Oxford Technology Park

Air Quality Screening Assessment

On behalf of **Hill Street Holdings Ltd.**

Project Ref: 23588/3001 | Rev: Issued | Date: December 2014

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1 Introduction

1.1 Proposed Development

1.1.1 Hill Street Holdings Ltd has commissioned Peter Brett Associates LLP (PBA) to prepare an air quality statement to accompany the planning application for the proposed development at Oxford Technology Park, Kidlington, Oxfordshire located adjacent to Langford Lane.

1.1.2 The Site of Special Scientific Interest (SSSI) Rushy Meadows is located approximately 430m from Banbury Road and 320m from the proposed development site. The SSSI is sufficiently separated from both major roads and the proposed development site such that the impact of construction and of development traffic is unlikely to be significant; therefore it has been scoped out of this assessment.

1.1.3 The London Oxford Airport is located adjacent to Langford Lane and directly opposite to the proposed development site. It is an airport mainly used for aviation training purposes; the operating aircraft are small in size and the number of passenger movements is far below thresholds that would lead to a significant effect on the environment.

1.1.4 The development consists of the construction of a Technology Park. The proposed development site is located within the boundaries of Cherwell District Council.

1.2 Scope

1.2.1 This report describes existing air quality in proximity to the site and the likely impact of traffic associated with the development. The main air pollutants of concern relating road traffic emissions are nitrogen dioxide and fine particulate matter (PM_{10}).

1.2.2 The assessment has been prepared taking into account all relevant local and national guidance and regulations.

2 Legislation and Policy

2.1 The Air Quality Strategy

2.1.1 The Air Quality Strategy (2007) establishes the policy framework for ambient air quality management and assessment in the UK. The primary objective is to ensure that everyone can enjoy a level of ambient air quality which poses no significant risk to health or quality of life. The Strategy sets out the National Air Quality Objectives (NAQOs) and Government policy on achieving these objectives.

2.1.2 Part IV of the Environment Act 1995 introduced a system of Local Air Quality Management (LAQM). This requires local authorities to regularly and systematically review and assess air quality within their boundary, and appraise development and transport plans against these assessments. The relevant NAQOs for LAQM are prescribed in the Air Quality (England) Regulations 2000 and the Air Quality (Amendment) (England) Regulations 2002.

2.1.3 Where an objective is unlikely to be met, the local authority must designate an Air Quality Management Area (AQMA) and draw up an Air Quality Action Plan (AQAP) setting out the measures it intends to introduce in pursuit of the objectives within its AQMA.

2.1.4 The Local Air Quality Management Technical Guidance 2009 (LAQM.TG(09))[1] issued by the Department for Environment, Food and Rural Affairs (Defra) for Local Authorities provides advice as to where the NAQOs apply. These include outdoor locations where members of the public are likely to be regularly present for the averaging period of the objective (which vary from 15 minutes to a year). Thus, for example, annual mean objectives apply at the façades of residential properties, whilst the 24-hour objective (for PM_{10}) would also apply within the garden. They do not apply to occupational, indoor or in-vehicle exposure.

2.2 EU Limit Values

2.2.1 The Air Quality Standards Regulations 2010 implements the European Union's Directive on ambient air quality and cleaner air for Europe (2008/50/EC), and includes limit values for NO_2. These limit values are numerically the same as the NAQO values but differ in terms of compliance dates, locations where they apply and the legal responsibility for ensuring that they are complied with. The compliance date for the NO_2 EU Limit Value was 1 January 2010, five years later than the date for the NAQO.

2.2.2 Directive 2008/50/EC consolidated the previous framework directive on ambient air quality assessment and management and its first three daughter directives. The limit values remained unchanged, but it now allows Member States a time extension for compliance, subject to European Commission (EC) approval.

2.2.3 The UK has a time extension for compliance of the daily PM_{10} limit value in London until the end of 2011. Despite many areas of the UK not being compliant with the annual average NO_2 limit value, the UK has decided not to seek an extension to the compliance date for this pollutant. This was on the basis that it could not be guaranteed that the UK would be compliant by the latest date allowable under the Directive (1 January 2015).

2.2.4 The Directive limit values are applicable at all locations except:

- Where members of the public do not have access and there is no fixed habitation;
- On factory premises or at industrial installations to which all relevant provisions concerning health and safety at work apply; and

[1] Defra, 2009, Local Air Quality Management Technical Guidance LAQM.TG(09).

- On the carriageway of roads; and on the central reservations of roads except where there is normally pedestrian access.

Assessment Criteria

2.2.5 The NAQOs for NO_2 and PM_{10} set out in the Air Quality Regulations (England) 2000 and the Air Quality (England) (Amendment) Regulations 2002, are shown in **Table 2.1**.

Table 2.1: Nitrogen Dioxide and PM_{10} Objectives

Pollutant	Time Period	Objective
Nitrogen dioxide (NO_2)	1-hour mean	200µg/m^3 not to be exceeded more than 18 times a year
	Annual mean	40µg/m^3
Particulate matter (PM_{10})	24-hour mean	50µg/m^3 not to be exceeded more than 35 times a year
	Annual mean	40µg/m^3

2.2.6 The objectives for nitrogen dioxide and PM_{10} were to have been achieved by 2005 and 2004, respectively, and continue to apply in all future years thereafter. Analysis of long term monitoring data suggests that if the annual mean nitrogen dioxide concentration is less than 60µg/m^3 then the one-hour mean nitrogen dioxide objective is unlikely to be exceeded where road transport is the main source of pollution. This concentration has been used to screen whether the one-hour mean objective is likely to be achieved[2].

2.3 Planning Policy

National Policy

2.3.1 The National Planning Policy Framework (NPPF) was published in March 2012. This sets out the Government's planning policies for England and how they are expected to be applied. In relation to conserving and enhancing the natural environment, paragraph 109 states that:

"*The planning system should contribute to and enhance the natural and local environment by…. preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability.*"

2.3.2 Paragraph 124, also states that:

"Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan."

2.3.3 Paragraph 203 goes on to say:

"Local planning authorities should consider whether otherwise unacceptable development could be made acceptable through the use of conditions or planning obligations. Planning obligations should only be used where it is not possible to address unacceptable impacts through a planning condition."

[2] Defra, 2009. Local Air Quality Management Technical Guidance LAQM.TG(09).

National Planning Practice Guidance (NPPG)

2.3.4 NPPG was published and updated in March 2014 to support the NPPF. Section 1 of the NPPG provides a summary as to why air quality is a consideration for planning:

"…Defra carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with EU Limit Values. It is important that the potential impact of new development on air quality is taken into account in planning where the national assessment indicates that relevant limits have been exceeded or are near the limit….The local air quality management (LAQM) regime requires every district and unitary authority to regularly review and assess air quality in their area. These reviews identify whether national objectives have been, or will be, achieved at relevant locations, by an applicable date….If national objectives are not met, or at risk of not being met, the local authority concerned must declare an air quality management area and prepare an air quality action plan…..Air quality can also affect biodiversity and may therefore impact on our international obligations under the Habitats Directive…..Odour and dust can also be a planning concern, for example, because of the effect on local amenity."

2.3.5 Section 2 of the NPPG concerns the role of Local Plans with regard to air quality:

"….Drawing on the review of air quality carried out for the local air quality management regime, the Local Plan may need to consider:

- *the potential cumulative impact of a number of smaller developments on air quality as well as the effect of more substantial developments;*
- *the impact of point sources of air pollution..; and*
- *ways in which new development would be appropriate in locations where air quality is or likely to be a concern and not give rise to unacceptable risks from pollution. This could be through, for example, identifying measures for offsetting the impact on air quality arising from new development including supporting measures in an air quality action plan or low emissions strategy where applicable."*

2.3.6 Section 5 of the NPPG identifies when air quality could be relevant for a planning decision:

"….When deciding whether air quality is relevant to a planning application, considerations could include whether the development would:

- *Significantly affect traffic in the immediate vicinity of the proposed development site or further afield. This could be by generating or increasing traffic congestion; significantly changing traffic volumes, vehicle speed or both; or significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal involves the development of a bus station, coach or lorry park; adds to turnover in a large car park; or result in construction sites that would generate large Heavy Goods Vehicle flows over a period of a year or more.*
- *Introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; or extraction systems (including chimneys) which require approval under pollution control legislation or biomass boilers or biomass-fuelled CHP plant; centralised boilers or CHP plant burning other fuels within or close to an air quality management area or introduce relevant combustion within a Smoke Control Area;*
- *Expose people to existing sources of air pollutants. This could be by building new homes, workplaces or other development in places with poor air quality.*

- *Give rise to potentially unacceptable impact (such as dust) during construction for nearby sensitive locations.*

  Affect biodiversity. In particular, is it likely to result in deposition or concentration of pollutants that significantly affect a European-designated wildlife site, and is not directly connected with or necessary to the management of the site, or does it otherwise affect biodiversity, particularly designated wildlife sites."

2.3.7 Section 7 of the NPPG provides guidance on how detailed an assessment needs to be:

"Assessments should be proportionate to the nature and scale of development proposed and the level of concern about air quality, and because of this are likely to be locationally specific."

2.3.8 Section 8 of the NPPG provides guidance on how an impact on air quality can be mitigated:

"Mitigation options where necessary will be locationally specific, will depend on the proposed development and should be proportionate to the likely impact….Examples of mitigation include:

- *the design and layout of development to increase separation distances from sources of air pollution;*
- *using green infrastructure, in particular trees, to absorb dust and other pollutants;*
- *means of ventilation;*
- *promoting infrastructure to promote modes of transport with low impact on air quality;*
- *controlling dust and emissions from construction, operation and demolition; and*
- *contributing funding to measures, including those identified in air quality action plans and low emission strategies, designed to offset the impact on air quality arising from new development."*

2.3.9 Section 9 of the NPPG provides guidance on how considerations about air quality fit into the development management process by means of a flowchart. The final two stages in the process deal with the results of the assessment:

"Will the proposed development (including mitigation) lead to an unacceptable risk from air pollution, prevent sustained compliance with EU limit values or national objectives for pollutants or fail to comply with the requirements of the Habitats Regulations." If Yes:

"Consider how proposal could be amended to make it acceptable or, where not practicable, consider (our emphasis) *whether planning permission should be refused."*

Local Policy

2.3.10 The Cherwell Local Plan[3], adopted in 1996, sets out the local development policies for the Council. The Plan does not contain any specific policies relating to air quality, however, Policy ENV1 states:

"Development which is likely to cause materially detrimental levels of noise, vibration, smell, smoke fumes or other types of environmental pollution will not be permitted.

[3] Available at: http://www.cherwell.gov.uk/index.cfm?articleid=1720

The Council will seek to ensure that the amenities of the environment, and in particular the amenities of residential properties, are not unduly affected by development proposals which may cause environmental pollution, including that caused by traffic generation."

2.3.11 The new Cherwell Local Plan (2011 – 2031) submitted in January 2014 will (upon its adoption) set out broadly the long term spatial vision for the District. It considers Policy ESD 10 'Protection and Enhancement of Biodiversity and the Natural Environment', which states:

"Protection and enhancement of biodiversity and the natural environment will be achieved by the following:…Air quality assessments will also be required for development proposals that would significantly adversely impact on biodiversity by generating an increase in air pollution"

2.3.12 A Draft Planning Obligations SPD provides guidance on the level of contribution which will be required in order to compensate for loss or damage created by a development, or to mitigate a development's impact. It sets out the range of mitigation measures which may be required, as well as the means of calculating financial contributions towards measures or monitoring, based on the cost of Air Quality Action Plan measures. CDC has resolved to declare an AQMA at Bicester Road, Kidlington. To date, Cherwell District Council has not prepared an Air Quality Action Plan for its existing AQMAs (Hennef Way and North Bar/Horse Fair/South Bar Street).

3 Methodology

3.1 Existing Conditions

3.1.1 Information on existing air quality has been obtained by collating the results of monitoring carried out by Cherwell District Council (CDC). Background concentrations for the site have been defined using the national pollution maps published by Defra. These cover the whole country on a 1x1 km grid[4].

3.2 Road Traffic Impacts

3.2.1 Environmental Protection UK (EPUK) has published the 'Development Control: Planning for Air Quality (2010 Update)' guidance, which sets out the following criteria for requiring an air quality assessment:

"*Proposals that will give rise to a significant change in either traffic volumes, typically a change in annual average daily traffic (AADT) or peak traffic flows of greater than ±5% or ±10%, depending on local circumstances (a change of ±5% will be appropriate for traffic flows within an AQMA), or in vehicle speed (typically of more than ±10 kph), or both, usually on a road with more than 10,000 AADT (5,000 if 'narrow and congested')*"

3.2.2 Outside of an AQMA, a development would need to increase traffic flows by a minimum of 1,000 vehicles a day (10% of 10,000) before the change is considered significant, and an air quality assessment is required.

3.2.3 Traffic flows generated by the development proposals have been provided by the PBA transport team.

[4] http://laqm.defra.gov.uk/maps/maps2010.html

4 Existing Air Quality

4.1 LAQM

4.1.1 CDC and West Oxfordshire District Council (WODC) have investigated air quality within its area as part of its responsibilities under the LAQM regime. To date, two Air Quality Management Areas (AQMAs) have been declared within CDC. CDC has resolved to declare an AQMA along Bicester Road, Kidlington. It is approximately 2.3km from the proposed development site.

4.2 Monitoring

Nitrogen Dioxide

4.2.1 CDC and WODC operate automatic monitoring stations which are outside of the study area for this assessment. The Councils also deploys nitrogen dioxide diffusion tubes at a number of locations (**Figure 1**). Data for the nearest monitoring sites are presented in **Table 4.1.**

Table 4.1: Measured Nitrogen Dioxide Concentrations, 2009 - 2013

Site ID	Site Type	Within AQMA	Annual Mean (µg/m^3)				
			2009	2010	2011	2012	2013
Cherwell District Council							
Oxford Road	Roadside	N	33.8	**42.1**	34.1	32.4	31.3
[a]Bicester Road	Roadside	N	**45.0**	**47.5**	**45.7**	**44.9**	-
[b]Water Eaton Lane	Kerbside	N	-	-	-	-	29.1
[b]Bramley Close	Kerbside	N	-	-	-	-	29.5
[b]Bicester Road South	Kerbside	N	-	-	-	-	28.1
West Oxfordshire District Council							
Grove Road, (N) Blandon	Roadside	N	31.1	31.3	27.8	26.1	25.8
Objective			**40**				

Exceedances highlighted in bold.
Data taken from the 2014 Air Quality Progress Report Cherwell District Council.
[a] Stop operating in 2012
[b] Start operating in 2013.

4.2.2 The measured concentrations of nitrogen dioxide were below the objective at the majority of the monitoring locations except for the Bicester Road locations where concentrations exceeded the objective over the 2009 – 2012 time period.

Particulates

4.2.3 There is no PM_{10} monitoring carried out in close proximity to the site.

4.3 Background Concentrations

4.3.1 In addition to measured concentrations, estimated background concentrations for the site have been obtained from the national maps published by Defra (**Table 4.2**). The background concentrations are all well below the relevant objectives in 2013.

Table 4.2: Estimated Annual Mean Background Concentrations in 2013 (µg/m^3)

Year	NO_x	NO_2	PM_{10}
2013	20.9	14.7	17.7
Objective	**-**	**40**	**40**

4.3.2 Due to improvements in vehicles technology and energy efficiency, background concentrations are predicted to reduce in the future.

5 Impact Assessment

5.1 Road Traffic Impacts

5.1.1 Future traffic generation on completion of Phase 1 of the development in 2021 and on completion of the whole development in 2025 are presented in **Table 5.1.**

Table 5.1: Traffic Generation brought about by development Phase 1 in 2021 and on completion of the proposed development in 2025

Road	2021 Development Traffic Phase 1	2025 Development Traffic Phase 1 + Phase 2
A44 Woodstock Road	600	775
Bicester Road (towards Frieze Way)	36	46
Bicester Road (Gosford Bridge)	219	284
Langford Lane (Site Access)	2, 217	2,864

5.1.2 The traffic generation for the proposed development is less than the thresholds presented in **Section 3.2** at the majority at the roads except for Langford Lane (Site access) where the development traffic generation is above the threshold of 1,000 vehicles a day.

5.1.3 The total traffic on Langford lane is predicted to be approximately 13,500 vehicles in 2021 and 15,300 vehicles in 2025. Background concentrations in the area are very low and are anticipated to reduce in the future, and therefore exceedences at receptors on Langford Lane are unlikely to occur.

5.1.4 The predicted development traffic on the A44 Woodstock Road towards Oxford is above the threshold but will disperse at the Peartree Roundabout. The development traffic will therefore not significantly affect the City of Oxford AQMA.

5.1.5 The development traffic at Bicester Road (Gosford Bridge) is predicted to be below the threshold of 500 vehicles a day for an AQMA. A significant impact on the AQMA is unlikely, especially considering the timeframe over which the development will occur.

6 Mitigation

6.1.1 The assessment has demonstrated that changes in traffic associated with the proposed development are below thresholds defined within the EPUK at the majority of the roads assessed. Overall, air quality impacts are considered to be insignificant. Therefore, no additional traffic mitigation should be required.

7 Conclusions

7.1.1 The proposed development will lead to an insignificant increase in emissions on the local road network, especially within the Bicester Road AQMA. Overall, it is concluded that there are no air quality constraints to the proposed development.

Appendix A Glossary

Appendix A: Glossary

AADT	Annual Average Daily Traffic
AQMA	Air Quality Management Area
Diffusion Tube	A passive sampler used for collecting NO_2 in the air
HDV	Heavy Duty Vehicle; a vehicle with a gross vehicle weight greater than 3.5 tonnes Includes HGVs and buses
LAQM	Local Air Quality Management
LDV	Light Duty Vehicle
NAQO	National Air Quality Objective as set out in the Air Quality Strategy and the Air Quality Regulations
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxides, generally considered to be nitric oxide and NO_2. Its main source is from combustion of fossil fuels, including petrol and diesel used in road vehicles
PM_{10}	Small airborne particles less than 10μm in diameter
Receptor	A location where the effects of pollution may occur
TEA	Triethanolamine

Appendix B References

Appendix B: References

Department of the Environment, Food and Rural Affairs (Defra) (2014). *2011 Based Background Maps for NO_x, NO_2, PM_{10} and $PM_{2.5}$.* Available:http://uk-air.defra.gov.uk/data/laqm-background-maps?year=2011.

Department of the Environment, Food and Rural Affairs (Defra) in partnership with the Scottish Executive, The National Assembly for Wales and the Department of the Environment for Northern Ireland (2009). *Local Air Quality Management Technical Guidance, LAQM.TG(09).* HMSO, London.

Department of the Environment, Transport and the Regions (DETR, 2007) in Partnership with the Welsh Office, Scottish Office and Department of the Environment for Northern Ireland (2007). *The Air Quality Strategy for England, Scotland, Wales, Northern Ireland*, HMSO, London.

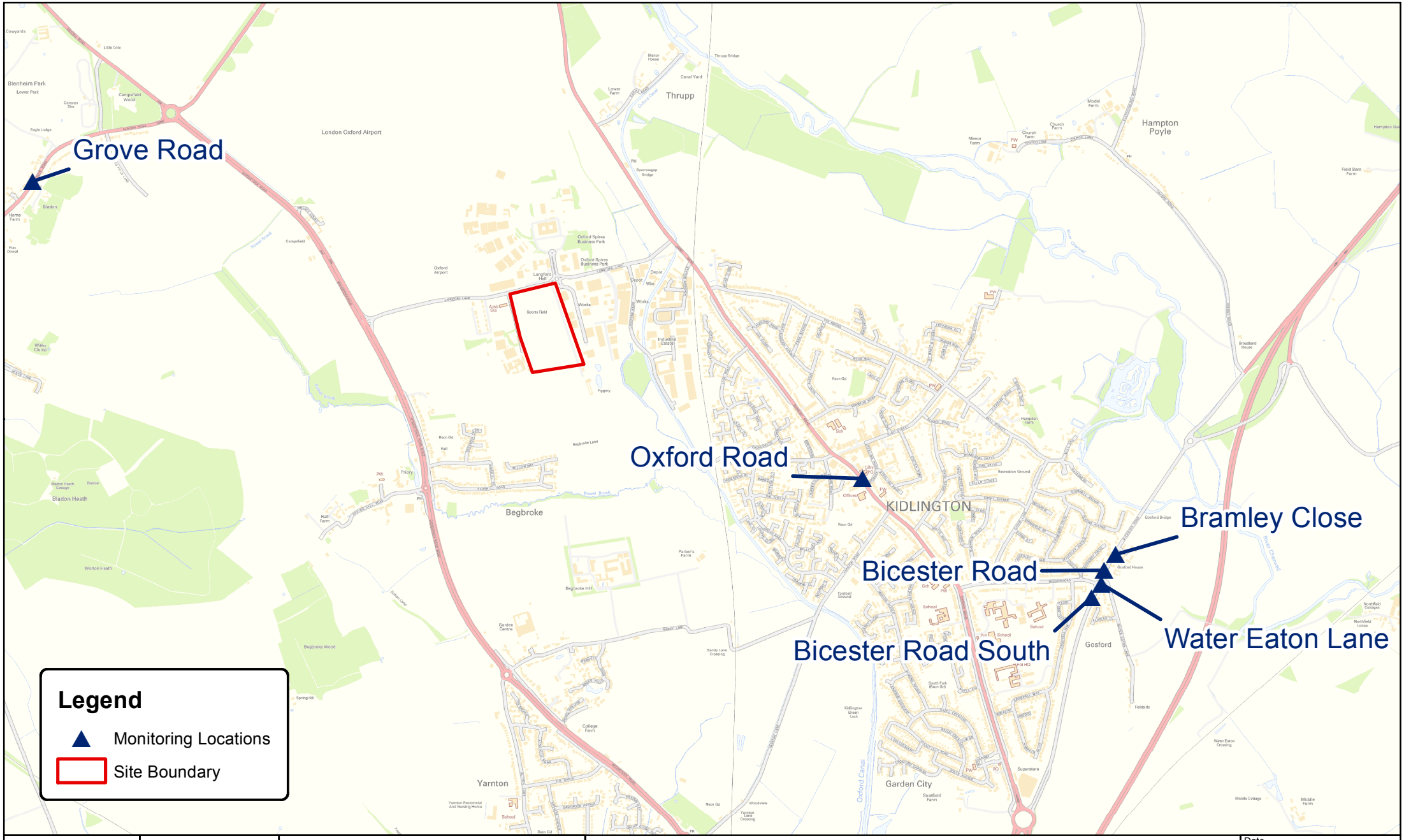
Environmental Act 1995, Part IV.

Statutory Instrument 2000, No 921, *The Air Quality (England) Regulations 2000*, HMSO, London.

Statutory Instrument 2002, No 3034, *The Air Quality (England) (Amendment) Regulations 2002*, HMSO, London.

Statutory Instrument 2007, No. 64, *The Air Quality Standards Regulations 2007*, HMSO, London.

Appendix C Figures



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Client

Hill Street Holdings Ltd

0 0.375 0.75 Kilometers

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Oxford Technology Park

Site Boundary and Monitoring Locations

Date	10/12/2014
Scale	1:22,850 @ A4
Drawn By	YO
Checked By	GH
Revision Number	1
Figure Number	**Figure 1**

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