided to help establish when an assessment of potential impacts on the local area is likely to be considered necessary:

- A change of Light Duty Vehicle (LDV) flows of more than 100 Annual Average Daily Traffic (AADT) within or adjacent to an AQMA or more than 500 AADT elsewhere;
- A change of HDV flows of more than 25 AADT within or adjacent to an AQMA or more than 100 AADT elsewhere;
- Realignment of roads where the change is 5m or more and the road is within an AQMA; or,
- Introduction of a new junction or removal of an existing junction near to relevant receptors.

Should these criteria not be met, then the IAQM guidance⁹ considers air quality impacts associated with a scheme to be **negligible** and no further assessment is required.

Should screening of the relevant data indicate that any of the above criteria are met, then potential impacts at sensitive receptor locations can be assessed by calculating the change in pollutant concentrations as a result of the proposed development. The significance of predicted impacts can then be determined in accordance with the methodology outlined in the IAQM guidance¹⁰.

⁷ Guidance on the Assessment of Dust from Demolition and Construction V1.1, IAQM, 2016.

⁸ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

⁹ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

¹⁰ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

4. Baseline

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

Local Air Quality Management

As required by the Environment Act (1995), WHBC has undertaken Review and Assessment of air quality within their area of jurisdiction. This process has indicated that concentrations of all pollutants considered within the AQS are currently below the relevant AQOs throughout the Council's administrative extents. As such, no AQMAs have been designated.

Air Quality Monitoring

Monitoring of pollutant concentrations is undertaken by WHBC throughout their area of jurisdiction. Recent NO₂ results recorded in the vicinity of the development are shown in Table 10.

Table 10 Monitoring Results

Monitoring Site		Monitored NO ₂ Concentration (µg/m ³)	
		2017	2018
WH5	Cuffley High Street 1	33	28
WH6	Cuffley High Street 2	36	30

As shown in Table 10, annual mean NO₂ concentrations were below the relevant AQO at both monitoring sites in recent years. Reference should be made to Figure 2 for a map of the survey locations.

WHBC do not undertake monitoring of PM₁₀ concentrations within their area of jurisdiction.

Background Pollutant Concentrations

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 development site is located in grid square NGR: 530500, 202500. Data for this location was downloaded from the DEFRA website¹¹ for the purpose of this assessment and is summarised in Table 11.

¹¹ <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2017>.

Table 11 Background Pollutant Concentrations

Pollutant	Predicted Background Concentration ($\mu\text{g}/\text{m}^3$)	
	2020	2022
NO ₂	15.14	14.08
PM ₁₀	17.28	16.95

As shown in Table 11, predicted background concentrations are below the relevant AQOs at the development site.

Sensitive Receptors

A sensitive receptor is defined as any location which may be affected by changes in air quality as a result of a development.

Receptors sensitive to potential dust impacts during construction were identified from a desk-top study of the area up to 350m from the development boundary. These are summarised in Table 12.

Table 12 Construction Dust Sensitive Receptors

Distance from Site Boundary (m)	Approximate Number of Human Receptors	Approximate Number of Ecological Receptors
Less than 20	More than 100	0
Less than 50	More than 100	0
Less than 100	More than 100	-
Less than 350	More than 100	-

Receptors sensitive to potential dust impacts from trackout were identified from a desk-top study of the area up to 50m from the road network within 500m of the site access. These are summarised in Table 13.

Table 13 Trackout Dust Sensitive Receptors

Distance from Site Access Route (m)	Approximate Number of Human Receptors	Approximate Number of Ecological Receptors
Less than 20	More than 100	0
Less than 50	More than 100	0

There are no ecological receptors within 50m of the development boundary or the access route within 500m of the site entrance. As such, ecological impacts have not been assessed further within this report.

A number of additional factors have been considered when determining the sensitivity of the surrounding area. These are summarised in Table 14.

Table 14 Additional Area Sensitivity Factors

Guidance	Comment
Whether there is any history of dust generating activities in the area	The desk top study did not indicate any dust generating activities in the local area
The likelihood of concurrent dust generating activity on nearby sites	A review of the planning portal did not indicate any additional development proposals likely to result in concurrent dust generation in the vicinity of the site
Pre-existing screening between the source and the receptors	There is no significant screening around the site boundary
Conclusions drawn from analysing local meteorological data which accurately represent the area: and if relevant the season during which works will take place	As shown in Figure 3, the predominant wind bearing at the site is from the south-west. As such, receptors to the north-east of the boundary are most likely to be affected by dust releases
Conclusions drawn from local topography	There are no significant topographical constraints to dust dispersion
Duration of the potential impact, as a receptor may become more sensitive over time	Currently it is unclear as to the duration of the construction phase. However, it is unlikely that it will extend over one year
Any known specific receptor sensitivities which go beyond the classifications given in the document	No specific receptor sensitivities identified during the baseline assessment

Based on the criteria shown in Table 4, the sensitivity of the receiving environment to potential dust impacts was determined as **high**. This was because the identified receptors included residential properties.

The sensitivity of the receiving environment to specific potential dust impacts, based on the criteria shown in Section 3, is shown in Table 15.

Table 15 Sensitivity of the Surrounding Area to Specific Dust Impacts

Potential Impact	Sensitivity of the Surrounding Area	
	Construction	Trackout
Dust Soiling	High	High
Human Health	Medium	Medium

5. Assessment

There is the potential for air quality impacts as a result of the construction and operation of the proposed development. These are assessed in the following Sections.

Construction Phase Fugitive Dust Emissions

Step 1

The undertaking of activities such as cutting, construction and storage of materials has the potential to result in fugitive dust emissions throughout the construction phase. Vehicle movements both on-site and on the local road network also have the potential to result in the re-suspension of dust from haul roads and highway surfaces.

The potential for impacts at sensitive locations depends significantly on local meteorology during the undertaking of dust generating activities, with the most significant effects likely to occur during dry and windy conditions.

The desk-study undertaken to inform the baseline identified a number of sensitive receptors within 350m of the site boundary. As such, a detailed assessment of potential dust impacts was required.

Step 2

Construction

Due to the size and nature of the proposal, the total construction volume is predicted to be less than 25,000m³. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from construction is therefore **small**.

Table 15 indicates the sensitivity of the area to dust soiling effects on people and property is **high**. In accordance with the criteria outlined in Table 8, the development is considered to be a **low** risk site for dust soiling as a result of construction activities.

Table 15 indicates the sensitivity of the area to human health impacts is **medium**. In accordance with the criteria outlined in Table 8, the development is considered to be a **low** risk site for human health impacts as a result of construction activities.

Trackout

Based on the site area, and the access route comprising all tarmacked surfaces, it is anticipated that the unpaved road length will be less than 50m. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from trackout is therefore **small**.

Table 15 indicates the sensitivity of the area to dust soiling effects on people and property is **high**. In accordance with the criteria outlined in Table 9, the development is considered to be a **low** risk site for dust soiling as a result of trackout activities.

Table 15 indicates the sensitivity of the area to human health impacts is **medium**. In accordance within the criteria outlined in Table 9, the development is considered to be a **negligible** risk site for human health impacts as a result of trackout activities.

Summary of Potential Unmitigated Dust Risks

A summary of the risk from each dust generating activity is provided in Table 16.

Table 16 Summary of Potential Unmitigated Dust Risks

Potential Impact	Risk	
	Construction	Trackout
Dust Soiling	Low	Low
Human Health	Low	Negligible

As indicated in Table 16, the potential risk of dust soiling is **low** from construction and trackout. The potential risk of human health impacts is **low** from construction and **negligible** from trackout.

It should be noted that the potential for impacts depends significantly on the distance between the dust generating activity and receptor location. Risk was predicted based on a worst-case scenario of works being undertaken at the site boundary closest to each sensitive area. Therefore, actual risk is likely to be lower than that predicted during the majority of the construction phase.

Step 3

The IAQM guidance¹² provides potential mitigation measures to reduce impacts as a result of fugitive dust emissions during the construction phase. These have been adapted for the development site as summarised in Table 17. These may be reviewed prior to the commencement of construction works and incorporated into a Construction Environmental Management Plan or similar if required by the LA.

Table 17 Fugitive Dust Emission Mitigation Measures

Issue	Control Measure
Communications	<p>Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager</p> <p>Display the head or regional office contact information</p>
Site management	<p>Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken</p> <p>Make the complaints log available to the LA upon request</p> <p>Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book</p>

¹² Guidance on the Assessment of Dust from Demolition and Construction V1.1, IAQM, 2016.

Issue	Control Measure
Monitoring	<p>Undertake daily on-site and off-site inspection, where receptors are nearby, to monitor dust, record inspection results and make the log available to the LA when asked</p> <p>Carry out regular site inspections, record inspection results, and make an inspection log available to the LA upon request</p> <p>Increase the frequency of site inspections when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions</p>
Preparing and maintaining the site	<p>Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible</p> <p>Fully enclose specific operations where there is a high potential for dust production and they are active for an extensive period</p> <p>Avoid site runoff of water or mud</p> <p>Keep site fencing, barriers and scaffolding clean using wet methods</p> <p>Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used</p>
Operating vehicle/ machinery and sustainable travel	<p>Ensure all vehicles switch off engines when stationary - no idling vehicles</p> <p>Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable</p>
Operations	<p>Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques</p> <p>Ensure an adequate water supply on the site for effective dust suppression, using non-potable water where possible and appropriate</p> <p>Use enclosed chutes and conveyors and covered skips</p> <p>Minimise drop heights and use fine water sprays wherever appropriate</p> <p>Ensure equipment is available to clean any dry spillages, and clean up spillages as soon as reasonably practicable using wet cleaning methods</p>
Waste management	<p>Avoid bonfires and burning of waste materials</p>
Construction	<p>Avoid scabbling (roughening of concrete surfaces) if possible</p> <p>Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out</p>
Trackout	<p>Avoid dry sweeping of large areas</p> <p>Ensure vehicles entering and leaving site are covered to prevent escape of materials</p> <p>Record all inspections of haul routes and any subsequent action in a site log book</p>

Step 4

Assuming the relevant mitigation measures outlined in Table 17 are implemented, the residual impact from all dust generating activities is predicted to be **not significant**, in accordance with the IAQM guidance¹³.

Operational Phase Road Vehicle Exhaust Emissions

Any vehicle movements associated with the development will generate exhaust emissions on the local and regional road networks. Predicted trip generation was not available to inform the assessment. However, similar sites have shown an anticipated value of 5 car movements per day per dwelling. Based on a scheme of 7 units, this is equal to the generation of 35 daily trips.

Based on the above information, the proposals are not predicted to result in an increase of LDV flows of more than 500 AADT on any individual road link, include significant highway realignment or the introduction of a junction and there will not be more than 100 HDV movements per day. As such, potential air quality impacts associated with operational phase road vehicle exhaust emissions are predicted to be **negligible**, in accordance with the IAQM¹⁴ screening criteria shown in Section 3.3.

¹³ Guidance on the Assessment of Dust from Demolition and Construction V1.1, IAQM, 2016.

¹⁴ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

6. Conclusion

This report has been prepared to support the planning application for a residential development on land off Maynard Place, Cuffley.

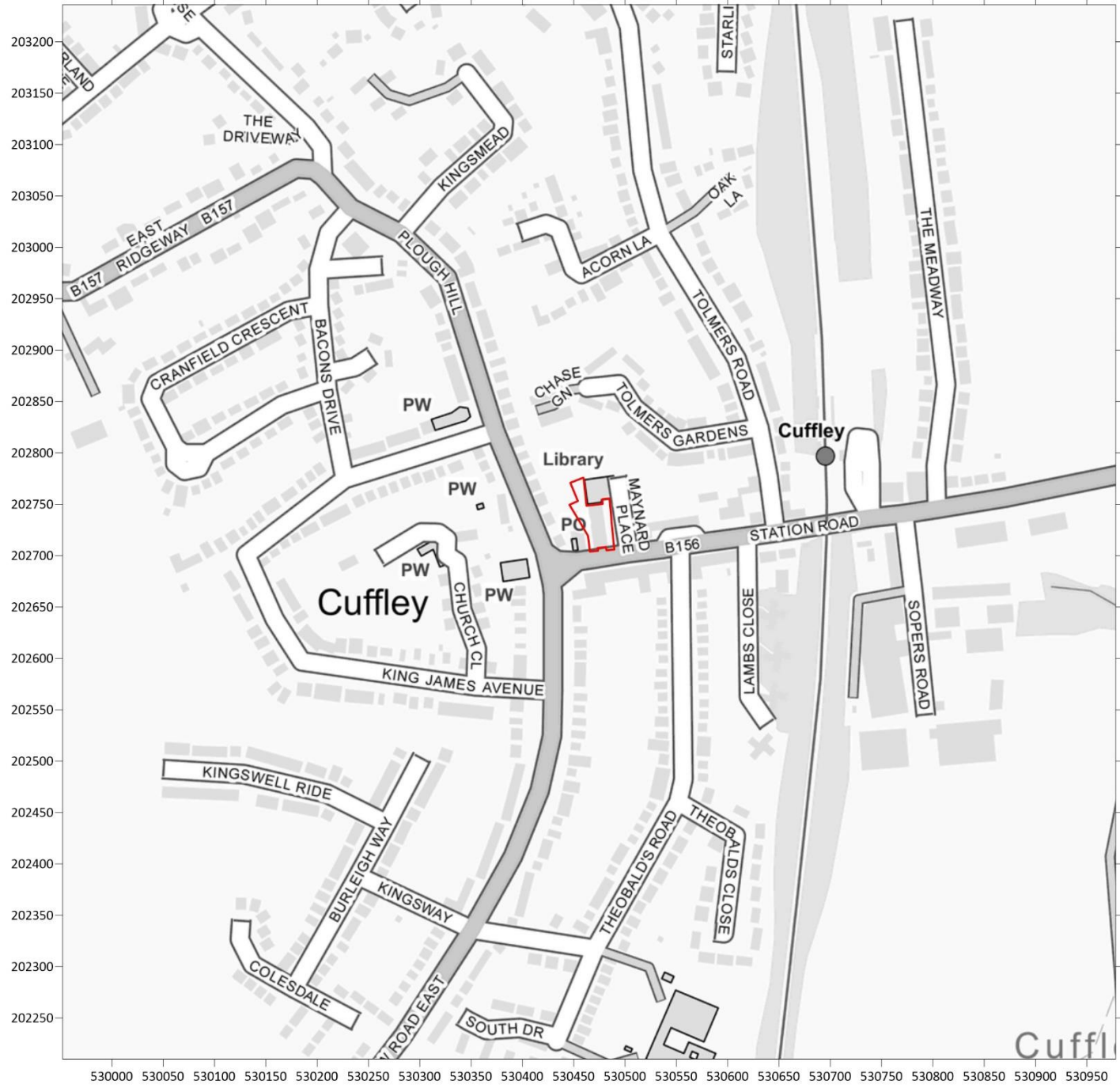
The proposals have the potential to cause air quality impacts as a result of fugitive dust emissions during construction and road traffic exhaust emissions associated with vehicles travelling to and from the site during operation. As such, an Air Quality Assessment was required in order to determine baseline conditions and assess potential effects as a result of the scheme.

During the construction phase of the development there is the potential for air quality impacts as a result of fugitive dust emissions from the site. These were assessed in accordance with the IAQM methodology. Assuming good practice dust control measures are implemented, the residual significance of potential air quality impacts from dust generated by construction and trackout activities was predicted to be **not significant**.

Potential impacts during the operational phase of the proposed development may occur due to road traffic exhaust emissions associated with vehicles travelling to and from the site. These were assessed against the screening criteria provided within the IAQM¹⁵ guidance document. Due to the low number of trips anticipated to be produced by the proposals, **negligible** impacts were predicted.

Based on the assessment results, air quality issues are not considered a constraint to planning consent for the development.

¹⁵ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.



Legend



Site Boundary

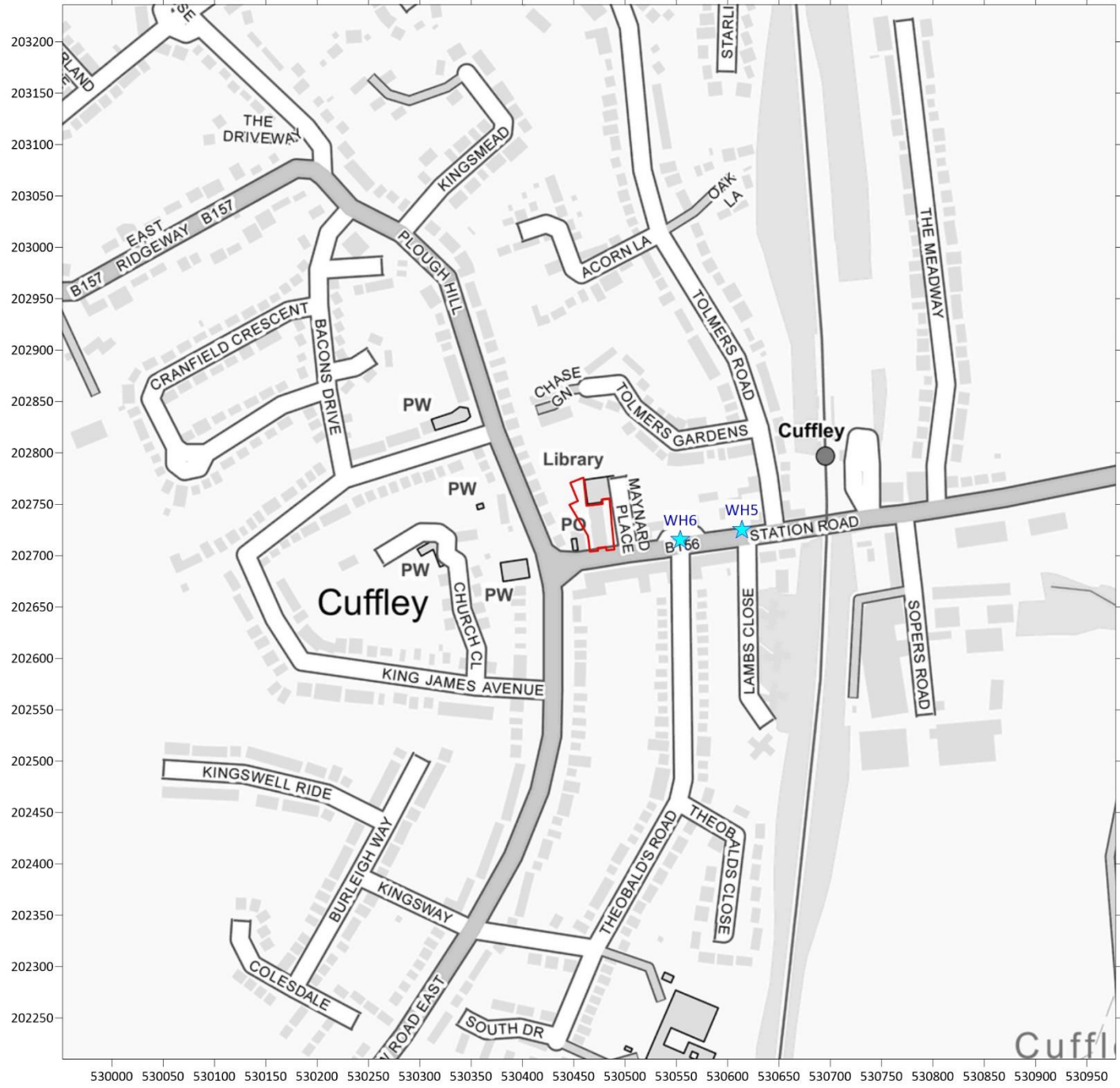
Title

Figure 1 - Site Location Plan

Project

Air Quality Assessment
Maynard Place, Cuffley

Contains Ordnance Survey Data
© Crown Copyright and Database Act 2016



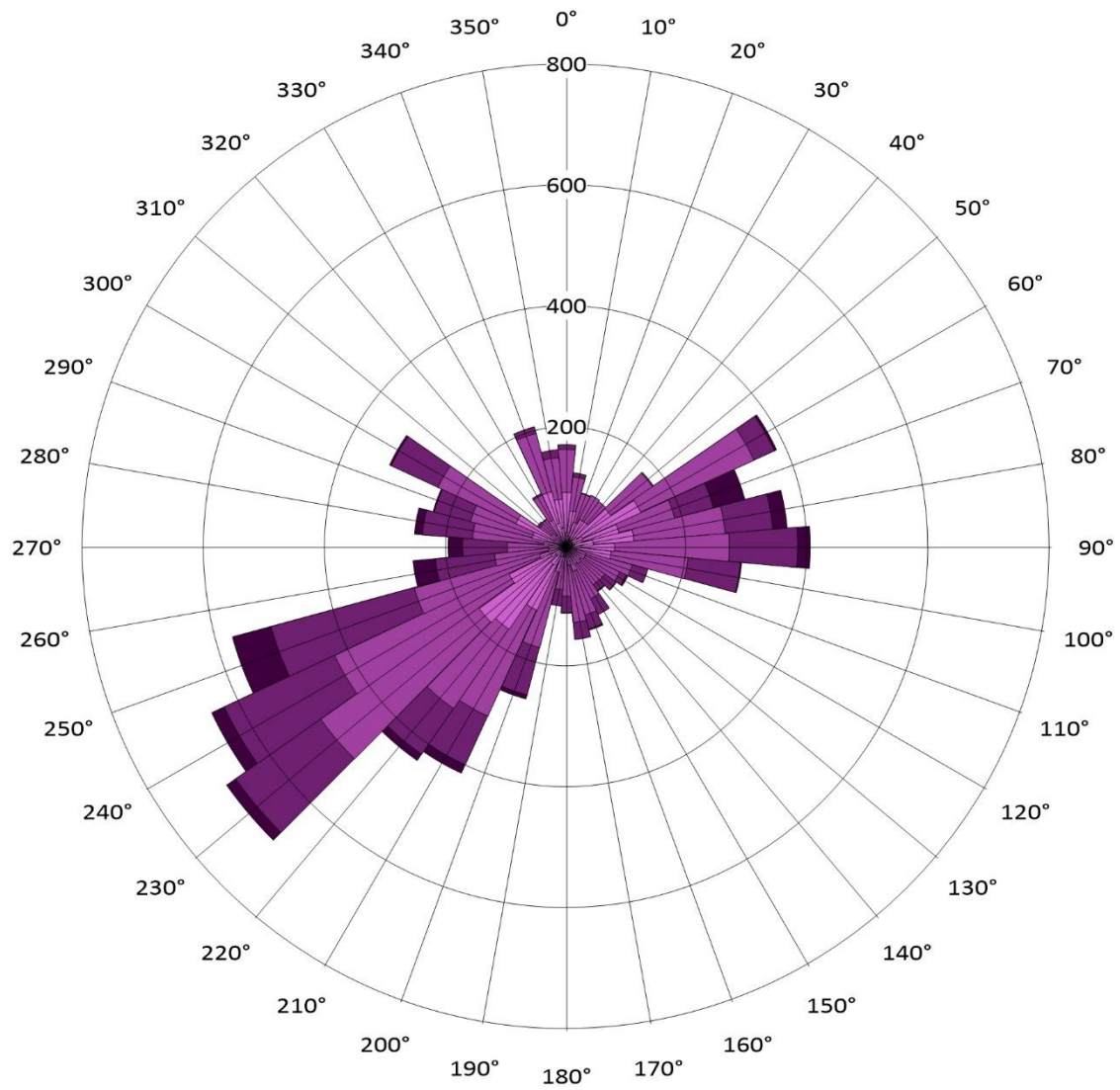
Legend

-  Site Boundary
-  Monitor

Title
Figure 2 - Monitoring Locations

Project
Air Quality Assessment
Maynard Place, Cuffley

Contains Ordnance Survey Data
© Crown Copyright and Database Act 2016



Legend

Title
 Figure 3 - Wind Rose of 2018
 London City Airport Meteorological Data

Project
 Air Quality Assessment
 Maynard Place, Cuffley